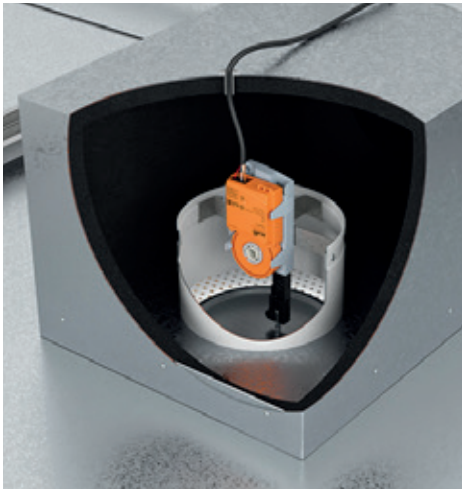




**Exceptional  
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Edition 2023

  
**BELIMO®**





## Air damper actuators

### Motorisation of dampers in ventilation and air-conditioning systems

|                                                     |                                                                                          |       |
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# Rotary actuators non fail-safe



| Actuator type                              |                                                                                     | Nominal torque <sup>1)</sup> | Shaft diameter | Damper size<br>up to approx. <sup>1)</sup> | Page  |
|--------------------------------------------|-------------------------------------------------------------------------------------|------------------------------|----------------|--------------------------------------------|-------|
| Rotary actuators with connector plug       |                                                                                     |                              |                |                                            | 20    |
| UM..                                       |    | 1 Nm                         | 6...12.7 mm    | ■ 0.2 m²                                   |       |
| Rotary actuators with connecting cable     |                                                                                     |                              |                |                                            | 21-22 |
| CM..                                       |    | 2 Nm                         | 6...12.7 mm    | ■ 0.4 m²                                   |       |
| LM..A.. +<br>VLM..A..                      |   | 5 Nm                         | 6...20 mm      | ■ 1 m²                                     |       |
| NM..A..+<br>VNM..A..                       |  | 10 Nm                        | 8...26.7 mm    | ■ 2 m²                                     |       |
| SM..A..+<br>VSM..A..                       |  | 20 Nm                        | 10...20 mm     | ■ 4 m²                                     |       |
| GM..A..+<br>VGM..A..                       |  | 40 Nm                        | 12...26.7 mm   | ■ 8 m²                                     |       |
| Rotary actuators with connecting terminals |                                                                                     |                              |                |                                            | 23-24 |
| CM..                                       |  | 2 Nm                         | 6...12.7 mm    | ■ 0.4 m²                                   |       |
| LM..A..                                    |  | 5 Nm                         | 6...20 mm      | ■ 1 m²                                     |       |
| NM..A..                                    |  | 10 Nm                        | 8...26.7 mm    | ■ 2 m²                                     |       |
| SM..A..                                    |  | 20 Nm                        | 10...20 mm     | ■ 4 m²                                     |       |
| GM..A..                                    |  | 40 Nm                        | 12...26.7 mm   | ■ 8 m²                                     |       |

Use of damper actuators from Belimo: the actuators listed in this documentation are designed for adjusting dampers in technical building installations.  
<sup>1)</sup> When calculating the torque or actuating force required to operate air dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, place of installation and airflow conditions. The recommended damper sizes are guidelines.

# Linear actuators non fail-safe



| Actuator type                                                 |                                                                                     | Actuating force | Stroke range | Damper size<br>up to approx. <sup>1)</sup> | Page  |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------|--------------|--------------------------------------------|-------|
| Linear actuators with connector plug                          |                                                                                     |                 |              |                                            | 25    |
| UH..                                                          |    | 50 N            | 0...60 mm    | ■ 0.2 m²                                   |       |
| Linear actuators with connecting cable / connecting terminals |                                                                                     |                 |              |                                            | 25–26 |
| CH..                                                          |    | 125 N           | 0...100 mm   | ■ 0.8 m²                                   |       |
| LH..A..                                                       |   | 150 N           | 0...300 mm   | ■ 1 m²                                     |       |
| SH..A..                                                       |  | 450 N           | 0...300 mm   | ■ 3 m²                                     |       |

Use of damper actuators from Belimo: the actuators listed in this documentation are designed for adjusting dampers in technical building installations.  
<sup>1)</sup> When calculating the torque or actuating force required to operate air dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, place of installation and airflow conditions. The recommended damper sizes are guidelines.

# Rotary actuators, fail-safe



| Actuator type                      |                                                                                     | Fail-safe | Nominal torque <sup>1)</sup> | Shaft diameter | Damper size up to approx. <sup>1)</sup> | Page  |
|------------------------------------|-------------------------------------------------------------------------------------|-----------|------------------------------|----------------|-----------------------------------------|-------|
| Rotary actuators                   |                                                                                     |           |                              |                |                                         | 27–30 |
| TF..                               |    | ■         | 2.5 Nm                       | 6...12.7 mm    | ■ 0.5 m²                                |       |
| LF..                               |    | ■         | 4 Nm                         | 8...16 mm      | ■ 0.8 m²                                |       |
| NF..A..                            |   | ■         | 10 Nm                        | 10...25.4 mm   | ■ 2 m²                                  |       |
| SF..A..+ VSF..LP1                  |  | ■         | 20 Nm                        | 10...25.4 mm   | ■ 4 m²                                  |       |
| EF..A..                            |  | ■         | 30 Nm                        | 12...26.7 mm   | ■ 6 m²                                  |       |
| GK..A..                            |  | ■         | 40 Nm                        | 12...26.7 mm   | ■ 8 m²                                  |       |
| SKM230.. + CM24K..                 |  | ■         | 2 Nm                         | 6...12.7 mm    | ■ 0.4 m²                                |       |
| Very fast running rotary actuators |                                                                                     |           |                              |                |                                         | 30    |
| NKQ..A..                           |  | ■         | 6 Nm                         | 8...26.7 mm    | ■ 1.2 m²                                |       |

Use of damper actuators from BELIMO: the actuators listed in this documentation are designed for adjusting dampers in technical building installations.  
<sup>1)</sup> When calculating the torque or actuating force required to operate air dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, place of installation and airflow conditions. The recommended damper sizes are guidelines.

# Special actuators non fail-safe



| Actuator type                      |                                                                                     | Nominal torque <sup>1)</sup> | Actuating force | Stroke range | Shaft diameter | Damper size<br>up to approx. <sup>1)</sup> | Page |
|------------------------------------|-------------------------------------------------------------------------------------|------------------------------|-----------------|--------------|----------------|--------------------------------------------|------|
| Fast running rotary actuators      |                                                                                     |                              |                 |              |                |                                            | 31   |
| TMC..A..                           |    | 2 Nm                         |                 |              | 6...20 mm      | ■ 0.4 m²                                   |      |
| LMC..A..                           |    | 5 Nm                         |                 |              | 6...20 mm      | ■ 1 m²                                     |      |
| NMC..A..                           |   | 10 Nm                        |                 |              | 8...26.7 mm    | ■ 2 m²                                     |      |
| SMC..A..                           |  | 20 Nm                        |                 |              | 10...20 mm     | ■ 4 m²                                     |      |
| GMC..A..                           |  | 40 Nm                        |                 |              | 12...26.7 mm   | ■ 8 m²                                     |      |
| Very fast running rotary actuators |                                                                                     |                              |                 |              |                |                                            | 32   |
| LMQ..A..                           |  | 4 Nm                         |                 |              | 8...26.7 mm    | ■ 0.8 m²                                   |      |
| NMQ..A..                           |  | 8 Nm                         |                 |              | 8...26.7 mm    | ■ 1.5 m²                                   |      |
| NMD..A..                           |  | 8 Nm                         |                 |              | 10...20 mm     | ■ 1.5 m²                                   |      |
| SMQ..A..                           |  | 16 Nm                        |                 |              | 12...26.7 mm   | ■ 3.2 m²                                   |      |
| SMD..A..                           |  | 16 Nm                        |                 |              | 10...20 mm     | ■ 3.2 m²                                   |      |
| Very fast running linear actuators |                                                                                     |                              |                 |              |                |                                            | 33   |
| LHQ..A..                           |  |                              | 100 N           | 0...100 mm   |                | ■ 0.7 m²                                   |      |
| SHQ..A..                           |  |                              | 200 N           | 0...100 mm   |                | ■ 1.3 m²                                   |      |

Use of damper actuators from Belimo: the actuators listed in this documentation are designed for adjusting dampers in technical building installations.  
<sup>1)</sup> When calculating the torque or actuating force required to operate air dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, place of installation and airflow conditions. The recommended damper sizes are guidelines.

# Special actuators non fail-safe / fail-safe



| Actuator type                                                                          |                                                                                     | Fail-safe | Nominal torque <sup>1)</sup> | Shaft diameter | Damper size<br>up to approx. <sup>1)</sup>                                                   | Page  |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|------------------------------|----------------|----------------------------------------------------------------------------------------------|-------|
| RobustLine rotary actuators for extreme conditions, non fail-safe / fail-safe          |                                                                                     |           |                              |                |                                                                                              | 34    |
| NM..P..                                                                                |    |           | 10 Nm                        | 10...20 mm     |  2 m²     |       |
| SM..P..                                                                                |    |           | 20 Nm                        | 14...20 mm     |  4 m²     |       |
| NKQ..P..                                                                               |   | ■         | 6 Nm                         | 10...20 mm     |  1.2 m²   |       |
| IP66 / 67 NEMA 4X rotary actuators for outdoor applications, non fail-safe / fail-safe |                                                                                     |           |                              |                |                                                                                              | 35-36 |
| SMQ..G..                                                                               |  |           | 16 Nm                        | 12...26.7 mm   |  3.2 m² |       |
| GM..G..                                                                                |  |           | 40 Nm                        | 14...26.7 mm   |  8 m²   |       |
| NF..G..                                                                                |  | ■         | 10 Nm                        | 12...26.7 mm   |  2 m²   |       |
| SF..G..                                                                                |  | ■         | 20 Nm                        | 12...26.7 mm   |  4 m²   |       |
| GK..G..                                                                                |  | ■         | 40 Nm                        | 14...26.7 mm   |  8 m²   |       |

Use of damper actuators from Belimo: the actuators listed in this documentation are designed for adjusting dampers in technical building installations.  
<sup>1)</sup> When calculating the torque or actuating force required to operate air dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, place of installation and airflow conditions. The recommended damper sizes are guidelines.

# Special actuators / RetroFIT actuators, non fail-safe / fail-safe



| Actuator type                     |                                                                                   | Fail-safe | Nominal torque <sup>1)</sup> | Form fit | Damper size | Page |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------|------------------------------|----------|-------------|------|
| Rotary actuators with high torque |                                                                                   |           |                              |          |             | 37   |
| PMCA..                            |  |           | 160 Nm                       | 17x17 mm | Special     |      |
| PKCA..                            |  | ■         | 160 Nm                       | 17x17 mm | Special     |      |

| Actuator type               |                                                                                     | Nominal torque <sup>1)</sup> | Damper blade diameter | Pipe diameter in accordance with DIN EN 1506 | Page |
|-----------------------------|-------------------------------------------------------------------------------------|------------------------------|-----------------------|----------------------------------------------|------|
| Actuators with damper blade |                                                                                     |                              |                       |                                              | 38   |
| CM..D                       |  | 2 Nm                         | 100...160 mm          | DN 100...160                                 |      |

| Actuator type                                             |                                                                                     | Nominal torque <sup>1)</sup> | Shaft diameter | Control                           | Damper size up to approx. <sup>1)</sup>                                                    | Page |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------|----------------|-----------------------------------|--------------------------------------------------------------------------------------------|------|
| Parametrisable rotary actuators with connecting terminals |                                                                                     |                              |                |                                   |                                                                                            | 39   |
| LM..A..                                                   |  | 5 Nm                         | 6...20 mm      | modulating 2...10 V <sup>2)</sup> |  1 m² |      |
| NM..A..                                                   |  | 10 Nm                        | 8...26.7 mm    | modulating 2...10 V <sup>2)</sup> |  2 m² |      |
| SM..A..                                                   |  | 20 Nm                        | 10...20 mm     | modulating 2...10 V <sup>2)</sup> |  4 m² |      |
| GM..A..                                                   |  | 40 Nm                        | 12...26.7 mm   | modulating 2...10 V <sup>2)</sup> |  8 m² |      |

Use of damper actuators from Belimo: the actuators listed in this documentation are designed for adjusting dampers in technical building installations.  
<sup>1)</sup> When calculating the torque or actuating force required to operate air dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, place of installation and airflow conditions. The recommended damper sizes are guidelines.  
<sup>2)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set)

# RetrofFIT actuators non fail-safe / configuration options



| Actuator type                                                             |                                                                                     | Nominal torque <sup>1)</sup> | Actuating force | Stroke range | Shaft diameter | Control                               | Damper size up to approx. <sup>1)</sup>                                                    | Page  |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------|-----------------|--------------|----------------|---------------------------------------|--------------------------------------------------------------------------------------------|-------|
| Parametrisable rotary actuators with special control and connecting cable |                                                                                     |                              |                 |              |                |                                       |                                                                                            | 40    |
| SM24A-MA                                                                  |    | 20 Nm                        |                 |              | 10...20 mm     | modulating 4...20 mA <sup>2)</sup>    |  4 m²   |       |
| SM24A-PC                                                                  |    | 20 Nm                        |                 |              | 10...20 mm     | modulating 0...20 V PhC <sup>3)</sup> |  4 m²   |       |
| SM24A-R9                                                                  |   | 20 Nm                        |                 |              | 10...20 mm     | modulating 0...135 Ω <sup>3)</sup>    |  4 m²   |       |
| Parametrisable linear actuators with connecting terminals                 |                                                                                     |                              |                 |              |                |                                       |                                                                                            | 41    |
| LH..A..                                                                   |  |                              | 150 N           | 0...300 mm   |                | modulating 2...10 V <sup>2)</sup>     |  1 m² |       |
| Configuration options                                                     |                                                                                     |                              |                 |              |                |                                       |                                                                                            | 42-43 |

Use of damper actuators from Belimo: the actuators listed in this documentation are designed for adjusting dampers in technical building installations.

<sup>1)</sup> When calculating the torque or actuating force required to operate air dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, place of installation and airflow conditions. The recommended damper sizes are guidelines.

<sup>2)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).

<sup>3)</sup> Running time and other functions are adjustable with PC-Tool or Service tool ZTH EU.

## Bus solutions from Belimo, save costs and energy!



Bus systems can be used to exchange any volume of data from various bus participants over the same physical lines. The user has unrestricted access to control, feedback and parameters on the individual devices. Cabling expenditures are reduced by up to 90% compared with actuators with conventional wiring.

Thanks to time and material savings (cables, connecting terminals, connectors, etc.), installation work is simpler and cheaper. Additional positive selling points for bus solutions include their lower fire load and the fact that they take up less space in cable trays and control cabinets. Depending on the application and requirements, different bus systems are used.

One or two sensors can also be connected to most communicative actuators. This may be a passive resistance sensor (Pt1000, Ni1000, NTC, etc.), an active sensor (e.g. with a DC 0...10 V output) or a switching contact. Its signals are digitised in the Belimo actuator and transferred to the higher-level bus system.



The Belimo MP-Bus was specially developed as a single-client/multi-server system for HVAC actuators and sensors. It allows up to eight different HVAC performance devices to be grouped together and connected to any higher-level system. It is very resistant to external interferences and does not need bus terminals.



Modbus is a communication protocol, which has become the de-facto standard. It is used commonly all around the globe and in a huge range of applications. Its simple implementation makes Modbus very popular with many manufacturers.



BACnet is a proven, widely used communication protocol for building automation. The standard is open, requires no licence and is used by a large number of international providers, universities and associations. Implementing the BACnet Standard Device Profiles and the associated BACnet Interoperability Building Blocks guarantees genuine compatibility between various BACnet devices.



KNX is a well-engineered building automation system used around the world to control systems spanning several maintenance groups, such as heaters, blinds and security technology in buildings. The KNX-certified actuators enable direct connection to the KNX network. Communication takes place via the integrated KNX interface (TP, S-Mode).



IoT actuators with Ethernet interface can exchange operating and setting data with Belimo Cloud. It is controlled locally via an analogue signal or BACnet/Modbus. Thanks to the open client API of the Belimo Cloud, a connection to a specific cloud solution can be implemented.

Non fail-safe actuators



|                                                    |                                                                                     | Rotary actuators                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | Linear actuators                                                                    |                                                                                     |                                                                                     |                                                                                     |
|----------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                    |                                                                                     | UM..                                                                              | CM..                                                                              | LM..A.. +<br>VLM..A..                                                             | NM..A.. +<br>VNM..A..                                                             | SM..A.. +<br>VSM..A..                                                             | GM..A.. +<br>VGM..A..                                                              | UH..                                                                                | CH..                                                                                | LH..A..                                                                             | SH..A..                                                                             |
|                                                    |                                                                                     |  |  |  |  |  |  |  |  |  |  |
| Mechanical accessories                             |                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Shaft extension                                    |    |                                                                                   | AV6-20                                                                            | AV6-20                                                                            | AV8-25                                                                            | AV8-25<br>AV12-25-I                                                               |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| End stop kit,<br>rotary support,<br>coupling piece |    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | Z-AS2<br>Z-DS1<br>Z-KS2                                                             | Z-AS2<br>Z-DS1<br>Z-KS2                                                             | Z-AS1<br>Z-DS1<br>Z-KS1                                                             |
| Baseplate<br>extension                             |    |                                                                                   |                                                                                   |                                                                                   | Z-NMA                                                                             | Z-SMA                                                                             | Z-GMA                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Angle of rotation<br>limiter                       |    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| End stop clips                                     |   | Z-ESUM                                                                            | Z-ESCM                                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | Z-ESCM                                                                              |                                                                                     |                                                                                     |
| End stop                                           |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | Z-ESUH                                                                              |                                                                                     |                                                                                     |                                                                                     |
| Spring clip                                        |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | Z-FKCH                                                                              |                                                                                     |                                                                                     |
| Form fit inserts <sup>1)</sup>                     |  |                                                                                   |                                                                                   | ZF..-LMA<br>ZFRL..-LMA                                                            | ZF..-NSA<br>ZF8-NMA                                                               | ZF..-NSA                                                                          |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Gear train<br>disengagement<br>magnet              |  |                                                                                   | Z-MA                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     | Z-MA                                                                                |                                                                                     |                                                                                     |
| Lever for actuator<br>drive shafts                 |  |                                                                                   |                                                                                   |                                                                                   | AH-20 <sup>2)</sup><br>AH-25                                                      | AH-20<br>AH-25 <sup>3)</sup>                                                      | AH-GMA                                                                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lever for damper<br>shafts                         |  |                                                                                   |                                                                                   |                                                                                   | KH8                                                                               | KH8                                                                               | KH10                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Shaft clamp,<br>one-side                           |  |                                                                                   |                                                                                   | K-ELA..                                                                           | K-ENMA<br>K-ENSA                                                                  | K-ENSA<br>K-ENSA-I                                                                |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Shaft clamp,<br>reversible                         |  |                                                                                   |                                                                                   |                                                                                   | K-NA                                                                              | K-SA                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ball joints                                        |  |                                                                                   |                                                                                   |                                                                                   | KG8<br>KG10A                                                                      | KG8<br>KG10A                                                                      | KG10A                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Mounting kit for<br>linkage operation              |  |                                                                                   |                                                                                   |                                                                                   | ZG-NMA                                                                            | ZG-SMA                                                                            | ZG-GMA                                                                             |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Position indicator                                 |  |                                                                                   | Z-PICM                                                                            | Z-PI                                                                              | Z-PI                                                                              | Z-PI                                                                              | Z-PI                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Anti-rotation clip                                 |  | Z-ARCM                                                                            | Z-ARCM                                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protective covering                                |  | Z-PCUM                                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | Z-PCUM                                                                              |                                                                                     |                                                                                     |                                                                                     |

<sup>1)</sup> Form fit inserts: LM..A..: 8x8 mm, 10x10 mm, 12x12 mm; NM..A..: 8x8 mm (ZF8-NMA); NM..A.. / SM..A..: 10x10 mm, 12x12 mm, 15x15 mm, 16x16 mm.  
<sup>2)</sup> Only in combination with reversible shaft clamp K-NA.  
<sup>3)</sup> Only in combination with one-sided shaft clamp K-ENSA.

Non fail-safe actuators



|                                                                |                                                                                     | Rotary actuators                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | Linear actuators                                                                    |                                                                                     |                                                                                     |                                                                                     |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                |                                                                                     | UM..                                                                              | CM..                                                                              | LM..A.. +<br>VLM..A..                                                             | NM..A.. +<br>VNM..A.. +                                                           | SM..A.. +<br>VSM..A..                                                             | GM..A.. +<br>VGM..A..                                                              | UH..                                                                                | CH..                                                                                | LH..A..                                                                             | SH..A..                                                                             |
|                                                                |                                                                                     |  |  |  |  |  |  |  |  |  |  |
| Electrical accessories                                         |                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Auxiliary switches                                             |    |                                                                                   |                                                                                   | S1A<br>S2A                                                                        | S1A<br>S2A                                                                        | S1A<br>S2A                                                                        | S1A<br>S2A                                                                         |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Room temperature controller for modulating actuators           |    | CR24..                                                                            | CR24..                                                                            | CR24..                                                                            | CR24..                                                                            | CR24..                                                                            | CR24..                                                                             | CR24..                                                                              | CR24..                                                                              | CR24..                                                                              | CR24..                                                                              |
| Feedback potentiometer                                         |    |                                                                                   |                                                                                   | P..A <sup>1)</sup>                                                                | P..A <sup>1)</sup>                                                                | P..A <sup>1)</sup>                                                                | P..A <sup>1)</sup>                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Signal converter voltage/current for modulating actuators      |    | Z-UIC                                                                             | Z-UIC                                                                             | Z-UIC                                                                             | Z-UIC                                                                             | Z-UIC                                                                             | Z-UIC                                                                              | Z-UIC                                                                               | Z-UIC                                                                               | Z-UIC                                                                               | Z-UIC                                                                               |
| Positioner/<br>range controller<br>for modulating<br>actuators |  | CRP24-B1                                                                          | CRP24-B1                                                                          | CRP24-B1                                                                          | CRP24-B1                                                                          | CRP24-B1                                                                          | CRP24-B1                                                                           | CRP24-B1                                                                            | CRP24-B1                                                                            | CRP24-B1                                                                            | CRP24-B1                                                                            |
|                                                                |                                                                                     | SBG24                                                                             | SBG24                                                                             | SBG24                                                                             | SBG24                                                                             | SBG24                                                                             | SBG24                                                                              | SBG24                                                                               | SBG24                                                                               | SBG24                                                                               | SBG24                                                                               |
|                                                                |                                                                                     | SGA24                                                                             | SGA24                                                                             | SGA24                                                                             | SGA24                                                                             | SGA24                                                                             | SGA24                                                                              | SGA24                                                                               | SGA24                                                                               | SGA24                                                                               | SGA24                                                                               |
|                                                                |                                                                                     | SGE24                                                                             | SGE24                                                                             | SGE24                                                                             | SGE24                                                                             | SGE24                                                                             | SGE24                                                                              | SGE24                                                                               | SGE24                                                                               | SGE24                                                                               | SGE24                                                                               |
|                                                                |                                                                                     | SGF24                                                                             | SGF24                                                                             | SGF24                                                                             | SGF24                                                                             | SGF24                                                                             | SGF24                                                                              | SGF24                                                                               | SGF24                                                                               | SGF24                                                                               | SGF24                                                                               |
| Tools                                                          |                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Service Tool                                                   |  |                                                                                   |                                                                                   | ZTH EU <sup>2)</sup>                                                              | ZTH EU <sup>2)</sup>                                                              | ZTH EU <sup>2)</sup>                                                              | ZTH EU <sup>2)</sup>                                                               |                                                                                     |                                                                                     | ZTH EU <sup>2)</sup>                                                                | ZTH EU <sup>2)</sup>                                                                |

<sup>1)</sup> Resistance values 140 Ω, 200 Ω, 500 Ω, 1 kΩ, 2.8 kΩ, 5 kΩ, 10 kΩ available.  
<sup>2)</sup> For all ..-MP.. / ..-MA / ..-PC / ..-R9 actuators in the contracting and RetroFIT business.

Fail-safe actuators

|                                                            |                                                                                     | Rotary actuators                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                            |                                                                                     | TF..                                                                              | LF..                                                                              | NF..A..                                                                           | SF..A.. + VSF..LP1                                                                | EF..A..                                                                             | GK..A..                                                                             | SKM230.. + CM24K..                                                                  | NKQ..A..                                                                            |
|                                                            |                                                                                     |  |  |  |  |  |  |  |  |
| Mechanical accessories                                     |                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Shaft extension                                            |    | AV6-20                                                                            | AV6-20                                                                            | AV8-25                                                                            | AV8-25                                                                            |                                                                                     |                                                                                     | AV6-20                                                                              | AV8-25                                                                              |
| Adapter for auxiliary switches and feed-back potentiometer |    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | Z-SPA                                                                               |                                                                                     | Z-SPA                                                                               |
| End stop kit, rotary support, coupling piece               |    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Baseplate extension                                        |    |                                                                                   |                                                                                   | Z-SF                                                                              | Z-SF                                                                              |                                                                                     | Z-GMA                                                                               |                                                                                     |                                                                                     |
| Angle of rotation limiter                                  |   | ZDB-TF                                                                            | ZDB-TF                                                                            |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| End stop clips                                             |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Z-ESCM                                                                              |                                                                                     |
| Form fit inserts <sup>1)</sup>                             |  | ZF8-TF                                                                            | ZF8-TF                                                                            | ZF..-NSA-F                                                                        | ZF..-NSA-F                                                                        |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Manual override button magnet                              |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Z-MA                                                                                |                                                                                     |
| Lever for actuator drive shafts                            |  | AH-TF                                                                             | KH-LF                                                                             | KH-AFB                                                                            | KH-AFB                                                                            |                                                                                     | AH-GMA                                                                              |                                                                                     | AH-25                                                                               |
| Lever for damper shafts                                    |  | KH8                                                                               | KH8                                                                               | KH8                                                                               | KH8                                                                               | KH10<br>KH-EFB                                                                      | KH10                                                                                |                                                                                     | KH8                                                                                 |
| Shaft clamp, reversible                                    |  |                                                                                   | K6-1                                                                              | K7-2<br>K7-3                                                                      | K7-2<br>K7-3                                                                      | K9-2                                                                                |                                                                                     |                                                                                     | K-SA                                                                                |
| Ball joints                                                |  | KG8<br>KG10A                                                                      | KG8<br>KG10A                                                                      | KG8<br>KG10A                                                                      | KG8<br>KG10A                                                                      |                                                                                     | KG10A                                                                               |                                                                                     | KG8<br>KG10A                                                                        |
| Mounting sets for linkage actuation                        |  | ZG-TF1                                                                            | ZG-LF1<br>ZG-LF3                                                                  | ZG-AFB                                                                            | ZG-AFB                                                                            | ZG-EFB                                                                              | ZG-GMA                                                                              |                                                                                     | ZG-SMA                                                                              |
| Screw fastening kit                                        |  | SB-TF                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Position indicator                                         |  |                                                                                   |                                                                                   | IND-AFB                                                                           | IND-AFB                                                                           | IND-EFB                                                                             | Z-PI                                                                                | Z-PICM                                                                              | Z-PI                                                                                |
| Anti-rotation clip                                         |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Z-ARCM                                                                              |                                                                                     |

<sup>1)</sup> Form fit inserts: TF.. / LF..: 8x8 mm; NF.. / SF..: 10x10 mm, 12x12 mm, 15x15 mm, 16x16 mm.

Fail-safe actuators



|                                                                 |                                                                                     | Rotary actuators                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                 |                                                                                     | TF..                                                                              | LF..                                                                              | NF..A..                                                                           | SF..A.. +<br>VSF..LP1                                                             | EF..A..                                                                             | GK..A..                                                                             | SKM230.. +<br>CM24K..                                                               | NKQ..A..                                                                            |
|                                                                 |                                                                                     |  |  |  |  |  |  |  |  |
| Electrical accessories                                          |                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Auxiliary switches                                              |    |                                                                                   | S2A-F <sup>2)</sup>                                                               | S2A-F <sup>2)</sup>                                                               | S2A-F <sup>2)</sup>                                                               |                                                                                     | S1A <sup>4)</sup><br>S2A <sup>4)</sup>                                              |                                                                                     | S1A <sup>3)</sup><br>S2A <sup>3)</sup>                                              |
| Room temperature<br>controller for modu-<br>lating actuators    |    | CR24..                                                                            | CR24..                                                                            | CR24..                                                                            | CR24..                                                                            | CR24..                                                                              | CR24..                                                                              |                                                                                     | CR24                                                                                |
| Feedback poten-<br>tiometer                                     |    |                                                                                   | P200A-F <sup>1)</sup><br>P1000A-F                                                 | P200A-F <sup>1)</sup><br>P1000A-F                                                 | P200A-F <sup>1)</sup><br>P1000A-F                                                 |                                                                                     | P..A <sup>3)</sup> <sup>4)</sup>                                                    |                                                                                     | P..A <sup>2)</sup> <sup>4)</sup>                                                    |
| Signal converter<br>voltage/current for<br>modulating actuators |    | Z-UIC                                                                             | Z-UIC                                                                             | Z-UIC                                                                             | Z-UIC                                                                             | Z-UIC                                                                               | Z-UIC                                                                               |                                                                                     | Z-UIC                                                                               |
| Positioner/range<br>controller for modu-<br>lating actuators    |   | CRP24-B1                                                                          | CRP24-B1                                                                          | CRP24-B1                                                                          | CRP24-B1                                                                          | CRP24-B1                                                                            | CRP24-B1                                                                            |                                                                                     | CRP24-B1                                                                            |
|                                                                 |                                                                                     | SBG24                                                                             | SBG24                                                                             | SBG24                                                                             | SBG24                                                                             | SBG24                                                                               | SBG24                                                                               |                                                                                     | SBG24                                                                               |
|                                                                 |                                                                                     | SGA24                                                                             | SGA24                                                                             | SGA24                                                                             | SGA24                                                                             | SGA24                                                                               | SGA24                                                                               |                                                                                     | SGA24                                                                               |
|                                                                 |                                                                                     | SGE24                                                                             | SGE24                                                                             | SGE24                                                                             | SGE24                                                                             | SGE24                                                                               | SGE24                                                                               |                                                                                     | SGE24                                                                               |
|                                                                 |                                                                                     | SGF24                                                                             | SGF24                                                                             | SGF24                                                                             | SGF24                                                                             | SGF24                                                                               | SGF24                                                                               |                                                                                     | SGF24                                                                               |
| Tools                                                           |                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Service tool                                                    |  |                                                                                   |                                                                                   | ZTH EU <sup>5)</sup>                                                              | ZTH EU <sup>5)</sup>                                                              | ZTH EU <sup>5)</sup>                                                                | ZTH EU <sup>5)</sup>                                                                |                                                                                     |                                                                                     |

<sup>1)</sup> For more versions for LF..-, NF..A and SF..A actuators please get in touch with your local Belimo contact person.  
<sup>2)</sup> Auxiliary switch and feedback potentiometer on NKQ..A actuators can only be used together with adapter Z-SPA.  
<sup>3)</sup> Auxiliary switch and feedback potentiometer on GK..A actuators in combination with a reversible shaft clamp (mounted underneath for short shaft installation) can only be used together with adapter Z-SPA.  
<sup>4)</sup> Resistance values 140 Ω, 200 Ω, 500 Ω, 1 kΩ, 2.8 kΩ, 5 kΩ, 10 kΩ available.  
<sup>5)</sup> For all ..MP.. actuators in the contracting and RetroFIT business.

Special actuators  
non fail-safe



|                                                           |  | Fast running rotary actuators |                        |                              |                              |          | Very fast running rotary actuators |                              |                     |          |                              | Very fast running linear actuators |                         |
|-----------------------------------------------------------|--|-------------------------------|------------------------|------------------------------|------------------------------|----------|------------------------------------|------------------------------|---------------------|----------|------------------------------|------------------------------------|-------------------------|
|                                                           |  | TMC..A..                      | LMC..A..               | NMC..A..                     | SMC..A..                     | GMC..A.. | LMQ..A..                           | NMQ..A..                     | NMD..A..            | SMQ..A.. | SMD..A..                     | LHQ..A..                           | SHQ..A..                |
|                                                           |  |                               |                        |                              |                              |          |                                    |                              |                     |          |                              |                                    |                         |
| Mechanical accessories                                    |  |                               |                        |                              |                              |          |                                    |                              |                     |          |                              |                                    |                         |
| Shaft extension                                           |  | AV6-20                        | AV6-20                 | AV8-25                       | AV8-25<br>AV12-25-I          |          | AV8-25                             | AV8-25                       | AV8-25<br>AV12-25-I |          | AV8-25<br>AV12-25-I          |                                    |                         |
| Adapter for auxiliary switches and feedback potentiometer |  |                               |                        |                              |                              |          | Z-SPA                              | Z-SPA                        |                     | Z-SPA    |                              |                                    |                         |
| End stop kit, rotary support, coupling piece              |  |                               |                        |                              |                              |          |                                    |                              |                     |          |                              | Z-AS2<br>Z-DS1<br>Z-KS2            | Z-AS1<br>Z-DS1<br>Z-KS1 |
| Baseplate extension                                       |  |                               |                        | Z-NMA                        | Z-SMA                        | Z-GMA    | Z-NMA                              |                              |                     | Z-SMA    |                              |                                    |                         |
| Form fit inserts <sup>1)</sup>                            |  | ZF..-LMA<br>ZFRL..-LMA        | ZF..-LMA<br>ZFRL..-LMA | ZF..-NSA<br>ZF8-NMA          | ZF..-NSA                     |          | ZF..-NSA<br>ZF8-NMA                | ZF..-NSA                     | ZF..-NSA            |          | ZF..-NSA                     |                                    |                         |
| Levers for actuator drive shafts                          |  |                               |                        | AH-20 <sup>2)</sup><br>AH-25 | AH-20<br>AH-25 <sup>3)</sup> | AH-GMA   | AH-20 <sup>2)</sup><br>AH-25       | AH-20 <sup>3)</sup><br>AH-25 | AH-20               | AH-GMA   | AH-20<br>AH-25 <sup>4)</sup> |                                    |                         |
| Lever for damper shafts                                   |  |                               |                        | KH8                          | KH8                          | KH10     | KH8                                | KH8                          | KH8                 | KH10     | KH8                          |                                    |                         |
| Shaft clamp, one-side                                     |  | K-ELA..                       | K-ELA..                | K-ENMA<br>K-ENSA             | K-ENSA<br>K-ENSA-I           |          | K-ENMA<br>K-ENSA                   | K-ENSA                       | K-ENSA<br>K-ENSA-I  |          | K-ENSA<br>K-ENSA-I           |                                    |                         |
| Shaft clamp, reversible                                   |  |                               |                        | K-NA                         | K-NA                         |          | K-NA                               | K-NA                         |                     |          | K-NA                         |                                    |                         |
| Ball joints                                               |  |                               |                        | KG8<br>KG10A                 | KG8<br>KG10A                 | KG10A    | KG8<br>KG10A                       | KG8<br>KG10A                 | KG8<br>KG10A        | KG10A    | KG8<br>KG10A                 |                                    |                         |
| Mounting kits for linkage operation                       |  |                               |                        | ZG-NMA                       | ZG-SMA                       | ZG-GMA   | ZG-NMA                             | ZG-NMA                       |                     | ZG-GMA   | ZG-SMA                       |                                    |                         |
| Position indicator                                        |  | Z-PI                          | Z-PI                   | Z-PI                         | Z-PI                         | Z-PI     | Z-PI                               | Z-PI                         | Z-PI                | Z-PI     | Z-PI                         |                                    |                         |

<sup>1)</sup> Form fit inserts: TMC..A.. / LMC..A..: 8x8 mm, 10x10 mm, 12x12 mm; NMC..A..: 8x8 mm, 10x10 mm, 12x12 mm, 16x16 mm; SMC..A.. / SMD..A.. / NMD..A..: 10x10 mm, 12x12 mm, 15x15 mm, 16x16 mm; LMQ..A..: 8x8 mm, 10x10 mm, 12x12 mm, 15x15 mm, 16x16 mm; NMQ..A..: 10x10 mm, 12x12 mm, 15x15 mm, 16x16 mm.  
<sup>2)</sup> Only in combination with reversible shaft clamp K-NA.  
<sup>3)</sup> Only in combination with reversible shaft clamp K-SA.  
<sup>4)</sup> Only in combination with one-sided shaft clamp K-ENSA.

# Special actuators non fail-safe



| Fast running rotary actuators                             |          |                    |                    |                    |                    | Very fast running rotary actuators |                                        |                                        |                       |                                        | Very fast running linear actuators |                   |
|-----------------------------------------------------------|----------|--------------------|--------------------|--------------------|--------------------|------------------------------------|----------------------------------------|----------------------------------------|-----------------------|----------------------------------------|------------------------------------|-------------------|
|                                                           | TMC..A.. | LMC..A..           | NMC..A..           | SMC..A..           | GMC..A..           | LMQ..A..                           | NMQ..A..                               | NMD..A..                               | SMQ..A..              | SMD..A..                               | LHQ..A..                           | SHQ..A..          |
|                                                           |          |                    |                    |                    |                    |                                    |                                        |                                        |                       |                                        |                                    |                   |
| Electrical accessories                                    |          |                    |                    |                    |                    |                                    |                                        |                                        |                       |                                        |                                    |                   |
| Auxiliary switches                                        |          | S1A<br>S2A         | S1A<br>S2A         | S1A<br>S2A         | S1A<br>S2A         | S1A<br>S2A                         | S1A <sup>1)</sup><br>S2A <sup>1)</sup> | S1A <sup>1)</sup><br>S2A <sup>1)</sup> | S1A<br>S2A            | S1A <sup>1)</sup><br>S2A <sup>1)</sup> | S1A<br>S2A                         |                   |
| Room temperature controller for modulating actuators      |          | CR24..             | CR24..             | CR24..             | CR24..             |                                    | CR24..                                 | CR24..                                 |                       | CR24..                                 |                                    | CR24.. CR24..     |
| Feedback potentiometer                                    |          | P..A <sup>2)</sup> | P..A <sup>2)</sup> | P..A <sup>2)</sup> | P..A <sup>2)</sup> | P..A <sup>2)</sup>                 | P..A <sup>1) 2)</sup>                  | P..A <sup>5) 2)</sup>                  | P..A <sup>1) 2)</sup> | P..A <sup>1) 2)</sup>                  | P..A <sup>2)</sup>                 |                   |
| Signal converter voltage/current for modulating actuators |          | Z-UIC              | Z-UIC              | Z-UIC              | Z-UIC              |                                    | Z-UIC                                  | Z-UIC                                  |                       | Z-UIC                                  |                                    | Z-UIC Z-UIC       |
| Positioner/<br>range controller for modulating actuators  |          | CRP24-B1           | CRP24-B1           | CRP24-B1           | CRP24-B1           |                                    | CRP24-B1                               | CRP24-B1                               |                       | CRP24-B1                               |                                    | CRP24-B1 CRP24-B1 |
|                                                           |          | SBG24              | SBG24              | SBG24              | SBG24              |                                    | SBG24                                  | SBG24                                  |                       | SBG24                                  |                                    | SBG24 SBG24       |
|                                                           |          | SGA24              | SGA24              | SGA24              | SGA24              |                                    | SGA24                                  | SGA24                                  |                       | SGA24                                  |                                    | SGA24 SGA24       |
|                                                           |          | SGE24              | SGE24              | SGE24              | SGE24              |                                    | SGE24                                  | SGE24                                  |                       | SGE24                                  |                                    | SGE24 SGE24       |
|                                                           |          | SGF24              | SGF24              | SGF24              | SGF24              |                                    | SGF24                                  | SGF24                                  |                       | SGF24                                  |                                    | SGF24 SGF24       |
| Tools                                                     |          |                    |                    |                    |                    |                                    |                                        |                                        |                       |                                        |                                    |                   |
| Service tool                                              |          |                    |                    |                    |                    | ZTH EU <sup>3)</sup>               | ZTH EU <sup>3)</sup>                   |                                        |                       |                                        |                                    |                   |

<sup>1)</sup> Auxiliary switch and feedback potentiometer on LMQ..A, NMQ..A and SMQ..A actuators in combination with a reversible shaft clamp (mounted underneath for short shaft installation) can only be used together with adapter Z-SPA.  
<sup>2)</sup> Resistance values 140 Ω, 200 Ω, 500 Ω, 1 kΩ, 2.8 kΩ, 5 kΩ, 10 kΩ available.  
<sup>3)</sup> For all ...MP.. / ...MA / ...PC / ...R9 actuators in the contracting and RetroFIT business.

# Special actuators

## non fail-safe / fail-safe



| RobustLine rotary actuators<br>for extreme conditions |         |           | IP66/67 / NEMA 4X rotary actuators<br>for outdoor applications |         |           |         |         | Actuators with high<br>torque |  |
|-------------------------------------------------------|---------|-----------|----------------------------------------------------------------|---------|-----------|---------|---------|-------------------------------|--|
| Non fail-safe                                         |         | Fail-safe | Non fail-safe                                                  |         | Fail-safe |         |         | Non fail-safe / fail-safe     |  |
| NM..P..                                               | SM..P.. | NKQ..P..  | SMQ..G..                                                       | GM..G.. | NF..G..   | SF..G.. | GK..G.. | PMCA..<br>PKCA..              |  |
|                                                       |         |           |                                                                |         |           |         |         |                               |  |

Mechanical accessories

|                                       |  |  |  |  |        |        |        |        |        |       |
|---------------------------------------|--|--|--|--|--------|--------|--------|--------|--------|-------|
| Lever for actuator<br>drive shafts    |  |  |  |  | AH-GMA | AH-GMA | AH-GMA | AH-GMA | AH-GMA |       |
| Lever for damper<br>shafts            |  |  |  |  | KH10   | KH10   | KH10   | KH10   | KH10   |       |
| Ball joints                           |  |  |  |  | KG10A  | KG10A  | KG10A  | KG10A  | KG10A  |       |
| Mounting kit for<br>linkage operation |  |  |  |  | ZG-GAM | ZG-GAM | ZG-GAM | ZG-GAM | ZG-GAM |       |
| Adapter kit                           |  |  |  |  |        |        |        |        |        | ZPR.. |

Electrical accessories

|                                                                                |  |       |       |  |          |          |          |          |          |  |
|--------------------------------------------------------------------------------|--|-------|-------|--|----------|----------|----------|----------|----------|--|
| Heating with<br>humidistat AC 230 V<br>(only available fitted<br>ex factory)   |  | HH230 | HH230 |  | HH230-MG | HH230-MG | HH230-FG | HH230-FG | HH230-MG |  |
| Heating with<br>humidistat AC/DC 24 V<br>(only available fitted<br>ex factory) |  |       |       |  | HH24-MG  | HH24-MG  | HH24-FG  | HH24-FG  | HH24-MG  |  |
| Heating with<br>thermostat AC 230 V<br>(only available fitted<br>ex factory)   |  | HT230 | HT230 |  | HT230-MG | HT230-MG | HT230-FG | HT230-FG | HT230-MG |  |
| Heating with<br>thermostat AC/DC 24 V<br>(only available fitted<br>ex factory) |  |       |       |  | HT24-MG  | HT24-MG  | HT24-FG  | HT24-FG  | HT24-MG  |  |

# Special actuators non fail-safe / fail-safe



| RobustLine rotary actuators<br>for extreme conditions                             |                                                                                   |                                                                                   |  | IP66/67 / NEMA 4X rotary actuators<br>for outdoor applications                    |                                                                                   |                                                                                    |                                                                                     | Actuators<br>with high<br>torque                                                    | Actuators<br>with damper<br>blade                                                                                                                                          |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Non fail-safe                                                                     |                                                                                   | Fail-safe                                                                         |  | Non fail-safe                                                                     |                                                                                   | Fail-safe                                                                          |                                                                                     | Non<br>fail-safe /<br>fail-safe                                                     | Non<br>fail-safe                                                                                                                                                           |
| NM..P..                                                                           | SM..P..                                                                           | NKQ..P..                                                                          |  | SMQ..G..                                                                          | GM..G..                                                                           | NF..G..                                                                            | SF..G..                                                                             | GK..G..                                                                             | PMCA..<br>PKCA..<br>CM..D                                                                                                                                                  |
|  |  |  |  |  |  |  |  |  | <br> |

Electrical accessories

|                                                           |                                                                                     |                       |                       |          |                       |                       |                          |                          |                          |          |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------|-----------------------|----------|-----------------------|-----------------------|--------------------------|--------------------------|--------------------------|----------|
| Auxiliary switches                                        |    | S2A GR                | S2A GR                |          | S2A                   | S2A                   | (S2A-F GR) <sup>1)</sup> | (S2A-F GR) <sup>1)</sup> | (S2A) <sup>1)</sup>      |          |
| Room temperature controller for modulating actuators      |    | CR24..                | CR24..                | CR24..   | CR24..                | CR24..                | CR24..                   | CR24..                   | CR24..                   | CR24..   |
| Feedback potentiometers                                   |   | P..A GR <sup>2)</sup> | P..A GR <sup>2)</sup> |          | P..A GR <sup>2)</sup> | P..A GR <sup>2)</sup> | P..A GR <sup>1) 2)</sup> | P..A GR <sup>1) 2)</sup> | P..A GR <sup>1) 2)</sup> |          |
| Signal converter voltage/current for modulating actuators |  | Z-UIC                 | Z-UIC                 | Z-UIC    | Z-UIC                 | Z-UIC                 | Z-UIC                    | Z-UIC                    | Z-UIC                    | Z-UIC    |
| Positioner/range controller for modulating actuators      |  | CRP24-B1              | CRP24-B1              | CRP24-B1 | CRP24-B1              | CRP24-B1              | CRP24-B1                 | CRP24-B1                 | CRP24-B1                 | CRP24-B1 |
|                                                           |                                                                                     | SBG24                 | SBG24                 | SBG24    | SBG24                 | SBG24                 | SBG24                    | SBG24                    | SBG24                    | SBG24    |
|                                                           |                                                                                     | SGA24                 | SGA24                 | SGA24    | SGA24                 | SGA24                 | SGA24                    | SGA24                    | SGA24                    | SGA24    |
|                                                           |                                                                                     | SGE24                 | SGE24                 | SGE24    | SGE24                 | SGE24                 | SGE24                    | SGE24                    | SGE24                    | SGE24    |
|                                                           |                                                                                     | SGF24                 | SGF24                 | SGF24    | SGF24                 | SGF24                 | SGF24                    | SGF24                    | SGF24                    | SGF24    |

Tools

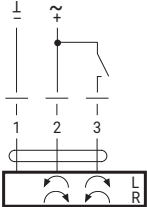
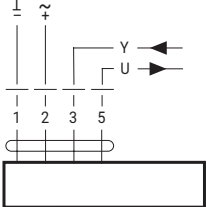
|                      |                                                                                     |                      |                      |  |                      |                      |                      |                      |                      |                      |
|----------------------|-------------------------------------------------------------------------------------|----------------------|----------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Service tool         |  | ZTH EU <sup>3)</sup> | ZTH EU <sup>3)</sup> |  | ZTH EU <sup>3)</sup> | ZTH EU <sup>3)</sup> | ZTH EU <sup>3)</sup> | ZTH EU <sup>3)</sup> | ZTH EU <sup>3)</sup> | ZTH EU <sup>3)</sup> |
| Belimo Assistant App |  |                      |                      |  |                      |                      |                      |                      |                      | ■                    |

<sup>1)</sup> Combination only on request.  
<sup>2)</sup> Resistance values 140 Ω, 200 Ω, 500 Ω, 1 kΩ, 2.8 kΩ, 5 kΩ, 10 kΩ available.  
<sup>3)</sup> For all ..24A-MP(..), ..24P-MP(..) and ..24G-MP(..) actuators in the contracting and RetroFIT business.  
For form fit inserts, please get in touch with your local Belimo contact person.

Rotary actuators with connector plug

|                                                                                                    |                                                                                  |                                                                           |                      |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------|
| Nominal torque                                                                                     |                                                                                  | 1 Nm                                                                      |                      |
| Damper size up to approx.                                                                          |                                                                                  | 0.2 m <sup>2</sup>                                                        |                      |
| Nominal voltage                                                                                    | Direction of rotation                                                            | Angle of rotation                                                         | Degree of protection |
| <div>UM..</div> |                                                                                  |                                                                           |                      |
| Open/close, 3-point                                                                                |                                                                                  |                                                                           |                      |
| AC/DC 24 V                                                                                         | <div><div>↺ counterclockwise rotation</div><div>↻ clockwise rotation</div></div> | 0...185°                                                                  | IP20                 |
| AC 230 V                                                                                           | <div><div>↺ counterclockwise rotation</div><div>↻ clockwise rotation</div></div> |                                                                           | IP20                 |
|                                                                                                    |                                                                                  |                                                                           | UM24Y-L.1            |
|                                                                                                    |                                                                                  |                                                                           | UM24Y-R.1            |
|                                                                                                    |                                                                                  | UM230Y-L.1                                                                |                      |
|                                                                                                    |                                                                                  | UM230Y-R.1                                                                |                      |
| Modulating (2...10 V) <sup>1) 2)</sup>                                                             |                                                                                  |                                                                           |                      |
| AC/DC 24 V                                                                                         | <div><div>↺ counterclockwise rotation</div><div>↻ clockwise rotation</div></div> | Max. 95°, can be limited on both sides by adjustable mechanical end stops | IP20                 |
|                                                                                                    |                                                                                  |                                                                           | UM24Y-SR-L.1         |
|                                                                                                    |                                                                                  |                                                                           | UM24Y-SR-R.1         |
| Technical data                                                                                     |                                                                                  |                                                                           |                      |
| Shaft diameter                                                                                     |                                                                                  | 6...12.7 mm                                                               |                      |
| Sound power level                                                                                  |                                                                                  | ≤35 dB(A) @ 22 s                                                          |                      |
| Running time motor 90°                                                                             |                                                                                  | 22 s                                                                      |                      |
| Connection                                                                                         |                                                                                  | Molex Mini-Fit Jr. connector plug                                         |                      |
| Ambient temperature                                                                                |                                                                                  | -30...50°C                                                                |                      |
| Storage temperature                                                                                |                                                                                  | -40...80°C                                                                |                      |
| Ambient humidity                                                                                   |                                                                                  | 95% RH, non-condensing                                                    |                      |
| EMC                                                                                                |                                                                                  | CE according to 2014/30/EU                                                |                      |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.  
<sup>2)</sup> Direction of rotation: Type ...-L: Control signal Y = 0 V left end stop/direction of rotation: Type ...-R: Control signal Y = 0 V right end stop.  
 Other versions on request. Please get in touch with your local Belimo contact person.

|                                                                                     |                 |                                                                                       |  |
|-------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------|--|
| Electrical installation                                                             |                 | Electrical and mechanical accessories <b>Page 12–13</b>                               |  |
| Open/close                                                                          | 3-point         | Modulating                                                                            |  |
| UM24.., UM230..                                                                     | UM24.., UM230.. | UM24...-SR..                                                                          |  |
|                                                                                     |                 | Y = 0...10 V/U = 2...10 V                                                             |  |
|  |                 |  |  |

Rotary actuators with connecting cable

Nominal torque

2 Nm

Damper size up to approx.

0.4 m²

| Nominal voltage                                        | Direction of rotation                                                                                         | Angle of rotation                                                         | Degree of protection | <br>CM.. |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------|
| Open/close, 3-point                                    |                                                                                                               |                                                                           |                      |                                                                                             |
| AC/DC 24 V                                             |  counterclockwise rotation   | 0...287.5° / without limits                                               | IP54                 | CM24-L                                                                                      |
|                                                        |  clockwise rotation          |                                                                           |                      | CM24-R                                                                                      |
|                                                        |  counterclockwise rotation   |                                                                           | IP66                 | CM24G-L                                                                                     |
|                                                        |  clockwise rotation          |                                                                           |                      | CM24G-R                                                                                     |
| AC 230 V                                               |  counterclockwise rotation   | 0...287.5° / without limits                                               | IP54                 | CM230-L                                                                                     |
|                                                        |  clockwise rotation          |                                                                           |                      | CM230-R                                                                                     |
|                                                        |  counterclockwise rotation   |                                                                           | IP66                 | CM230G-L                                                                                    |
|                                                        |  clockwise rotation          |                                                                           |                      | CM230G-R                                                                                    |
|                                                        |                                                                                                               |                                                                           |                      |                                                                                             |
| Modulating (2...10 V) <sup>1) 2)</sup>                 |                                                                                                               |                                                                           |                      |                                                                                             |
| AC/DC 24 V                                             |  counterclockwise rotation  | Max. 95°, can be limited on both sides by adjustable mechanical end stops | IP54                 | CM24-SR-L                                                                                   |
|                                                        |  clockwise rotation        |                                                                           |                      | CM24-SR-R                                                                                   |
|                                                        |  counterclockwise rotation |                                                                           | IP66                 | CM24G-SR-L                                                                                  |
|                                                        |  clockwise rotation        |                                                                           |                      | CM24G-SR-R                                                                                  |
| Modulating (2...10 V) with adaptation <sup>1) 2)</sup> |                                                                                                               |                                                                           |                      |                                                                                             |
| AC/DC 24 V                                             |  counterclockwise rotation | Max. 95°, can be limited on both sides by adjustable mechanical end stops | IP54                 | CM24-SX-L                                                                                   |
|                                                        |  clockwise rotation        |                                                                           |                      | CM24-SX-R                                                                                   |
| Communicative <sup>3)</sup>                            |                                                                                                               |                                                                           |                      |                                                                                             |
| AC/DC 24 V                                             |  counterclockwise rotation | Max. 95°, can be limited on both sides by adjustable mechanical end stops | IP54                 | CM24-MPL-L                                                                                  |
|                                                        |  clockwise rotation        |                                                                           |                      | CM24-MPL-R                                                                                  |

|                        |                                      |
|------------------------|--------------------------------------|
| Technical data         |                                      |
| Shaft diameter         | 6...12.7 mm                          |
| Sound power level      | ≤35 dB(A) @ 75 s                     |
| Running time motor 90° | 75 s                                 |
| Manual override        | Gear train disengagement with magnet |
| Connection             | Connecting cable 1 m                 |
| Position indication    | Mechanical, add-on                   |
| Ambient temperature    | -30...50°C                           |
| Storage temperature    | -40...80°C                           |
| Ambient humidity       | 95% RH, non-condensing               |
| EMC                    | CE according to 2014/30/EU           |

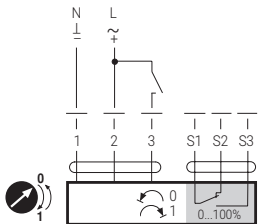
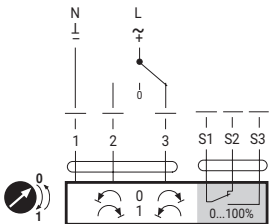
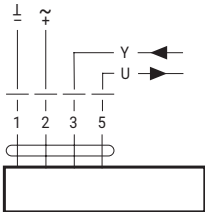
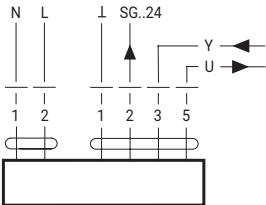
<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.  
<sup>2)</sup> Direction of rotation: Type ..-L: Control signal Y = 0 V left end stop/direction of rotation: Type ..-R: Control signal Y = 0 V right end stop.  
<sup>3)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).  
Other versions on request. Please get in touch with your local Belimo contact person.

|                         |                 |                           |                                                         |
|-------------------------|-----------------|---------------------------|---------------------------------------------------------|
| Electrical installation |                 |                           | Electrical and mechanical accessories <b>Page 12-13</b> |
| Open/close              | 3-point         | Modulating                |                                                         |
| CM24.., CM230..         | CM24.., CM230.. | CM24..-SR.., CM24..-SX..  |                                                         |
|                         |                 | Y = 0...10 V/U = 2...10 V |                                                         |
|                         |                 |                           |                                                         |

Rotary actuators with connecting cable

| Nominal torque                                             |                                                                           | 5 Nm                                                                              | 10 Nm                                                                             | 20 Nm                                                                              | 40 Nm                                                                               |
|------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Damper size up to approx.                                  |                                                                           | 1 m²                                                                              | 2 m²                                                                              | 4 m²                                                                               | 8 m²                                                                                |
| Nominal voltage                                            | SPDT auxiliary switch                                                     |  |  |  |  |
|                                                            |                                                                           | LM..A                                                                             | NM..A                                                                             | SM..A                                                                              | GM..A                                                                               |
| Open/close, 3-point                                        |                                                                           |                                                                                   |                                                                                   |                                                                                    | Open/close                                                                          |
| AC/DC 24 V                                                 |                                                                           | LM24A                                                                             | NM24A                                                                             | SM24A                                                                              | GM24A                                                                               |
|                                                            | 1                                                                         | LM24A-S                                                                           | NM24A-S                                                                           | SM24A-S                                                                            |                                                                                     |
| AC 230 V                                                   |                                                                           | LM230A                                                                            | NM230A                                                                            | SM230A                                                                             | GM230A                                                                              |
|                                                            | 1                                                                         | LM230A-S                                                                          | NM230A-S                                                                          | SM230A-S                                                                           |                                                                                     |
| Modulating (2...10 V) <sup>1)</sup>                        |                                                                           |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| AC/DC 24 V                                                 |                                                                           | LM24A-SR                                                                          | NM24A-SR                                                                          | SM24A-SR                                                                           | GM24A-SR                                                                            |
| AC 230 V                                                   |                                                                           | LM230ASR                                                                          | NM230ASR                                                                          | SM230ASR                                                                           |                                                                                     |
| Communicative <sup>2)</sup> , parametrisable <sup>3)</sup> |                                                                           |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| AC/DC 24 V                                                 |                                                                           | LM24A-MP                                                                          | NM24A-MP                                                                          | SM24A-MP                                                                           | GM24A-MP                                                                            |
|                                                            |                                                                           | LM24A-MOD <sup>4)</sup>                                                           | NM24A-MOD <sup>4)</sup>                                                           | SM24A-MOD <sup>4)</sup>                                                            | GM24A-MOD <sup>4)</sup>                                                             |
|                                                            |                                                                           | LM24A-KNX                                                                         | NM24A-KNX                                                                         | VSM24A-LP1 <sup>5)</sup>                                                           | VGM24A-LP1 <sup>5)</sup>                                                            |
|                                                            |                                                                           | VLM24A-LP1 <sup>5)</sup>                                                          | VNM24A-LP1 <sup>5)</sup>                                                          |                                                                                    |                                                                                     |
| Technical data                                             |                                                                           |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Shaft diameter                                             | 6...20 mm                                                                 |                                                                                   | 8...26.7 mm                                                                       |                                                                                    | 12...26.7 mm                                                                        |
| Sound power level                                          | ≤35 dB(A) @ 150 s                                                         |                                                                                   | ≤35 dB(A) @ 150 s                                                                 |                                                                                    | ≤45 dB(A) @ 150 s                                                                   |
| Running time motor 90°                                     | 150 s                                                                     |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Manual override                                            | Gear train disengagement with push button, can be locked                  |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Connection                                                 | Connecting cable 1 m                                                      |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Direction of rotation                                      | Selectable with switch                                                    |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Angle of rotation                                          | Max. 95°, can be limited on both sides by adjustable mechanical end stops |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Position indication                                        | Mechanical, add-on                                                        |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Degree of protection                                       | IP54                                                                      |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Ambient temperature                                        | -30...50°C                                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Storage temperature                                        | -40...80°C                                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Ambient humidity                                           | 95% RH, non-condensing                                                    |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| EMC                                                        | CE according to 2014/30/EU                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.  
<sup>2)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).  
<sup>3)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).  
<sup>4)</sup> All MOD versions work with Modbus and BACnet.  
<sup>5)</sup> All V.-LP1 versions are IoT-compatible and can exchange data with the Belimo Cloud.  
Other versions on request. Please get in touch with your local Belimo contact person.

| Electrical installation                                                             |                                                                                     | Electrical and mechanical accessories <b>Page 12–13</b>                              |                                                                                       |                              |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| Open/close                                                                          | 3-point                                                                             | Modulating                                                                           | Parametrisable                                                                        | Modulating                   |
| ..M24A, ..M24A-S, ..M230A, ..M230A-S.                                               | ..M24A, ..M24A-S, ..M230A, ..M230A-S                                                | ..M24A-SR                                                                            | ..M24A-MP                                                                             | ..M230ASR                    |
|                                                                                     | (not permissible for GM..A..)                                                       | Y = 0...10 V<br>U = 2...10 V                                                         | Y = control signal<br>U = position feedback                                           | Y = 0...10 V<br>U = 2...10 V |
|  |  |  |  |                              |

# Rotary actuators with connecting terminals

Nominal torque

2 Nm

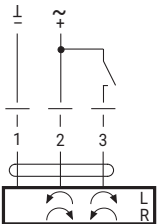
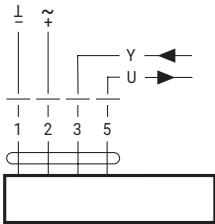
Damper size up to approx.

0.4 m<sup>2</sup>

| Nominal voltage                                      | Direction of rotation                           | Angle of rotation                                                         | Degree of protection                 |                                                                                              |
|------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------|
|                                                      |                                                 |                                                                           |                                      |  CM..-T.. |
| Open/close, 3-point                                  |                                                 |                                                                           |                                      |                                                                                              |
| AC/DC 24 V                                           | counterclockwise rotation<br>clockwise rotation | 0...287.5° / without limits                                               | IP20                                 | CM24-T-L<br>CM24-T-R                                                                         |
| Modulating (2...10 V) <sup>1) 2)</sup>               |                                                 |                                                                           |                                      |                                                                                              |
| AC/DC 24 V                                           | counterclockwise rotation<br>clockwise rotation | Max. 95°, can be limited on both sides by adjustable mechanical end stops | IP20                                 | CM24-SR-T-L<br>CM24-SR-T-R                                                                   |
| Modulating (2...10 V) with adaption <sup>1) 2)</sup> |                                                 |                                                                           |                                      |                                                                                              |
| AC/DC 24 V                                           | counterclockwise rotation<br>clockwise rotation | Max. 95°, can be limited on both sides by adjustable mechanical end stops | IP20                                 | CM24-SX-T-L<br>CM24-SX-T-R                                                                   |
| Technical data                                       |                                                 |                                                                           |                                      |                                                                                              |
| Shaft diameter                                       |                                                 |                                                                           | 6...12.7 mm                          |                                                                                              |
| Sound power level                                    |                                                 |                                                                           | ≤35 dB(A) @ 75 s                     |                                                                                              |
| Running time motor 90°                               |                                                 |                                                                           | 75 s                                 |                                                                                              |
| Manual override                                      |                                                 |                                                                           | Gear train disengagement with magnet |                                                                                              |
| Connection                                           |                                                 |                                                                           | Connecting terminals                 |                                                                                              |
| Position indication                                  |                                                 |                                                                           | Mechanical, add-on                   |                                                                                              |
| Ambient temperature                                  |                                                 |                                                                           | -30...50°C                           |                                                                                              |
| Storage temperature                                  |                                                 |                                                                           | -40...80°C                           |                                                                                              |
| Ambient humidity                                     |                                                 |                                                                           | 95% RH, non-condensing               |                                                                                              |
| EMC                                                  |                                                 |                                                                           | CE according to 2014/30/EU           |                                                                                              |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.

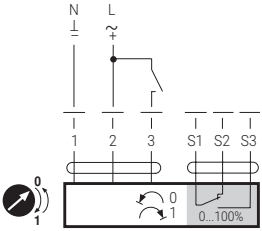
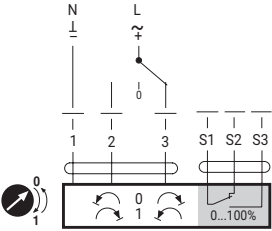
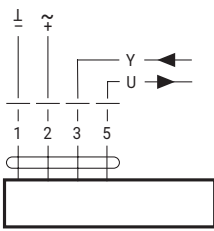
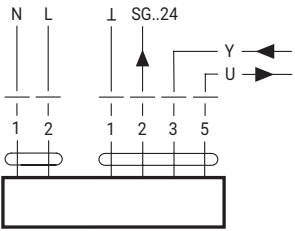
<sup>2)</sup> Direction of rotation: Type ...-L: Control signal Y = 0 V left end stop / direction of rotation: Type ...-R: Control signal Y = 0 V right end stop. Other versions on request. Please get in touch with your local Belimo contact person.

|                                                                                     |         |                                                                                       |
|-------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------|
| Electrical installation                                                             |         | Electrical and mechanical accessories <b>Page 12–13</b>                               |
| Open/close                                                                          | 3-point | Modulating                                                                            |
| CM24..                                                                              | CM24..  | CM24...-SR.., CM24...-SX..                                                            |
|                                                                                     |         | Y = 0...10 V<br>U = 2...10 V                                                          |
|  |         |  |

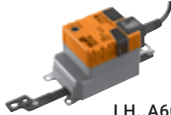
Rotary actuators with connecting terminals

| Nominal torque                                             | 5 Nm                                                                              | 10 Nm                                                                             | 20 Nm                                                                              | 40 Nm                                                                               |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Damper size up to approx.                                  | 1 m <sup>2</sup>                                                                  | 2 m <sup>2</sup>                                                                  | 4 m <sup>2</sup>                                                                   | 8 m <sup>2</sup>                                                                    |
| Nominal voltage                                            |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| SPDT auxiliary switch                                      |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
|                                                            |  |  |  |  |
|                                                            | LM..A-TP                                                                          | NM..A-TP                                                                          | SM..A-TP                                                                           | GM..A-TP                                                                            |
| Open/close, 3-point                                        |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| AC/DC 24 V                                                 |                                                                                   | LM24A-TP                                                                          | NM24A-TP                                                                           | SM24A-TP                                                                            |
|                                                            | 1                                                                                 | LM24A-S-TP                                                                        | NM24A-S-TP                                                                         | SM24A-S-TP                                                                          |
| AC 230 V                                                   |                                                                                   | LM230A-TP                                                                         | NM230A-TP                                                                          | SM230A-TP                                                                           |
|                                                            | 1                                                                                 | LM230A-S-TP                                                                       | NM230A-S-TP                                                                        | SM230A-S-TP                                                                         |
| Modulating (2...10 V) <sup>1)</sup>                        |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| AC/DC 24 V                                                 |                                                                                   | LM24A-SR-TP                                                                       | NM24A-SR-TP                                                                        | SM24A-SR                                                                            |
| AC 230 V                                                   |                                                                                   | LM230ASR-TP                                                                       | NM230ASR-TP                                                                        | SM230ASR-TP                                                                         |
| Communicative <sup>2)</sup> , parametrisable <sup>3)</sup> |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| AC/DC 24 V                                                 |                                                                                   | LM24A-MP-TP                                                                       | NM24A-MP-TP                                                                        | SM24A-MP-TP                                                                         |
|                                                            |                                                                                   |                                                                                   |                                                                                    | GM24A-MP-TP                                                                         |
| Technical data                                             |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
| Shaft diameter                                             | 6...20 mm                                                                         | 8...26.7 mm                                                                       | 10...20 mm                                                                         | 12...26.7 mm                                                                        |
| Sound power level                                          | ≤35 dB(A) @ 150 s                                                                 | ≤35 dB(A) @ 150 s                                                                 | ≤45 dB(A) @ 150 s                                                                  | ≤45 dB(A) @ 150 s                                                                   |
| Running time motor 90°                                     | 150 s                                                                             |                                                                                   |                                                                                    |                                                                                     |
| Manual override                                            | Gear train disengagement with push button, can be locked                          |                                                                                   |                                                                                    |                                                                                     |
| Connection                                                 | Connecting terminals                                                              |                                                                                   |                                                                                    |                                                                                     |
| Direction of rotation                                      | Selectable with switch                                                            |                                                                                   |                                                                                    |                                                                                     |
| Angle of rotation                                          | Max. 95°, can be limited on both sides by adjustable mechanical end stops         |                                                                                   |                                                                                    |                                                                                     |
| Position indication                                        | Mechanical, add-on                                                                |                                                                                   |                                                                                    |                                                                                     |
| Degree of protection                                       | IP54                                                                              |                                                                                   |                                                                                    |                                                                                     |
| Ambient temperature                                        | -30...50°C                                                                        |                                                                                   |                                                                                    |                                                                                     |
| Storage temperature                                        | -40...80°C                                                                        |                                                                                   |                                                                                    |                                                                                     |
| Ambient humidity                                           | 95% RH, non-condensing                                                            |                                                                                   |                                                                                    |                                                                                     |
| EMC                                                        | CE according to 2014/30/EU                                                        |                                                                                   |                                                                                    |                                                                                     |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.  
<sup>2)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).  
<sup>3)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set). Other versions on request. Please get in touch with your local Belimo contact person.

| Electrical installation                                                             |                                                                                     |                                                                                      | Electrical and mechanical accessories P age 12–13                                     |                              |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| Open/close                                                                          | 3-point                                                                             | Modulating                                                                           | Parametrisable                                                                        | Modulating                   |
| ..M24A-TP, ..M24A-S-TP,<br>..M230A-TP, ..M230A-S-TP                                 | ..M24A-TP, ..M24A-S-TP,<br>..M230A-TP, ..M230A-S-TP                                 | ..M24A-SR-TP                                                                         | ..M24A-MP-TP                                                                          | ..M230ASR-TP                 |
|                                                                                     | (not permissible for GM..A..)                                                       | Y = 0...10 V<br>U = 2...10 V                                                         | Y = control signal<br>U = position feedback                                           | Y = 0...10 V<br>U = 2...10 V |
|  |  |  |  |                              |

# Linear actuators with connector plug, connecting cable, connecting terminals

| Actuating force                                            |                    | 50 N                                                                              | 125 N                                                                              | 150 N                                                                               |                |
|------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------|
| Damper size up to approx.                                  |                    | 0.2 m²                                                                            | 0.8 m²                                                                             | 1 m²                                                                                |                |
| Stroke<br>(gear rod)                                       | Nominal<br>voltage |  |  |  |                |
|                                                            |                    | UH..                                                                              | CH..L100                                                                           | LH..A60                                                                             |                |
| Open/close, 3-point                                        |                    |                                                                                   |                                                                                    |                                                                                     |                |
| 60 mm                                                      | AC/DC 24 V         | UH24Y-L.1                                                                         | CH24-L60.2                                                                         | LH24A60                                                                             |                |
| 100 mm                                                     |                    |                                                                                   | CH24-L100.2                                                                        | LH24A100                                                                            |                |
| 200 mm                                                     |                    |                                                                                   |                                                                                    | LH24A200                                                                            |                |
| 300 mm                                                     |                    |                                                                                   |                                                                                    | LH24A300                                                                            |                |
| 60 mm                                                      | 230 V              | UH230Y-L.1                                                                        | CH230-L60.2                                                                        | LH230A60                                                                            |                |
| 100 mm                                                     |                    |                                                                                   | CH230-L100.2                                                                       | LH230A100                                                                           |                |
| 200 mm                                                     |                    |                                                                                   |                                                                                    | LH230A200                                                                           |                |
| 300 mm                                                     |                    |                                                                                   |                                                                                    | LH230A300                                                                           |                |
| Modulating (2...10 V) <sup>1)</sup>                        |                    | Direction of stroke 0 <sup>2)</sup> Direction of stroke 1 <sup>2)</sup>           |                                                                                    |                                                                                     |                |
| 60 mm                                                      | AC/DC 24 V         | UH24Y-SR-L.1                                                                      | CH24-SR-L60.2                                                                      | CH24-SR-R60.2                                                                       |                |
| 100 mm                                                     |                    |                                                                                   | CH24-SR-L100.2                                                                     | CH24-SR-R100.2                                                                      |                |
| 200 mm                                                     |                    |                                                                                   |                                                                                    | LH24A-SR100                                                                         |                |
| 100 mm                                                     |                    | 230 V                                                                             |                                                                                    |                                                                                     | LH24A-SR200    |
| 200 mm                                                     |                    |                                                                                   |                                                                                    | LH230ASR100                                                                         |                |
|                                                            |                    |                                                                                   |                                                                                    | LH230ASR200                                                                         |                |
| Modulating (2...10 V) with adaptation <sup>1)</sup>        |                    | Direction of stroke 0 <sup>2)</sup> Direction of stroke 1 <sup>2)</sup>           |                                                                                    |                                                                                     |                |
| 40 mm                                                      | AC/DC 24 V         |                                                                                   | CH24-SX-L40.2                                                                      | CH24-SX-R40.2                                                                       |                |
| 100 mm                                                     |                    |                                                                                   | CH24-SX-L100.2                                                                     | CH24-SX-R100.2                                                                      |                |
| Communicative <sup>3)</sup> , parametrisable <sup>4)</sup> |                    | Connecting cable Connecting terminals                                             |                                                                                    |                                                                                     |                |
| 60 mm                                                      | AC/DC 24 V         |                                                                                   |                                                                                    | LH24A-MP60                                                                          | LH24A-MP60-TP  |
| 100 mm                                                     |                    |                                                                                   |                                                                                    | LH24A-MP100                                                                         | LH24A-MP100-TP |
| 200 mm                                                     |                    |                                                                                   |                                                                                    | LH24A-MP200<br>LH24A-MOD200 <sup>5)</sup>                                           | LH24A-MP200-TP |
| 300 mm                                                     |                    |                                                                                   |                                                                                    | LH24A-MP300<br>LH24A-MOD300 <sup>5)</sup>                                           | LH24A-MP300-TP |
| Technical data                                             |                    |                                                                                   |                                                                                    |                                                                                     |                |
| Running time motor 100 mm                                  |                    | 122 s                                                                             | 380 s                                                                              | 150 s                                                                               |                |
| Sound power level                                          |                    | ≤35 dB(A) @ 122 s                                                                 | ≤35 dB(A) @ 380 s                                                                  | ≤45 dB(A) @ 150 s                                                                   |                |
| Manual override                                            |                    | Manual override<br>by dismounting actuator                                        | Gear train disengagement<br>with magnet                                            | Gear train disengagement<br>with push button, can be locked                         |                |
| Connection                                                 |                    | Molex Mini-Fit Jr. connector plug                                                 | Connecting cable 1 m                                                               | Connecting cable 1 m /<br>Connecting terminals                                      |                |
| Direction of stroke                                        |                    | Selectable via contacting                                                         | Selectable via contacting                                                          | Selectable with switch                                                              |                |
| Height of stroke                                           |                    | Adjustable in 1 mm increments from<br>0...60 mm                                   | Adjustable in 20 mm increments from<br>20...100 mm                                 | Adjustable in 20 mm increments from<br>20...100 mm                                  |                |
| Degree of protection                                       |                    | IP20                                                                              | IP54                                                                               | IP54                                                                                |                |
| EMC                                                        |                    | CE according to 2014/30/EU                                                        |                                                                                    |                                                                                     |                |
| Ambient temperature                                        |                    | -30...50°C                                                                        |                                                                                    |                                                                                     |                |
| Storage temperature                                        |                    | -40...80°C                                                                        |                                                                                    |                                                                                     |                |
| Ambient humidity                                           |                    | 95% RH, non-condensing                                                            |                                                                                    |                                                                                     |                |
| EMC                                                        |                    | CE according to 2014/30/EU                                                        |                                                                                    |                                                                                     |                |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.

<sup>2)</sup> Direction of stroke 0: when Y = 0 V, gear rod is retracted / direction of stroke 1: when Y = 0 V, gear rod is extended.

<sup>3)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).

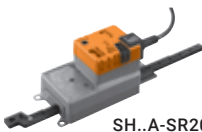
<sup>4)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).

<sup>5)</sup> All MOD versions work with Modbus and BACnet.

Other versions on request. Please get in touch with your local Belimo contact person.

Linear actuators with connecting cable

Actuating force450 N  
Damper size up to approx.3 m<sup>2</sup>

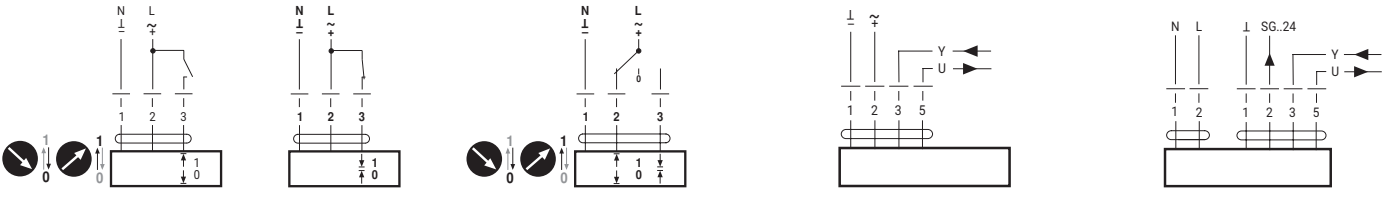
| Stroke<br>(gear rod)                                                                                               | Nominal<br>voltage                                       |                            |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------|
| <div><div>SH..A-SR200</div></div> |                                                          |                            |
| Open/close, 3-point                                                                                                |                                                          |                            |
| 100 mm                                                                                                             | AC/DC 24 V                                               | SH24A100                   |
| 200 mm                                                                                                             |                                                          | SH24A200                   |
| 300 mm                                                                                                             |                                                          | SH24A300                   |
| 100 mm                                                                                                             | 230 V                                                    | SH230A100                  |
| 200 mm                                                                                                             |                                                          | SH230A200                  |
| 300 mm                                                                                                             |                                                          | SH230A300                  |
| Modulating (2...10 V) <sup>1)</sup>                                                                                |                                                          |                            |
| 100 mm                                                                                                             | AC/DC 24 V                                               | SH24A-SR100                |
| 200 mm                                                                                                             |                                                          | SH24A-SR200                |
| 100 mm                                                                                                             | 230 V                                                    | SH230ASR100                |
| 200 mm                                                                                                             |                                                          | SH230ASR200                |
| Communicative <sup>2)</sup> , parametrisable <sup>3)</sup>                                                         |                                                          |                            |
| 100 mm                                                                                                             | AC/DC 24 V                                               | SH24A-MP100                |
| 200 mm                                                                                                             |                                                          | SH24A-MP200                |
|                                                                                                                    |                                                          | SH24A-MOD200 <sup>4)</sup> |
|                                                                                                                    |                                                          | SH24A-MP300                |
| 300 mm                                                                                                             |                                                          |                            |
| Technical data                                                                                                     |                                                          |                            |
| Running time motor 100 mm                                                                                          | 150 s                                                    |                            |
| Sound power level                                                                                                  | ≤52 dB(A) @ 150 s                                        |                            |
| Manual override                                                                                                    | Gear train disengagement with push button, can be locked |                            |
| Connection                                                                                                         | Connecting cable 1 m                                     |                            |
| Direction of stroke                                                                                                | Selectable with switch                                   |                            |
| Height of stroke                                                                                                   | Adjustable in 20 mm increments from 20...100 mm          |                            |
| Degree of protection                                                                                               | IP54                                                     |                            |
| EMC                                                                                                                | CE according to 2014/30/EU                               |                            |
| Ambient temperature                                                                                                | -30...50°C                                               |                            |
| Storage temperature                                                                                                | -40...80°C                                               |                            |
| Ambient humidity                                                                                                   | 95% RH, non-condensing                                   |                            |
| EMC                                                                                                                | CE according to 2014/30/EU                               |                            |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.  
<sup>2)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).  
<sup>3)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).  
<sup>4)</sup> All MOD versions work with Modbus and BACnet.  
Other versions on request. Please get in touch with your local Belimo contact person.

Electrical installation
Electrical and mechanical accessories
Page 12–13

| Open/close           | 3-point              | Modulating                   | Parametrisable                              | Modulating                   |
|----------------------|----------------------|------------------------------|---------------------------------------------|------------------------------|
| ..H24A..., ..H230A.. | ..H24A..., ..H230A.. | CH24-S..., ..H24A-SR..       | ..H24A-MP..                                 | ..H230ASR..                  |
|                      |                      | Y = 0...10 V<br>U = 2...10 V | Y = control signal<br>U = position feedback | Y = 0...10 V<br>U = 2...10 V |

Priority on 3



# Rotary actuators, fail-safe

| Nominal torque                                             |                                                                         | 2.5 Nm                                                                            |                              | 4 Nm                                                                               |                              | 10 Nm                                                                               |                                |
|------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------|--------------------------------|
| Damper size up to approx.                                  |                                                                         | 0.5 m²                                                                            |                              | 0.8 m²                                                                             |                              | 2 m²                                                                                |                                |
| Nominal voltage                                            | Running time motor 90°                                                  |  |                              |  |                              |  |                                |
|                                                            |                                                                         | TF..                                                                              |                              | LF..                                                                               |                              | NF..A..                                                                             |                                |
|                                                            |                                                                         | Without auxiliary switch                                                          | With 1 SPDT auxiliary switch | Without auxiliary switch                                                           | With 1 SPDT auxiliary switch | Without auxiliary switch                                                            | With 2 SPDT auxiliary switches |
| Open/close                                                 |                                                                         |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| AC/DC 24 V                                                 | 40...75 s                                                               |                                                                                   |                              | LF24                                                                               | LF24-S                       |                                                                                     |                                |
|                                                            | 75 s                                                                    | TF24                                                                              | TF24-S                       |                                                                                    |                              | NF24A                                                                               | NF24A-S2                       |
| AC 230 V                                                   | 40...75 s                                                               |                                                                                   |                              | LF230                                                                              | LF230-S                      |                                                                                     |                                |
|                                                            | 75 s                                                                    | TF230                                                                             | TF230-S                      |                                                                                    |                              |                                                                                     |                                |
| AC 24...240 V<br>DC 24...125 V                             | 75 s                                                                    |                                                                                   |                              |                                                                                    |                              | NFA                                                                                 | NFA-S2                         |
| Modulating (2...10 V) <sup>1)</sup>                        |                                                                         |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| AC/DC 24 V                                                 | 150 s                                                                   | TF24-SR                                                                           |                              | LF24-SR                                                                            |                              | NF24-SR                                                                             | NF24-SR-S2                     |
| AC 230 V                                                   | 150 s                                                                   | TF230-SR                                                                          |                              |                                                                                    |                              |                                                                                     |                                |
| Communicative <sup>2)</sup> , parametrisable <sup>3)</sup> |                                                                         |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| AC/DC 24 V                                                 | 40...75 s                                                               |                                                                                   |                              | LF24-MFT2                                                                          |                              |                                                                                     |                                |
|                                                            | 75 s                                                                    | TF24-MFT                                                                          |                              |                                                                                    |                              |                                                                                     |                                |
|                                                            | 150 s                                                                   |                                                                                   |                              |                                                                                    |                              | NF24-MP<br>NF24A-MOD <sup>4)</sup>                                                  |                                |
| Technical data                                             |                                                                         |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| Shaft diameter                                             | 6...12.7 mm                                                             |                                                                                   |                              | 8...16 mm                                                                          |                              | 10...25.4 mm                                                                        |                                |
| Motor sound power level                                    | ≤50 dB(A) @ 75 s                                                        |                                                                                   |                              | ≤50 dB(A) @ 75 s                                                                   |                              | ≤45 dB(A) @ 75 s                                                                    |                                |
| Sound power level fail-safe position                       | ≤62 dB(A) @ 25 s                                                        |                                                                                   |                              | ≤62 dB(A) @ 20 s                                                                   |                              | ≤62 dB(A) @ 20 s                                                                    |                                |
| Running time fail-safe position 90°                        | <25 s                                                                   |                                                                                   |                              | 20 s                                                                               |                              | <20 s                                                                               |                                |
| Manual override                                            | –                                                                       |                                                                                   |                              | –                                                                                  |                              | Hand cranks                                                                         |                                |
| Degree of protection                                       | IP42                                                                    |                                                                                   |                              | IP54                                                                               |                              | IP54                                                                                |                                |
| Position indication                                        | Mechanical, add-on                                                      |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| Connection                                                 | Connecting cable 1 m, PVC                                               |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| Direction of rotation                                      | Selectable by mounting left/right                                       |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| Angle of rotation                                          | Max. 95°, can be limited on one side by adjustable mechanical end stops |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| Position indication                                        | Mechanical (integrated)                                                 |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| Ambient temperature                                        | –30...50°C <sup>5)</sup>                                                |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| Storage temperature                                        | –40...80°C                                                              |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| Ambient humidity                                           | 95% RH, non-condensing                                                  |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |
| EMC                                                        | CE according to 2014/30/EU                                              |                                                                                   |                              |                                                                                    |                              |                                                                                     |                                |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.

<sup>2)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).

<sup>3)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).

<sup>4)</sup> All MOD versions work with Modbus and BACnet.

<sup>5)</sup> Heating for ambient temperatures to –40°C on request.

Other versions on request. Please get in touch with your local Belimo contact person.

Rotary actuators,  
fail-safe

|                                                            |                        |                                                                                   |                                |                                                                                     |                                |
|------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------|--------------------------------|
| Nominal torque                                             |                        | 20 Nm                                                                             |                                | 30 Nm                                                                               |                                |
| Damper size up to approx.                                  |                        | 4 m <sup>2</sup>                                                                  |                                | 6 m <sup>2</sup>                                                                    |                                |
| Nominal voltage                                            | Running time motor 90° |  |                                |  |                                |
|                                                            |                        | SF..A..                                                                           |                                | EF..A..                                                                             |                                |
|                                                            |                        | Without auxiliary switch                                                          | With 2 SPDT auxiliary switches | Without auxiliary switch                                                            | With 2 SPDT auxiliary switches |
| Open/close                                                 |                        |                                                                                   |                                |                                                                                     |                                |
| AC/DC 24 V                                                 | 75 s                   | SF24A                                                                             | SF24A-S2                       | EF24A                                                                               | EF24A-S2                       |
| AC 230 V                                                   | 75 s                   |                                                                                   |                                | EF230A                                                                              | EF230A-S2                      |
| AC 24...240 V                                              | 75 s                   | SFA                                                                               | SFA-S2                         |                                                                                     |                                |
| DC 24...125 V                                              |                        |                                                                                   |                                |                                                                                     |                                |
| Modulating (2...10 V) <sup>1)</sup>                        |                        |                                                                                   |                                |                                                                                     |                                |
| AC/DC 24 V                                                 | 150 s                  | SF24A-SR                                                                          | SF24A-SR-S2                    | EF24A-SR                                                                            | EF24A-SR-S2                    |
| Communicative <sup>2)</sup> , parametrisable <sup>3)</sup> |                        |                                                                                   |                                |                                                                                     |                                |
| AC/DC 24 V                                                 | 150 s                  | SF24A-MP<br>SF24A-MOD <sup>4)</sup><br>VSF24A-LP1 <sup>5)</sup>                   |                                | EF24A-MP                                                                            |                                |
| Technical data                                             |                        |                                                                                   |                                |                                                                                     |                                |
| Shaft diameter                                             |                        | 10...25.4 mm                                                                      |                                | 12...26.7 mm                                                                        |                                |
| Motor sound power level                                    |                        | ≤45 dB(A) @ 75 s                                                                  |                                | ≤50 dB(A) @ 75 s                                                                    |                                |
| Sound power level fail-safe position                       |                        | ≤62 dB(A) @ 20 s                                                                  |                                | ≤62 dB(A) @ 20 s                                                                    |                                |
| Running time fail-safe position 90°                        |                        | <20 s                                                                             |                                | <20 s                                                                               |                                |
| Manual override                                            |                        | Hand cranks                                                                       |                                | Hand cranks                                                                         |                                |
| Degree of protection                                       |                        | IP54                                                                              |                                | IP54 / IP66 <sup>6)</sup>                                                           |                                |
| Position indication                                        |                        | Mechanical, add-on                                                                |                                |                                                                                     |                                |
| Connection                                                 |                        | Connecting cable 1 m, PVC                                                         |                                |                                                                                     |                                |
| Direction of rotation                                      |                        | Selectable by mounting left/right                                                 |                                |                                                                                     |                                |
| Angle of rotation                                          |                        | Max. 95°, can be limited on one side by adjustable mechanical end stops           |                                |                                                                                     |                                |
| Position indication                                        |                        | Mechanical (integrated)                                                           |                                |                                                                                     |                                |
| Ambient temperature                                        |                        | -30...50°C <sup>7)</sup>                                                          |                                |                                                                                     |                                |
| Storage temperature                                        |                        | -40...80°C                                                                        |                                |                                                                                     |                                |
| Ambient humidity                                           |                        | 95% RH, non-condensing                                                            |                                |                                                                                     |                                |
| EMC                                                        |                        | CE according to 2014/30/EU                                                        |                                |                                                                                     |                                |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.  
<sup>2)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).  
<sup>3)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).  
<sup>4)</sup> All MOD versions work with Modbus and BACnet.  
<sup>5)</sup> All V.-LP1 versions are IoT-compatible and can exchange data with the Belimo Cloud.  
<sup>6)</sup> IP66 version on request.  
<sup>7)</sup> Heating for ambient temperatures to -40°C on request.  
 Other versions on request. Please get in touch with your local Belimo contact person.

# Rotary actuators, fail-safe

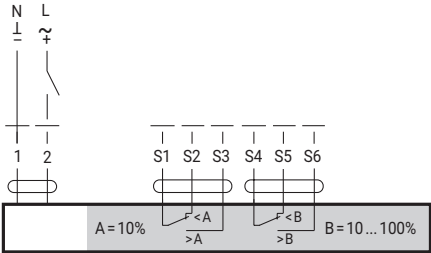
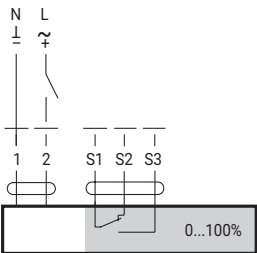
Electrical installation

Electrical and mechanical accessories **Page 14–15**

Open/close

**..F24, ..F24-S, ..F230, ..F230-S**

**..F24, ..F24-S2, ..F230A, ..F230A-S2, ..FA, ..FA-S2**



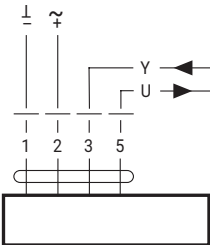
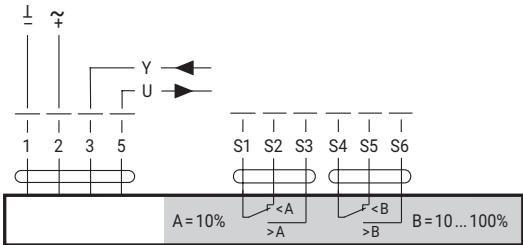
Modulating

**TF24-SR, TF230-SR, ..F24A-SR, ..F24A-SR-S2**

**..F24-MFT., ..F24A-MP**

Y = 0...10 V  
U = 2...10 V

Y = control signal  
U = position feedback



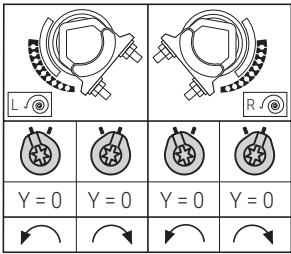
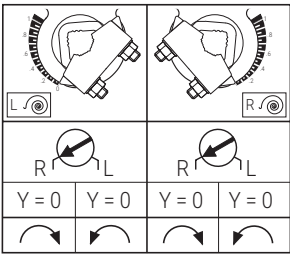
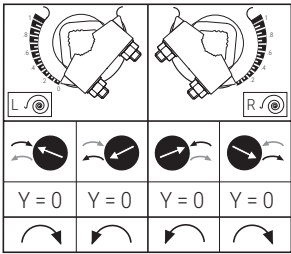
Direction of rotation

Modulating

**TF24-SR, TF230-SR**

**LF24-SR**

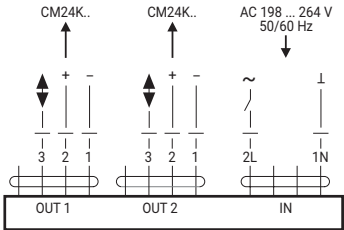
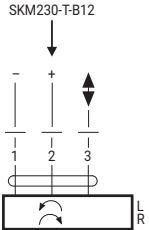
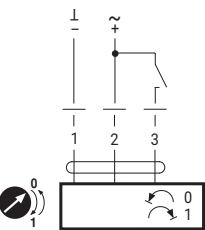
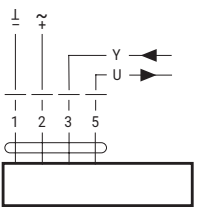
**..F24A-SR, ..F24A-SR-S2**



# Rotary actuators and very fast running rotary actuators, fail-safe

|                                                            |                                                                                   |                                                                                                             |                                                                                                      |                                                                                     |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Nominal torque                                             | 40 Nm                                                                             | 2 Nm                                                                                                        | 6 Nm                                                                                                 |                                                                                     |
| Damper size up to approx.                                  | 8 m²                                                                              | 0.4 m²                                                                                                      | 1.2 m²                                                                                               |                                                                                     |
| Nominal voltage                                            |  |                            |                    |  |
|                                                            | GK..A..                                                                           | CM24K..                                                                                                     | SKM230-T-B12                                                                                         | NKQ..A..                                                                            |
|                                                            |                                                                                   |  counterclockwise rotation |  clockwise rotation |                                                                                     |
| Open/close                                                 |                                                                                   |                                                                                                             |                                                                                                      |                                                                                     |
| AC/DC 24 V                                                 | GK24A-1                                                                           | CM24K-T-L.2                                                                                                 | CM24K-T-R.2                                                                                          | NKQ24A-1                                                                            |
| External supply module                                     |                                                                                   |                                                                                                             |                                                                                                      |                                                                                     |
| AC 230 V                                                   |                                                                                   |                                                                                                             | SKM230-T-B12.1                                                                                       |                                                                                     |
| Modulating (2...10 V) <sup>1)</sup>                        |                                                                                   |                                                                                                             |                                                                                                      |                                                                                     |
| AC/DC 24 V                                                 | GK24A-SR                                                                          |                                                                                                             |                                                                                                      | NKQ24A-SR                                                                           |
| Communicative <sup>2)</sup> , parametrisable <sup>3)</sup> |                                                                                   |                                                                                                             |                                                                                                      |                                                                                     |
| AC/DC 24 V                                                 | GK24A-MP<br>GK24A-MOD <sup>4)</sup>                                               |                                                                                                             |                                                                                                      |                                                                                     |
| Technical data                                             |                                                                                   |                                                                                                             |                                                                                                      |                                                                                     |
| Shaft diameter                                             | 12...26.7 mm                                                                      | 6...12.7 mm                                                                                                 | 8...26.7 mm                                                                                          |                                                                                     |
| Sound power level Motor                                    | ≤52 dB(A) @ 150 s                                                                 | ≤35 dB(A) @ 75 s                                                                                            | ≤60 dB(A) @ 4 s                                                                                      |                                                                                     |
| Sound power level Fail-safe position                       | ≤61 dB(A) @ 35 s                                                                  | ≤55 dB(A) @ 15 s                                                                                            | ≤60 dB(A) @ 4 s                                                                                      |                                                                                     |
| Running time motor 90°                                     | 150 s                                                                             | 75 s                                                                                                        | 4 s                                                                                                  |                                                                                     |
| Running time fail-safe 90°                                 | 35 s                                                                              | 15 s                                                                                                        | 4 s                                                                                                  |                                                                                     |
| Degree of protection                                       | IP54                                                                              | IP20 (CM24..) / IP40 (SKM..)                                                                                | IP54                                                                                                 |                                                                                     |
| Manual override                                            | Gear train disengagement with push button                                         | Gear train disengagement with magnet                                                                        | Gear train disengagement with push button                                                            |                                                                                     |
| Connection                                                 | Connecting cable 1 m                                                              | Connecting terminals                                                                                        | Connecting cable 1 m                                                                                 |                                                                                     |
| Direction of rotation                                      | Selectable with switch                                                            | Selectable via actuator                                                                                     | Selectable with switch                                                                               |                                                                                     |
| Angle of rotation                                          | Max. 95°, can be limited on both sides by adjustable mechanical end stops         |                                                                                                             |                                                                                                      |                                                                                     |
| Position indication                                        | Mechanical, add-on                                                                |                                                                                                             |                                                                                                      |                                                                                     |
| Ambient temperature                                        | -30...50°C                                                                        |                                                                                                             |                                                                                                      |                                                                                     |
| Storage temperature                                        | -40...80°C                                                                        |                                                                                                             |                                                                                                      |                                                                                     |
| Ambient humidity                                           | 95% RH, non-condensing                                                            |                                                                                                             |                                                                                                      |                                                                                     |
| EMC                                                        | CE according to 2014/30/EU                                                        |                                                                                                             |                                                                                                      |                                                                                     |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 0.5 mA.  
<sup>2)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).  
<sup>3)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).  
<sup>4)</sup> All MOD versions work with Modbus and BACnet.  
Other versions on request. Please get in touch with your local Belimo contact person.

| Electrical installation                                                             |                                                                                     | Electrical and mechanical accessories Page 14–15                                     |                                                                                       |                                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------|
| Open/close                                                                          | Open/close                                                                          | Modulating                                                                           | Parametrisable                                                                        |                                             |
| SKM230-T-B12.1                                                                      | CM24K-T..                                                                           | GK24A-1, NKQ24A-1                                                                    | ..24A-SR                                                                              | GK24A-MP                                    |
|                                                                                     |                                                                                     |                                                                                      | Y = 0...10 V<br>U = 2...10 V                                                          | Y = control signal<br>U = position feedback |
|  |  |  |  |                                             |

# Fast running rotary actuators

| Nominal torque                                             | 2 Nm                                                                              | 5 Nm                                                                              | 10 Nm                                                                              | 20 Nm                                                                               | 40 Nm                                                                               |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Damper size up to approx.                                  | 0.4 m <sup>2</sup>                                                                | 1 m <sup>2</sup>                                                                  | 2 m <sup>2</sup>                                                                   | 4 m <sup>2</sup>                                                                    | 8 m <sup>2</sup>                                                                    |
| Nominal voltage                                            | SPDT auxiliary switch                                                             |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|                                                            |  |  |  |  |  |
|                                                            | TMC..A                                                                            | LMC..A                                                                            | NMC..A                                                                             | SMC..A                                                                              | GMC..A                                                                              |
| Open/close, 3-point                                        |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| AC/DC 24 V                                                 | TMC24A                                                                            | LMC24A                                                                            |                                                                                    |                                                                                     |                                                                                     |
| 1                                                          | TMC24A-S                                                                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| AC 230 V                                                   | TMC230A                                                                           | LMC230A                                                                           |                                                                                    |                                                                                     | GMC230A                                                                             |
| 1                                                          | TMC230A-S                                                                         | LMC230A-S                                                                         |                                                                                    |                                                                                     |                                                                                     |
| Modulating (2...10 V) <sup>1)</sup>                        |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| AC/DC 24 V                                                 | TMC24A-SR                                                                         | LMC24A-SR                                                                         |                                                                                    |                                                                                     |                                                                                     |
| AC 230 V                                                   | TMC230ASR                                                                         |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Communicative <sup>2)</sup> , parametrisable <sup>3)</sup> |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| AC/DC 24 V                                                 |                                                                                   |                                                                                   | NMC24A-MP                                                                          | SMC24A-MP<br>SMC24A-MOD <sup>4)</sup>                                               |                                                                                     |
| Technical data                                             |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Shaft diameter                                             | 6...20 mm                                                                         | 6...20 mm                                                                         | 8...26.7 mm                                                                        | 10...20 mm                                                                          | 12...26.7 mm                                                                        |
| Sound power level                                          | ≤40 dB(A) @ 35 s                                                                  | ≤45 dB(A) @ 35 s                                                                  | ≤45 dB(A) @ 35 s                                                                   | ≤55 dB(A) @ 35 s                                                                    | ≤45 dB(A) @ 35s                                                                     |
| Running time motor 90°                                     | 35 s                                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Manual override                                            | Gear train disengagement with push button, can be locked                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Connection                                                 | Connecting cable 1 m                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Direction of rotation                                      | Selectable with switch                                                            |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Angle of rotation                                          | Max. 95°, can be limited on both sides by adjustable mechanical end stops         |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Position indication                                        | Mechanical, add-on                                                                |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Degree of protection                                       | IP54                                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Ambient temperature                                        | -30...50°C                                                                        |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Storage temperature                                        | -40...80°C                                                                        |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| Ambient humidity                                           | 95% RH, non-condensing                                                            |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| EMC                                                        | CE according to 2014/30/EU                                                        |                                                                                   |                                                                                    |                                                                                     |                                                                                     |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.

<sup>2)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).

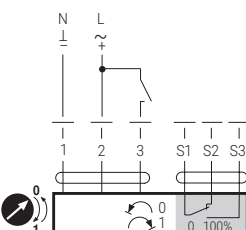
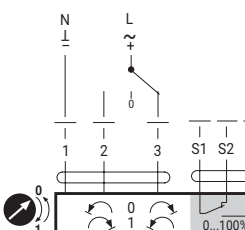
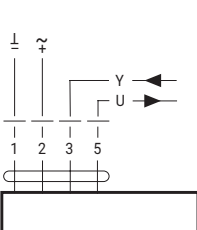
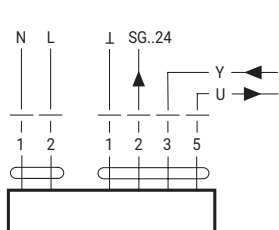
<sup>3)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).

<sup>4)</sup> All MOD versions work with Modbus and BACnet.

Other versions on request. Please get in touch with your local Belimo contact person.

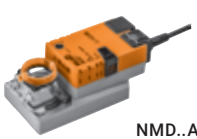
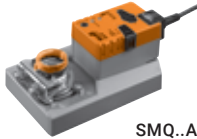
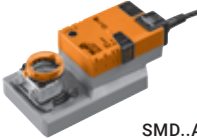
## Electrical installation

Electrical and mechanical accessories **Page 16–17**

| Open/close                                                                          | 3-point                                                                             | Modulating                                                                           | Parametrisable                                                                        | Modulating                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| ..MC24A, TMC24A-S,<br>..MC230A, TMC230A-S                                           | ..MC24A, TMC24A-S,<br>..MC230A, TMC230A-S                                           | ..MC24A-SR                                                                           | ..MC24A-MP                                                                            | TMC230ASR                    |
|                                                                                     |                                                                                     | Y = 0...10 V<br>U = 2...10 V                                                         | Y = control signal<br>U = position feedback                                           | Y = 0...10 V<br>U = 2...10 V |
|  |  |  |  |                              |

Subject to technical modifications

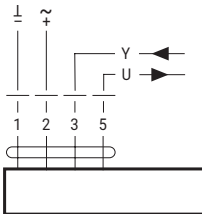
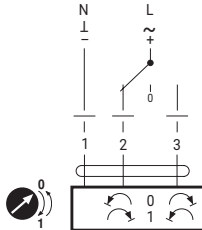
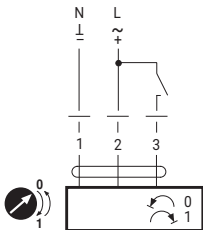
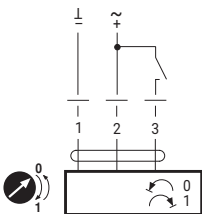
Very fast running rotary actuators

|                                     |                                                                                          |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
|-------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Nominal torque                      | 4 Nm                                                                                     | 8 Nm                                                                                     | 8 Nm                                                                                      | 16 Nm                                                                                      | 16 Nm                                                                                      |
| Damper size up to approx.           | 0.8 m <sup>2</sup>                                                                       | 1.5 m <sup>2</sup>                                                                       | 1.5 m <sup>2</sup>                                                                        | 3.2 m <sup>2</sup>                                                                         | 3.2 m <sup>2</sup>                                                                         |
| Nominal voltage                     |  LMQ..A |  NMQ..A |  NMD..A |  SMQ..A |  SMD..A |
| Open/close                          |                                                                                          |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| AC/DC 24 V                          | LMQ24A                                                                                   | NMQ24A                                                                                   |                                                                                           | SMQ24A                                                                                     |                                                                                            |
| Open/close, 3-point                 |                                                                                          |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| AC/DC 24 V                          |                                                                                          |                                                                                          |                                                                                           |                                                                                            | SMD24A                                                                                     |
| AC 230 V                            |                                                                                          |                                                                                          | NMD230A                                                                                   |                                                                                            | SMD230A                                                                                    |
| Modulating (2...10 V) <sup>1)</sup> |                                                                                          |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| AC/DC 24 V                          | LMQ24A-SR                                                                                | NMQ24A-SR                                                                                |                                                                                           | SMQ24A-SR                                                                                  |                                                                                            |
| Technical data                      |                                                                                          |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| Shaft diameter                      | 8...26.7 mm                                                                              | 8...26.7 mm                                                                              | 10...20 mm                                                                                | 12...26.7 mm                                                                               | 10...20 mm                                                                                 |
| Sound power level                   | ≤54 dB(A) @ 2.5 s                                                                        | ≤56 dB(A) @ 4 s                                                                          | ≤55 dB(A) @ 20 s                                                                          | ≤63 dB(A) @ 7 s                                                                            | ≤55 dB(A) @ 20 s                                                                           |
| Running time motor 90°              | 2.5 s                                                                                    | 4 s                                                                                      | 20 s                                                                                      | 7 s                                                                                        | 20 s                                                                                       |
| Ambient temperature                 | -30...40°C<br>(40...50°C limited) <sup>2)</sup>                                          | -30...40°C<br>(40...50°C limited) <sup>2)</sup>                                          | -30...50°C                                                                                | -30...40°C<br>(40...50°C limited) <sup>2)</sup>                                            | -30...50°C                                                                                 |
| Manual override                     | Gear train disengagement with push button, can be locked                                 |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| Connection                          | Connecting cable 1 m                                                                     |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| Direction of rotation               | Selectable with switch                                                                   |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| Angle of rotation                   | Max. 95°, can be limited on both sides by adjustable mechanical end stops                |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| Position indication                 | Mechanical, add-on                                                                       |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| Degree of protection                | IP54                                                                                     |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| Storage temperature                 | -40...80°C                                                                               |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| Ambient humidity                    | 95% RH, non-condensing                                                                   |                                                                                          |                                                                                           |                                                                                            |                                                                                            |
| EMC                                 | CE according to 2014/30/EU                                                               |                                                                                          |                                                                                           |                                                                                            |                                                                                            |

<sup>1)</sup> Modulating actuators: control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 0.5 mA for LMQ..A, NMQ..A, SMQ..A.  
<sup>2)</sup> Please get in touch with your local Belimo contact person.  
Other versions on request.

Electrical installation

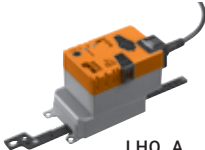
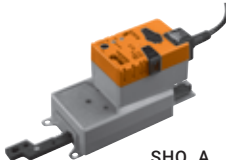
|            |                 |                              |
|------------|-----------------|------------------------------|
| Open/close | 3-point         | Modulating                   |
| ..MQ24A    | NMD..A / SMD..A | ..MQ24A-SR                   |
|            |                 | Y = 0...10 V<br>U = 2...10 V |



Very fast running linear actuators

Actuating force 100 N  
Damper size up to approx. 0.7 m²

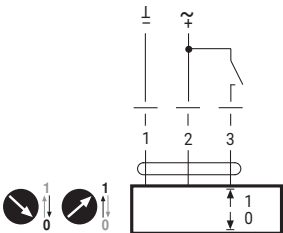
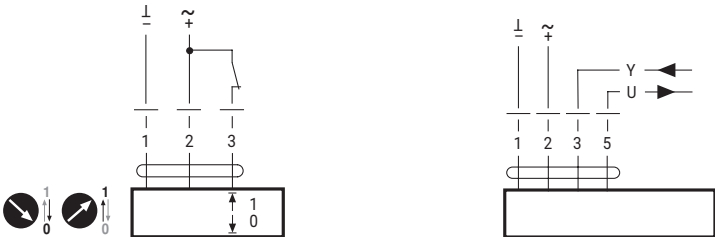
200 N  
1.3 m²

|                                     |                                                                                     |                 |
|-------------------------------------|-------------------------------------------------------------------------------------|-----------------|
| Nominal voltage                     |    |                 |
|                                     |  |                 |
| Open/close                          |                                                                                     |                 |
| AC/DC 24 V                          | LHQ24A100                                                                           | SHQ24A100       |
| Modulating (2...10 V) <sup>1)</sup> |                                                                                     |                 |
| AC/DC 24 V                          | LHQ24A-SR100                                                                        | SHQ24A-SR100    |
| Technical data                      |                                                                                     |                 |
| Stroke range                        | 0...100 mm                                                                          | 0...100 mm      |
| Sound power level                   | ≤56 dB(A) @ 3.5 s                                                                   | ≤56 dB(A) @ 7 s |
| Running time motor 100 mm           | 3.5 s                                                                               | 7 s             |
| Manual override                     | Gear train disengagement with push button, can be locked                            |                 |
| Connection                          | Connecting cable 1 m                                                                |                 |
| Direction of stroke                 | Selectable with switch                                                              |                 |
| Height of stroke                    | Adjustable in 20 mm increments from 40...100 mm                                     |                 |
| Degree of protection                | IP54                                                                                |                 |
| Ambient temperature                 | -30...40°C (40...50°C limited) <sup>2)</sup>                                        |                 |
| Storage temperature                 | -40...80°C                                                                          |                 |
| Ambient humidity                    | 95% RH, non-condensing                                                              |                 |
| EMC                                 | CE according to 2014/30/EU                                                          |                 |

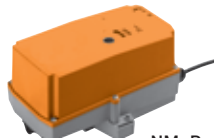
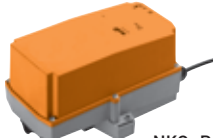
<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 0.5 mA.  
<sup>2)</sup> Please get in touch with your local Belimo contact person.  
Other versions on request.

Electrical installation

Electrical and mechanical accessories **Page 16–17**

|                                                                                     |  |                                                                                      |
|-------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|
| Open/close                                                                          |  | Modulating                                                                           |
| ..HQ24A100                                                                          |  | ..HQ24A-SR                                                                           |
| Priority on 3                                                                       |  | Y = 0...10 V/U = 2...10 V                                                            |
|  |  |  |

# RobustLine rotary actuators for extreme conditions, non fail-safe / fail-safe

| Nominal torque                                             |         | 10 Nm                                                                             | 20 Nm                                                                              | 6 Nm                                                                                |                              |                                           |
|------------------------------------------------------------|---------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------|-------------------------------------------|
| Damper size up to approx.                                  |         | 2 m²                                                                              | 4 m²                                                                               | 1.2 m²                                                                              |                              |                                           |
| Open/close                                                 | 3-point | Modulating (2...10 V)                                                             | Parametrisable                                                                     | Nominal voltage                                                                     |                              |                                           |
|                                                            |         |  |  |  |                              |                                           |
|                                                            |         | NM..P                                                                             | SM..P                                                                              | NKQ..P                                                                              |                              |                                           |
|                                                            |         | Without auxiliary switch                                                          | With 1 SPDT auxiliary switch                                                       | Without auxiliary switch                                                            | With 1 SPDT auxiliary switch | Without auxiliary switch                  |
| Open/close, 3-point                                        |         |                                                                                   |                                                                                    |                                                                                     |                              |                                           |
| ■                                                          | ■       | AC/DC 24 V                                                                        | NM24P                                                                              | NM24P-S                                                                             | SM24P                        | SM24P-S                                   |
| ■                                                          |         | AC/DC 24 V                                                                        |                                                                                    |                                                                                     |                              | NKQ24P-1                                  |
| ■                                                          | ■       | AC 230 V                                                                          | NM230P <sup>4)</sup>                                                               | NM230P-S <sup>4)</sup>                                                              | SM230P <sup>4)</sup>         | SM230P-S <sup>4)</sup>                    |
| Modulating (2...10 V) <sup>1)</sup>                        |         |                                                                                   |                                                                                    |                                                                                     |                              |                                           |
|                                                            | ■       | AC/DC 24 V                                                                        | NM24P-SR                                                                           |                                                                                     | SM24P-SR                     | NKQ24P-SR                                 |
|                                                            | ■       | AC 230 V                                                                          | NM230PSR                                                                           |                                                                                     | SM230PSR                     |                                           |
| Communicative <sup>2)</sup> , parametrisable <sup>3)</sup> |         |                                                                                   |                                                                                    |                                                                                     |                              |                                           |
|                                                            | ■       | AC/DC 24 V                                                                        | NM24P-MP                                                                           |                                                                                     | SM24P-MP                     |                                           |
| Technical data                                             |         |                                                                                   |                                                                                    |                                                                                     |                              |                                           |
| Fail-safe                                                  |         | –                                                                                 |                                                                                    | –                                                                                   |                              | ■                                         |
| Shaft diameter                                             |         | 10...20 mm                                                                        |                                                                                    | 14...20 mm                                                                          |                              | 10...20 mm                                |
| Running time motor 90°                                     |         | 150 s                                                                             |                                                                                    | 150 s                                                                               |                              | 4 s                                       |
| Running time fail-safe 90°                                 |         | –                                                                                 |                                                                                    | –                                                                                   |                              | 4 s                                       |
| Manual override                                            |         | Gear train disengagement with push button, can be locked                          |                                                                                    | Gear train disengagement with push button, can be locked                            |                              | Gear train disengagement with push button |
| Motor sound power level                                    |         | ≤35 dB(A) @ 150 s                                                                 |                                                                                    | ≤45 dB(A) @ 150 s                                                                   |                              | ≤60 dB(A) @ 4 s                           |
| Sound power level fail-safe position                       |         | –                                                                                 |                                                                                    | –                                                                                   |                              | ≤60 dB(A) @ 4 s                           |
| Ambient temperature                                        |         | –30...50°C (with heating to –40°C) <sup>4)</sup>                                  |                                                                                    | –30...50°C (with heating to –40°C) <sup>4)</sup>                                    |                              | –30...50°C                                |
| Connection                                                 |         | Connecting cable 1 m, FRNC                                                        |                                                                                    |                                                                                     |                              |                                           |
| Direction of rotation                                      |         | Selectable with switch                                                            |                                                                                    |                                                                                     |                              |                                           |
| Angle of rotation                                          |         | Max. 95°, can be limited on both sides by adjustable mechanical end stops         |                                                                                    |                                                                                     |                              |                                           |
| Position indication                                        |         | Mechanical, add-on                                                                |                                                                                    |                                                                                     |                              |                                           |
| Degree of protection                                       |         | IP66/67 / NEMA 4X                                                                 |                                                                                    |                                                                                     |                              |                                           |
| Storage temperature                                        |         | –40...80°C                                                                        |                                                                                    |                                                                                     |                              |                                           |
| Ambient humidity                                           |         | 100% RH                                                                           |                                                                                    |                                                                                     |                              |                                           |
| EMC                                                        |         | CE according to 2014/30/EU                                                        |                                                                                    |                                                                                     |                              |                                           |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA for NM..P and SM..P, max. 0.5 mA for NKQ..P.

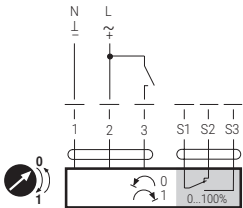
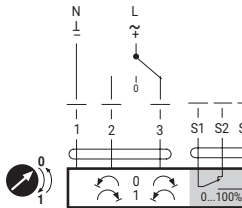
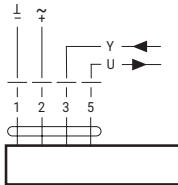
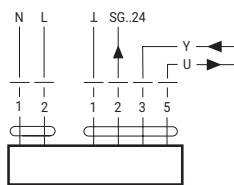
<sup>2)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).

<sup>3)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).

<sup>4)</sup> Available with heating and thermostat AC 230 V or with heating and humidistat AC 230 V for ambient temperatures down to –40°C (see overview of accessories **Page 18–19**). Other versions on request. Please get in touch with your local Belimo contact person.

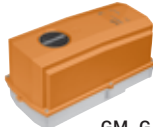
## Electrical installation

Electrical and mechanical accessories **Page 18–19**

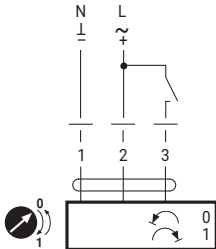
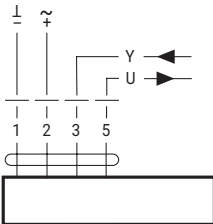
| Open/close                                                                          | 3-point                                                                             | Modulating                                                                           | Parametrisable                                                                        | Modulating                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------|
| ..M24P, ..M24P-S, ..M230P, ..M230P-S, NKQ24P-1                                      | ..M24P, ..M24P-S, ..M230P, ..M230P-S                                                | ..24P-SR                                                                             | ..24P-MP                                                                              | ..M230PSR                    |
|                                                                                     |                                                                                     | Y = 0...10 V<br>U = 2...10 V                                                         | Y = control signal<br>U = position feedback                                           | Y = 0...10 V<br>U = 2...10 V |
|  |  |  |  |                              |

Subject to technical modifications

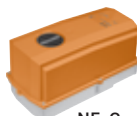
# IP66/67 / NEMA 4X rotary actuators for outdoor applications

|                                                            |                                                                           |                                                                                     |                                                          |
|------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------|
| Nominal torque                                             |                                                                           | 16 Nm                                                                               | 40 Nm                                                    |
| Damper size up to approx.                                  |                                                                           | 3.2 m²                                                                              | 8 m²                                                     |
| Nominal voltage                                            | Running time motor 90°                                                    |    |                                                          |
|                                                            |                                                                           |  |                                                          |
| SMQ..G                                                     |                                                                           | GM..G..                                                                             |                                                          |
| Without auxiliary switch                                   |                                                                           | Without auxiliary switch                                                            |                                                          |
| Open/close                                                 |                                                                           |                                                                                     |                                                          |
| AC/DC 24 V                                                 | 7 s                                                                       | SMQ24G                                                                              |                                                          |
|                                                            | 150 s                                                                     |                                                                                     | GM24G-T                                                  |
| AC 230 V                                                   | 150 s                                                                     |                                                                                     | GM230G-T                                                 |
| Modulating (2...10 V) <sup>1)</sup>                        |                                                                           |                                                                                     |                                                          |
| AC/DC 24 V                                                 | 7 s                                                                       | SMQ24G-SR                                                                           |                                                          |
|                                                            | 150 s                                                                     |                                                                                     | GM24G-SR-T                                               |
| Communicative <sup>2)</sup> , parametrisable <sup>3)</sup> |                                                                           |                                                                                     |                                                          |
| AC/DC 24 V                                                 | 150 s                                                                     |                                                                                     | GM24G-MP-T                                               |
| Technical data                                             |                                                                           |                                                                                     |                                                          |
| Shaft diameter                                             | 12...26.7 mm                                                              |                                                                                     | 14...26.7 mm                                             |
| Manual override                                            | Gear train disengagement with push button, can be locked                  |                                                                                     | Gear train disengagement with push button, can be locked |
| Motor sound power level                                    | ≤63 dB(A) @ 7 s                                                           |                                                                                     | ≤45 dB(A) @ 150 s                                        |
| Ambient temperature                                        | -30...40°C <sup>4)</sup> (40...50°C limited) <sup>5)</sup>                |                                                                                     | -30...50°C (with heating to -40°C) <sup>4)</sup>         |
| Connection                                                 | Connecting cable 1 m, FRNC                                                |                                                                                     | Connecting terminals                                     |
| Direction of rotation                                      | Selectable with switch                                                    |                                                                                     |                                                          |
| Angle of rotation                                          | Max. 95°, can be limited on both sides by adjustable mechanical end stops |                                                                                     |                                                          |
| Position indication                                        | Mechanical, add-on                                                        |                                                                                     |                                                          |
| Degree of protection                                       | IP66/67 / NEMA 4X                                                         |                                                                                     |                                                          |
| Storage temperature                                        | -40...80°C                                                                |                                                                                     |                                                          |
| Ambient humidity                                           | 100% RH                                                                   |                                                                                     |                                                          |
| EMC                                                        | CE according to 2014/30/EU                                                |                                                                                     |                                                          |

<sup>1)</sup> Modulating actuators: Control signal Y = 0 ...10 V, 100 kΩ; operating range 2 ... 10 V / position feedback U = 2 ...10 V, max. 1 mA for GM..G, NF..G and SF..G, max. 0.5 mA for SMQ..G and GK..G.  
<sup>2)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).  
<sup>3)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).  
<sup>4)</sup> Available with heating and thermostat/humidistat for ambient temperatures down to -40°C (see overview of accessories **Page 18–19**).  
<sup>5)</sup> Please contact your local Belimo contact person.  
Other versions on request.

|                                                                                     |                              |                                                                                      |  |
|-------------------------------------------------------------------------------------|------------------------------|--------------------------------------------------------------------------------------|--|
| Electrical installation                                                             |                              | Electrical and mechanical accessories <b>Page 18–19</b>                              |  |
| Open/close                                                                          | Modulating                   | Parametrisable                                                                       |  |
| GM..G, SMQ24G                                                                       | ..24G-SR..                   | ..24G-MP..                                                                           |  |
|                                                                                     | Y = 0...10 V<br>U = 2...10 V | Y = control signal<br>U = position feedback                                          |  |
|  |                              |  |  |

IP66/67 / NEMA 4X rotary actuators for outdoor applications, fail-safe

| Nominal torque                                             |                        | 10 Nm                                                                             |               | 20 Nm                                                                             |                                                  | 40 Nm                                                                               |  |                                           |  |  |  |
|------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------|--|-------------------------------------------|--|--|--|
| Damper size up to approx.                                  |                        | 2 m²                                                                              |               | 4 m²                                                                              |                                                  | 8 m²                                                                                |  |                                           |  |  |  |
| Nominal voltage                                            | Running time motor 90° |  |               |  |                                                  |  |  |                                           |  |  |  |
|                                                            |                        | NF..G                                                                             |               | SF..G                                                                             |                                                  | GK..G                                                                               |  |                                           |  |  |  |
| Without auxiliary switch                                   |                        | With 2 SPDT auxiliary switches                                                    |               | Without auxiliary switch                                                          |                                                  | With 2 SPDT auxiliary switches                                                      |  | Without auxiliary switch                  |  |  |  |
| Open/close                                                 |                        |                                                                                   |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| AC/DC 24 V                                                 | 150 s                  |                                                                                   |               |                                                                                   |                                                  |                                                                                     |  | GK24G-1                                   |  |  |  |
| AC 24...240 V                                              | <75 s                  | NFG-L                                                                             | NFG-S2-L      | SFG-L                                                                             | SFG-S2-L                                         |                                                                                     |  |                                           |  |  |  |
| DC 24...125 V                                              |                        |                                                                                   |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| Modulating (2...10 V) <sup>1)</sup>                        |                        |                                                                                   |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| AC/DC 24 V                                                 | 150 s                  | NF24G-SR-L                                                                        | NF24G-SR-S2-L | SF24G-SR-L                                                                        | SF24G-SR-S2-L                                    | GK24G-SR                                                                            |  |                                           |  |  |  |
| Communicative <sup>2)</sup> , parametrisable <sup>3)</sup> |                        |                                                                                   |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| AC/DC 24 V                                                 | <75 s                  | NF24G-MP-L                                                                        |               |                                                                                   | SF24G-MP-L                                       |                                                                                     |  |                                           |  |  |  |
|                                                            | 150 s                  |                                                                                   |               |                                                                                   |                                                  |                                                                                     |  | GK24G-MP                                  |  |  |  |
| Technical data                                             |                        |                                                                                   |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| Fail-safe                                                  |                        | ■                                                                                 |               |                                                                                   | ■                                                |                                                                                     |  | ■                                         |  |  |  |
| Shaft diameter                                             |                        | 12...26.7 mm                                                                      |               |                                                                                   | 12...26.7 mm                                     |                                                                                     |  | 14...26.7 mm                              |  |  |  |
| Running time fail-safe 90°                                 |                        | <20 s                                                                             |               |                                                                                   | <20 s                                            |                                                                                     |  | 35 s                                      |  |  |  |
| Manual override                                            |                        | Hand cranks                                                                       |               |                                                                                   | Hand cranks                                      |                                                                                     |  | Gear train disengagement with push button |  |  |  |
| Sound power level                                          |                        | ≤45 dB(A) @ 150 s                                                                 |               |                                                                                   | ≤45 dB(A) @ 150 s                                |                                                                                     |  | ≤52 dB(A) @ 150 s                         |  |  |  |
| Sound power level                                          |                        | ≤62 dB(A) @ 20 s                                                                  |               |                                                                                   | ≤62 dB(A) @ 20 s                                 |                                                                                     |  | ≤61 dB(A) @ 35 s                          |  |  |  |
| Fail-safe position                                         |                        |                                                                                   |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| Ambient temperature                                        |                        | -30...50°C (with heating to -40°C) <sup>4)</sup>                                  |               |                                                                                   | -30...50°C (with heating to -40°C) <sup>4)</sup> |                                                                                     |  | -30...50°C                                |  |  |  |
| Connection                                                 |                        | Connecting cable 1 m, FRNC                                                        |               |                                                                                   | Connecting cable 1 m, FRNC                       |                                                                                     |  | Connecting cable 1 m, FRNC                |  |  |  |
| Direction of rotation                                      |                        | ↺ counterclockwise rotation                                                       |               |                                                                                   | ↺ counterclockwise rotation                      |                                                                                     |  | Selectable with switch                    |  |  |  |
| Angle of rotation                                          |                        | Max. 95°, can be limited on one side by adjustable mechanical end stops           |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| Position indication                                        |                        | Mechanical, add-on                                                                |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| Degree of protection                                       |                        | IP66/67 / NEMA 4X                                                                 |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| Storage temperature                                        |                        | -40...80°C                                                                        |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| Ambient humidity                                           |                        | 100% RH                                                                           |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |
| EMC                                                        |                        | CE according to 2014/30/EU                                                        |               |                                                                                   |                                                  |                                                                                     |  |                                           |  |  |  |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2 ... 10 V / position feedback U = 2 ...10 V, max. 1 mA for GM..G, NF..G and SF..G, max. 0.5 mA for SMQ..G and GK..G.

<sup>2)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).

<sup>3)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).

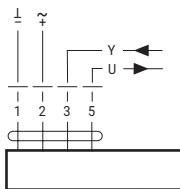
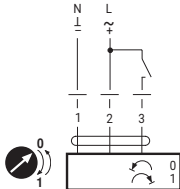
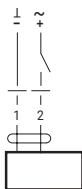
<sup>4)</sup> Available with heating and thermostat/humidistat for ambient temperatures down to -40°C (see overview of accessories **Page 18–19**).

Other versions on request. Please get in touch with your local Belimo contact person.

Electrical installation

Electrical and mechanical accessories **Page 18–19**

| Open/close | Modulating                   | Parametrisable                              |
|------------|------------------------------|---------------------------------------------|
| ..FG..-L   | ..24G-SR..                   | ..24G-MP..                                  |
|            | Y = 0...10 V<br>U = 2...10 V | Y = control signal<br>U = position feedback |



Actuators with high torque,  
non fail-safe / fail-safe

Nominal torque  
Damper size up to approx.

160 Nm  
Special

Nominal voltage



Communicative, parametrisable

|                                |                       |                                                                                                                  |                                                                                                                  |
|--------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| AC 24...240 V<br>DC 24...125 V | PMCA-S2-T             | PMCA-BAC-S2-T                                                                                                    | PKCA-BAC-S2-T                                                                                                    |
| Control                        | Open/close<br>3-point | Modulating (2...10 V)<br>Modulating (4...20 mA)<br>BACnet MS/TP<br>Modbus RTU<br>MP-Bus<br>Open/close<br>3-point | Modulating (2...10 V)<br>Modulating (4...20 mA)<br>BACnet MS/TP<br>Modbus RTU<br>MP-Bus<br>Open/close<br>3-point |

Technical data

|                                             |                                    |                            |                            |
|---------------------------------------------|------------------------------------|----------------------------|----------------------------|
| Fail-safe                                   | –                                  | –                          | ■                          |
| Form fit                                    | 17x17 mm                           | 17x17 mm                   | 17x17 mm                   |
| Running time motor 90°                      | 35 s (30...120 s variable)         | 35 s (30...120 s variable) | 35 s (30...120 s variable) |
| Running time fail-safe 90°                  | –                                  | –                          | 30 s                       |
| Motor sound power level                     | 68 dB(A)                           | 68 dB(A)                   | 68 dB(A)                   |
| Sound power level fail-safe position        | –                                  | –                          | 68 dB(A)                   |
| Parametrisation, commissioning, maintenance | Belimo Assistant App (NFC), ZTH EU |                            |                            |
| Manual override                             | Hand cranks                        |                            |                            |
| Auxiliary switches                          | 2 x SPDT                           |                            |                            |
| Connection                                  | Connecting terminals               |                            |                            |
| Direction of rotation                       | Selectable with tool               |                            |                            |
| Position indication                         | Mechanical (integrated)            |                            |                            |
| Degree of protection                        | IP66/67 / NEMA 4X                  |                            |                            |
| Ambient temperature                         | –30...40°C                         |                            |                            |
| Storage temperature                         | –40...80°C                         |                            |                            |
| Ambient humidity                            | 100% RH                            |                            |                            |
| EMC                                         | CE according to 2014/30/EU         |                            |                            |

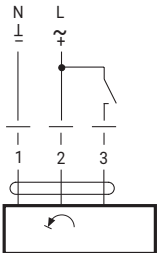
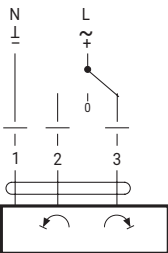
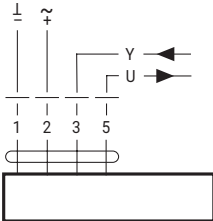
Electrical installation

|                                           |                               |            |                                |
|-------------------------------------------|-------------------------------|------------|--------------------------------|
| Open/close                                | 3-point                       | Modulating | Communicative (BACnet, Modbus) |
| PMCA-S2-T / PMCA-BAC-S2-T / PKCA-BAC-S2-T | PMCA-BAC-S2-T / PKCA-BAC-S2-T |            |                                |
|                                           |                               |            |                                |

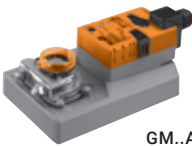
Actuators with damper blade

|                                                  |                                                                                   |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
|--------------------------------------------------|-----------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|--|
| Nominal torque                                   | 2 Nm                                                                              |  | 2 Nm                                                                              |  | 2 Nm                                                                               |  | 2 Nm                                                                                |  |
| Pipe diameter in accordance with DIN EN 1506     | DN 100                                                                            |  | DN 125                                                                            |  | DN 150                                                                             |  | DN 160                                                                              |  |
| Nominal voltage                                  |  |  |  |  |  |  |  |  |
|                                                  | CM..-100D                                                                         |  | CM..-125D                                                                         |  | CM..-150D                                                                          |  | CM..-160D                                                                           |  |
| Open/close, 3-point                              |                                                                                   |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| AC/DC 24 V                                       | CM24-L-100D.2                                                                     |  | CM24-L-125D.2                                                                     |  | CM24-L-150D.2                                                                      |  | CM24-L-160D.2                                                                       |  |
| AC 230 V                                         | CM230-L-100D.2                                                                    |  | CM230-L-125D.2                                                                    |  | CM230-L-150D.2                                                                     |  | CM230-L-160D.2                                                                      |  |
| Modulating (2...10 V) <sup>1)</sup>              |                                                                                   |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| AC/DC 24 V                                       | CM24-SR-L-100D.2                                                                  |  | CM24-SR-L-125D.2                                                                  |  | CM24-SR-L-150D.2                                                                   |  | CM24-SR-L-160D.2                                                                    |  |
| Technical data                                   |                                                                                   |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| Pipe diameter                                    | 100 mm                                                                            |  | 125 mm                                                                            |  | 150 mm                                                                             |  | 160 mm                                                                              |  |
| Running time motor 90°                           | 58 s                                                                              |  | 58 s                                                                              |  | 58 s                                                                               |  | 58 s                                                                                |  |
| Air tight in accordance with DIN EN 1751         | Class 3                                                                           |  | Class 2                                                                           |  | Class 2                                                                            |  | Class 2                                                                             |  |
| Resistance coefficient ζ in open position        | 0.48                                                                              |  | 0.3                                                                               |  | 0.3                                                                                |  | 0.3                                                                                 |  |
| Static differential pressure Δp above the damper | ≤1000 Pa                                                                          |  | ≤1000 Pa                                                                          |  | ≤1000 Pa                                                                           |  | ≤1000 Pa                                                                            |  |
| Manual override                                  | Gear train disengagement with magnet                                              |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| Connection                                       | Connecting cable 1 m                                                              |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| Direction of rotation                            | ↺ Counterclockwise rotation, position closed                                      |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| Angle range damper blade                         | 70° (open/close)                                                                  |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| Motor sound power level                          | ≤35 dB(A) @ 58 s                                                                  |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| Degree of protection                             | IP54                                                                              |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| Ambient temperature                              | -30...50°C                                                                        |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| Storage temperature                              | -40...80°C                                                                        |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| Ambient humidity                                 | 95% RH, non-condensing                                                            |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |
| EMC                                              | CE according to 2014/30/EU                                                        |  |                                                                                   |  |                                                                                    |  |                                                                                     |  |

<sup>1)</sup> Modulating actuators: Control signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.

|                                                                                     |  |                                                                                     |                                                                                       |  |  |
|-------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--|--|
| Electrical installation                                                             |  |                                                                                     | Electrical and mechanical accessories <b>Page 18–19</b>                               |  |  |
| Open/close                                                                          |  | 3-point                                                                             | Modulating                                                                            |  |  |
| CM24-L-..., CM230-L-...                                                             |  | CM24-L-..., CM230-L-...                                                             | CM24-SR-L-...                                                                         |  |  |
|  |  |  |  |  |  |

# Parametrisable rotary actuators with connecting terminals

|                                                            |                                                                                            |                                                                                            |                                                                                             |                                                                                              |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Nominal torque                                             | 5 Nm                                                                                       | 10 Nm                                                                                      | 20 Nm                                                                                       | 40 Nm                                                                                        |
| Damper size up to approx.                                  | 1 m <sup>2</sup>                                                                           | 2 m <sup>2</sup>                                                                           | 4 m <sup>2</sup>                                                                            | 8 m <sup>2</sup>                                                                             |
| Nominal voltage                                            |                                                                                            |                                                                                            |                                                                                             |                                                                                              |
|                                                            |  LM..A-TP |  NM..A-TP |  SM..A-TP |  GM..A-TP |
| Communicative <sup>1)</sup> , parametrisable <sup>2)</sup> |                                                                                            |                                                                                            |                                                                                             |                                                                                              |
| AC/DC 24 V                                                 | LM24A-MP-TP                                                                                | NM24A-MP-TP                                                                                | SM24A-MP-TP                                                                                 | GM24A-MP-TP                                                                                  |
| Technical data                                             |                                                                                            |                                                                                            |                                                                                             |                                                                                              |
| Shaft diameter                                             | 6...20 mm                                                                                  | 8...26.7 mm                                                                                | 10...20 mm                                                                                  | 12...26.7 mm                                                                                 |
| Sound power level                                          | ≤35 dB(A) @ 150 s                                                                          | ≤35 dB(A) @ 150 s                                                                          | ≤45 dB(A) @ 150 s                                                                           | ≤45 dB(A) @ 150 s                                                                            |
| Running time motor 90°                                     | 150 s                                                                                      |                                                                                            |                                                                                             |                                                                                              |
| Manual override                                            | Gear train disengagement with push button, can be locked                                   |                                                                                            |                                                                                             |                                                                                              |
| Connection                                                 | Connecting terminals                                                                       |                                                                                            |                                                                                             |                                                                                              |
| Direction of rotation                                      | Selectable with switch                                                                     |                                                                                            |                                                                                             |                                                                                              |
| Angle of rotation                                          | Max. 95°, can be limited on both sides by adjustable mechanical end stops                  |                                                                                            |                                                                                             |                                                                                              |
| Position indication                                        | Mechanical, add-on                                                                         |                                                                                            |                                                                                             |                                                                                              |
| Degree of protection                                       | IP54                                                                                       |                                                                                            |                                                                                             |                                                                                              |
| Ambient temperature                                        | -30...50°C                                                                                 |                                                                                            |                                                                                             |                                                                                              |
| Storage temperature                                        | -40...80°C                                                                                 |                                                                                            |                                                                                             |                                                                                              |
| Ambient humidity                                           | 95% RH, non-condensing                                                                     |                                                                                            |                                                                                             |                                                                                              |
| EMC                                                        | CE according to 2014/30/EU                                                                 |                                                                                            |                                                                                             |                                                                                              |

<sup>1)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).  
<sup>2)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set). Other versions on request. Please get in touch with your local Belimo contact person.

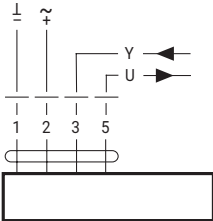
Electrical installation

Electrical and mechanical accessories **Page 12–13**

Parametrisable

**..M24A-MP-TP**

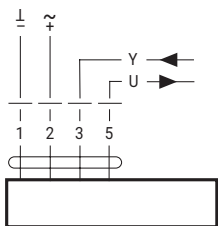
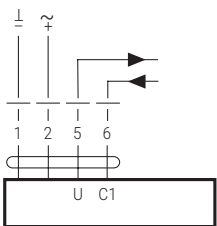
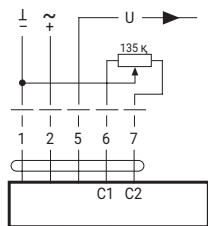
Y = control signal  
U = position feedback



Parametrisable rotary actuators with special control and connecting cable

|                              |                         |                                                                                                |
|------------------------------|-------------------------|------------------------------------------------------------------------------------------------|
| Nominal torque               | 20 Nm                   |                                                                                                |
| Damper size up to approx.    | 4 m <sup>2</sup>        |                                                                                                |
| Nominal voltage              | Control                 | <br>SM..A.. |
| Parametrisable <sup>1)</sup> |                         |                                                                                                |
| AC/DC 24 V                   | Modulating 4...20 mA    | SM24A-MA                                                                                       |
|                              | Modulating 0...20 V PhC | SM24A-PC                                                                                       |
|                              | Modulating 0...135 Ω    | SM24A-R9                                                                                       |
| <b>Technical data</b>        |                         |                                                                                                |
|                              | Shaft diameter          | 10...20 mm                                                                                     |
|                              | Running time motor 90°  | 150 s (86...346 s)                                                                             |
|                              | Manual override         | Gear train disengagement with push button, can be locked                                       |
|                              | Connection              | Connecting cable 1 m                                                                           |
|                              | Direction of rotation   | Selectable with switch                                                                         |
|                              | Angle of rotation       | Max. 95°, can be limited on both sides by adjustable mechanical end stops                      |
|                              | Position indication     | Mechanical, add-on                                                                             |
|                              | Sound power level       | ≤45 dB(A) @ 150 s                                                                              |
|                              | Degree of protection    | IP54                                                                                           |
|                              | Ambient temperature     | -30...50°C                                                                                     |
|                              | Storage temperature     | -40...80°C                                                                                     |
|                              | Ambient humidity        | 95% RH, non-condensing                                                                         |
|                              | EMC                     | CE according to 2014/30/EU                                                                     |

<sup>1)</sup> Running time and other functions are adjustable with PC-Tool or service tool ZTH EU.  
 Other versions on request. Please get in touch with your local Belimo contact person.

|                                                                                       |                                                                                                 |                                                                                       |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Electrical installation                                                               |                                                                                                 | Electrical and mechanical accessories <b>Page 12–13</b>                               |
| Modulating                                                                            |                                                                                                 |                                                                                       |
| <b>SM24A-MA</b><br>Y = control signal (4...20 mA)<br>U = position feedback (2...10 V) | <b>SM24A-PC</b><br>U = position feedback (2...10 V)<br>C1 = control signal (0...20 V phase cut) | <b>SM24A-R9</b><br>U = position feedback (2...10 V)                                   |
|    |              |  |

# Parametrisable linear actuators with connecting terminals

Actuating force

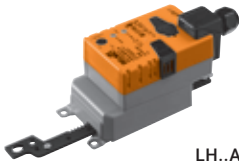
150 N

Damper size up to approx.

1 m<sup>2</sup>

Stroke (gear rod)

Nominal voltage



LH..A60

Communicative <sup>1)</sup>, parametrisable <sup>2)</sup>

|        |            |                |
|--------|------------|----------------|
| 60 mm  | AC/DC 24 V | LH24A-MP60-TP  |
| 100 mm |            | LH24A-MP100-TP |
| 200 mm |            | LH24A-MP200-TP |
| 300 mm |            | LH24A-MP300-TP |

Technical data

|                           |                                                          |
|---------------------------|----------------------------------------------------------|
| Running time motor 100 mm | 150 s                                                    |
| Manual override           | Gear train disengagement with push button, can be locked |
| Connection                | Connecting terminals                                     |
| Direction of stroke       | Selectable with switch                                   |
| Height of stroke          | Adjustable in 20 mm increments from 20...100 mm          |
| Motor sound power level   | ≤45 dB(A) @ 150 s                                        |
| Degree of protection      | IP54                                                     |
| Ambient temperature       | -30...50°C                                               |
| Storage temperature       | -40...80°C                                               |
| Ambient humidity          | 95% RH, non-condensing                                   |
| EMC                       | CE according to 2014/30/EU                               |

<sup>1)</sup> You can find suitable system diagrams at [www.belimo.com](http://www.belimo.com).  
<sup>2)</sup> Parametrisable with PC-Tool or service tool ZTH EU (e.g. for MP types, control, feedback, running time and other functions can be set).

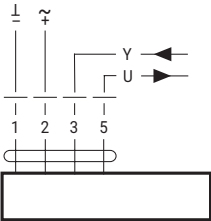
Electrical installation

Electrical and mechanical accessories **Page 12–13**

Parametrisable

..H24A-MP..

Y = control signal  
U = position feedback

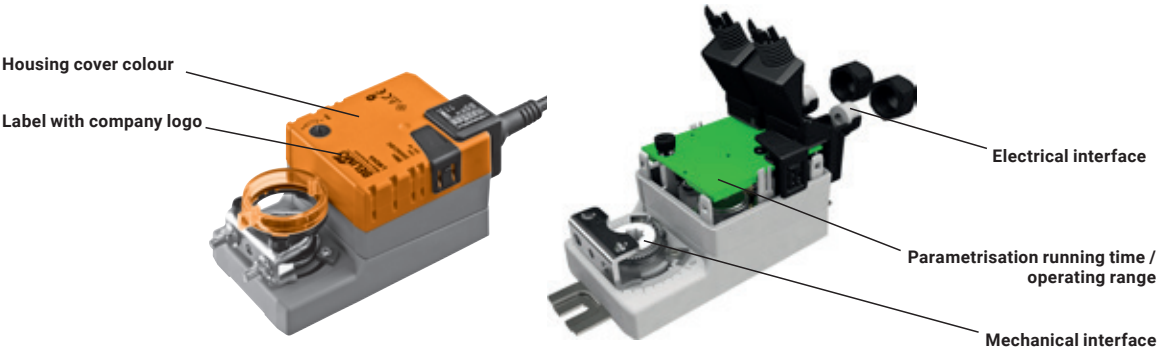


# Configuration options

Some actuator product ranges permit adaptation to special customer preferences. These allow - on the basis of existing components - a selection of different cable lengths, mechanical interfaces, running times and operating ranges. Please get in touch with your local Belimo contact person.

Example

LM..A..



Numeration is not exhaustive.

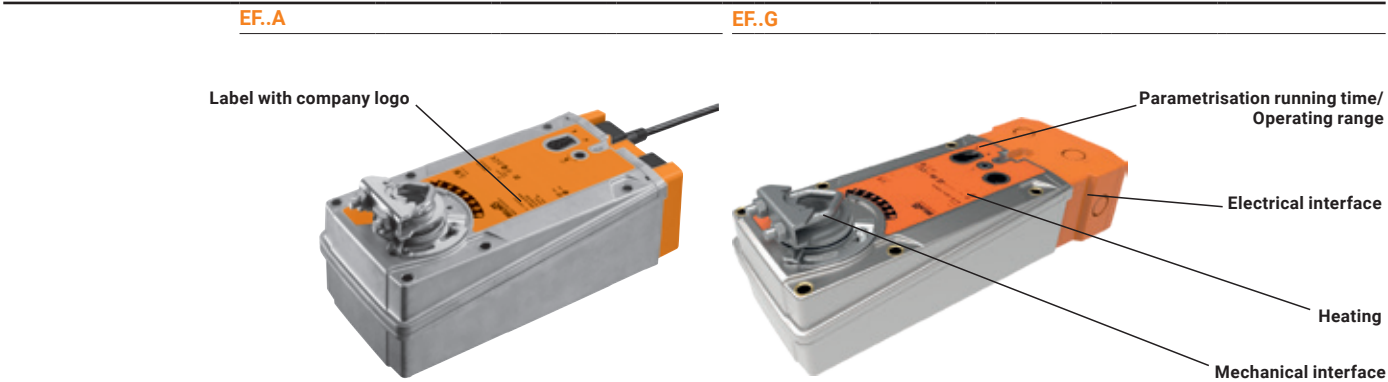
Rotary actuators

|                                 | CM..                                                                                                                   | LM..A..                                                                                                                         | NM..A..                                                                                                                                                         | SM..A..                                                                                                                                       | GM..A..                                                                                                                         |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Configuration                   |                                     |                                              |                                                                              |                                                          |                                            |
| Housing cover colour            | orange<br>grey                                                                                                         | orange<br>grey                                                                                                                  | orange<br>grey                                                                                                                                                  | orange<br>grey                                                                                                                                | orange<br>grey                                                                                                                  |
| Label with company logo, colour | Label: transparent<br>Font: black                                                                                      | Label: transparent<br>Font: black<br>blue<br>white                                                                              | Label: transparent<br>Font: black<br>blue<br>white                                                                                                              | Label: transparent<br>Font: black<br>blue<br>white                                                                                            | Label: transparent<br>Font: black<br>blue<br>white                                                                              |
| Mechanical interface            | Shaft clamp one-sided<br>6...12.7 mm<br>Form fit 6x6 mm<br>Form fit 8x8 mm<br>Form fit 10x10 mm                        | Shaft clamp one-sided<br>6...20 mm<br>Form fit 8x8 mm<br>Form fit 10x10 mm<br>Form fit 12x12 mm                                 | Shaft clamp, one-sided<br>8...26.7 mm<br>Shaft clamp, reversible<br>8...20 mm<br>Form fit 8x8 mm<br>Form fit 10x10 mm<br>Form fit 12x12 mm<br>Form fit 16x16 mm | Shaft clamp, one-sided<br>8...26.7 mm<br>Shaft clamp, reversible<br>10...20 mm<br>Form fit 10x10 mm<br>Form fit 12x12 mm<br>Form fit 16x16 mm | Shaft clamp, reversible<br>12...26.7 mm                                                                                         |
| Electrical interface            | Terminal connection IP20<br>Cable 1 m, PVC<br>Cable 1 m, FRNC<br>Cable 3 m, FRNC<br>Cable 5 m, FRNC                    | Terminal connection IP20<br>Terminal connection IP54<br>Cable 1 m, PVC<br>Cable 1 m, FRNC<br>Cable 3 m, FRNC<br>Cable 5 m, FRNC | Terminal connection IP20<br>Terminal connection IP54<br>Cable 1 m, PVC<br>Cable 1 m, FRNC<br>Cable 3 m, FRNC<br>Cable 5 m, FRNC                                 | Terminal connection IP20<br>Terminal connection IP54<br>Cable 1 m, PVC<br>Cable 1 m, FRNC<br>Cable 3 m, FRNC<br>Cable 5 m, FRNC               | Terminal connection IP20<br>Terminal connection IP54<br>Cable 1 m, PVC<br>Cable 1 m, FRNC<br>Cable 3 m, FRNC<br>Cable 5 m, FRNC |
| Parametrisation running time    | 35 s<br>45 s<br>75 s                                                                                                   | 35 s<br>45 s<br>90 s<br>150 s                                                                                                   | 45 s<br>90 s<br>150 s                                                                                                                                           | 90 s<br>150 s                                                                                                                                 | 90 s<br>150 s                                                                                                                   |
| Parametrisation operating range | 2...10 V<br>0.5...10 V<br>Adaptation option                                                                            | 2...10 V<br>0.5...10 V<br>Adaptation option                                                                                     | 2...10 V<br>0.5...10 V<br>Adaptation option                                                                                                                     | 2...10 V<br>0.5...10 V<br>Adaptation option                                                                                                   | 2...10 V<br>0.5...10 V<br>Adaptation option                                                                                     |
| Packaging                       | Single pack<br>Multipack at 20 pieces                                                                                  | Single pack<br>Multipack at 20 pieces                                                                                           | Single pack<br>Multipack at 20 pieces                                                                                                                           | Single pack<br>Multipack at 20 pieces                                                                                                         | Single pack<br>Multipack at 20 pieces                                                                                           |
| General                         | Feasibility of the combinations on request.<br>Minimum order quantity with coloured label or customer logo: 20 pieces. |                                                                                                                                 |                                                                                                                                                                 |                                                                                                                                               |                                                                                                                                 |

# Configuration options

Some actuator product ranges permit adaptation to special customer preferences. These allow - on the basis of existing components - a selection of different cable lengths, mechanical interfaces, running times and operating ranges. Please get in touch with your local Belimo contact person.

Example



Numeration is not exhaustive.

|                                 | Rotary actuators, fail-safe                                                                                                     |                                  |                                                                                     |                | Very fast running rotary actuators                                                                                                              |                                  |                                                                                                                                 |                                  | Linear actuators |  |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------------------|--|
|                                 | NF..A.. / SF..A..                                                                                                               |                                  | EF..A / EF..G                                                                       |                | LMQ..A..                                                                                                                                        |                                  | LH..A..                                                                                                                         |                                  |                  |  |
| Configuration                   |                                              |                                  |  |                |                                                             |                                  |                                            |                                  |                  |  |
| Housing cover colour            | orange<br>grey                                                                                                                  |                                  |                                                                                     |                | orange<br>grey                                                                                                                                  |                                  | orange<br>grey                                                                                                                  |                                  |                  |  |
| Label with company logo, colour | Label:<br>orange<br>blue<br>grey                                                                                                | Font:<br>black<br>white<br>black | Label:<br>orange<br>grey                                                            | Font:<br>black | Label:<br>transparent blue<br>black                                                                                                             | Font:<br>black<br>white<br>white | Label:<br>transparent<br>blue<br>black                                                                                          | Font:<br>black<br>white<br>white |                  |  |
| Mechanical interface            | Shaft clamp, reversible 10...25.4 mm<br>Form fit 10x10 mm<br>Form fit 12x12 mm<br>Form fit 16x16 mm                             |                                  | Shaft clamp reversible 12...26.7 mm                                                 |                | Shaft clamp, one-sided 8...26.7 mm<br>Shaft clamp, reversible<br>Form fit 8x8 mm<br>Form fit 10x10 mm<br>Form fit 12x12 mm<br>Form fit 16x16 mm |                                  | Without stroke limitation<br>With stroke limitation                                                                             |                                  |                  |  |
| Electrical interface            | Terminal connection IP20<br>Terminal connection IP54<br>Cable 1 m, PVC<br>Cable 1 m, FRNC<br>Cable 3 m, FRNC<br>Cable 5 m, FRNC |                                  | Terminal connection IP66<br>Cable 1 m, FRNC<br>Cable 3 m, FRNC<br>Cable 5 m, FRNC   |                | Cable 1 m, PVC<br>Cable 1 m, FRNC<br>Cable 3 m, FRNC<br>Cable 5 m, FRNC                                                                         |                                  | Terminal connection IP20<br>Terminal connection IP54<br>Cable 1 m, PVC<br>Cable 1 m, FRNC<br>Cable 3 m, FRNC<br>Cable 5 m, FRNC |                                  |                  |  |
| Parametrisation running time    | 45 s<br>75 s<br>90 s<br>150 s                                                                                                   |                                  | 75 s<br>90 s<br>150 s                                                               |                | 2.5 s<br>4 s<br>5 s<br>7 s<br>10 s                                                                                                              |                                  | 75 s/100 mm<br>90 s/100 mm<br>120 s/100 mm<br>150 s/100 mm                                                                      |                                  |                  |  |
| Parametrisation operating range | 2...10 V<br>0.5...10 V<br>Adaptation option                                                                                     |                                  | 2...10 V<br>0.5...10 V<br>Adaptation option                                         |                | 2...10 V<br>0.5...10 V<br>Adaptation option                                                                                                     |                                  | 2...10 V<br>0.5...10 V<br>Adaptation option                                                                                     |                                  |                  |  |
| Packaging                       | Single pack<br>Multipack at 20 pieces                                                                                           |                                  | Single pack<br>Multipack at 20 pieces                                               |                | Single pack<br>Multipack at 20 pieces                                                                                                           |                                  | Single pack<br>Multipack at 20 pieces                                                                                           |                                  |                  |  |
| Special                         |                                                                                                                                 |                                  | Heating                                                                             |                |                                                                                                                                                 |                                  |                                                                                                                                 |                                  |                  |  |
| General                         | Feasibility of the combinations on request.<br>Minimum order quantity with coloured label or customer logo: 20 pieces           |                                  |                                                                                     |                |                                                                                                                                                 |                                  |                                                                                                                                 |                                  |                  |  |

# All inclusive.

Belimo as a global market leader develops innovative solutions for the controlling of heating, ventilation and air-conditioning systems. Damper actuators, control valves, sensors and meters represent our core business.

Always focusing on customer value, we deliver more than only products. We offer you the complete product range for the regulation and control of HVAC systems from a single source. At the same time, we rely on tested Swiss quality with a five-year warranty. Our worldwide representatives in over 80 countries guarantee short delivery times and comprehensive support through the entire product life. Belimo does indeed include everything.

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On site around the globe



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Tested quality



Short delivery times



Comprehensive support



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