

The complete range of ventilation solutions






















2013



5
year warranty
SWISS QUALITY

Overview damper actuators

Standard actuators

		Damper actuators without spring return				
		CM..	LM..A	NM..A	SM..A	GM..A
						
Page		10	11	11	11	11
Torque ¹⁾		2 Nm	5 Nm	10 Nm	20 Nm	40 Nm
Universal spindle clamp 		6 ... 12.7 mm	6 ... 20 mm	8 ... 26 mm	10 ... 20 mm	12 ... 26 mm
For damper size up to approx. ¹⁾						
	0.4 m ²					
	1 m ²					
	2 m ²					
	4 m ²					
	8 m ²					

Using Belimo damper actuators

The actuators listed in this documentation are intended for the operation of air dampers in HVAC systems.

- ¹⁾ **Damper size** When calculating the torque required to operate dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, mounting and air flow conditions. The recommended damper sizes are guide values.

Standard actuators

		Damper actuators with spring return				
		 TF.. 	 LF.. 	 NF..A 	 SF..A 	 EF..A
	Page	12	12	12	12	12
	Torque ¹⁾	2.5 Nm	4 Nm	10 Nm	20 Nm	30 Nm
	Universal spindle clamp	6 ... 12 mm	8 ... 16 mm	10 ... 25.4 mm	10 ... 25.4 mm	12 ... 26.7 mm
For damper size up to approx. ¹⁾	0.5 m ²					
	0.8 m ²					
	2 m ²					
	4 m ²					
	6 m ²					

Special actuators

		SuperCap actuators				
		 SKM230.. + CM24K.. 	 GK..A 	 NKQ..A 	 LHK..A 	 SHK..A
	Page	14	14	14	14	14
	Torque ¹⁾	2 Nm	40 Nm	6 Nm		
	Universal spindle clamp	6 ... 12,7 mm	12 ... 26 mm	8 ... 26 mm		
	Actuating force				150 N	450 N
	Stroke range				0 ... 100 mm	0 ... 100 mm
For damper size up to approx. ¹⁾	0,4 m ²					
	1 m ²					
	1,2 m ²					
	3 m ²					
	8 m ²					

Using Belimo damper actuators










The actuators listed in this documentation are intended for the operation of air dampers in HVAC systems.

¹⁾ Damper size







When calculating the torque required to operate dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, mounting and air flow conditions. The recommended damper sizes are guide values.

Overview damper actuators

Special actuators

		Retrofit actuators	Retrofit linear actuators	Fast running actuators	Very fast running actuators	RobustLine actuators		
		LM..A NM..A SM..A GM..A 	LH..A 	TMC..A LMC..A NMC..A SMC..A 	LMQ..A NMQ..A SMQ..A SMD..A 	NM..P 	SM..P 	 NKQ..P 
	Page	15, 16	15	17	18	19	19	19
Torque ¹⁾		5 ... 40 Nm		2 ... 20 Nm	4 ... 16 Nm	10 Nm	20 Nm	6 Nm
Universal spindle clamp		6 ... 26 mm		6 ... 26 mm	8 ... 26 mm	10 ... 20 mm	14 ... 20 mm	10 ... 20 mm
Actuating force			150 N					
Stroke range			0 ... 300 mm					
For damper size up to approx. ¹⁾								
	0.4 m ²	█	█	█	█	█	█	█
	0.8 m ²	█	█	█	█	█	█	█
	1 m ²	█	█	█	█	█	█	█
	2 m ²	█	█	█	█	█	█	█
	3 m ²	█	█	█	█	█	█	█
	4 m ²	█	█	█	█	█	█	█
	8 m ²	█	█	█	█	█	█	█

Special actuators

		IP66/NEMA4 actuators				
		GM..G 	NF..G 	SF..G 	GK..G 	SMQ..G 
	Page	20	20	20	20	20
Torque ¹⁾		40 Nm	10 Nm	20 Nm	40 Nm	16 Nm
Universal spindle clamp		14 ... 26.7 mm	12 ... 26.7 mm	12 ... 26.7 mm	14 ... 26.7 mm	12 ... 26.7 mm
For damper size up to approx. ¹⁾						
	2 m ²	█	█	█	█	█
	3.2 m ²	█	█	█	█	█
	4 m ²	█	█	█	█	█
	8 m ²	█	█	█	█	█

Using Belimo damper actuators

The actuators listed in this documentation are intended for the operation of air dampers in HVAC systems.

¹⁾ Damper size

When calculating the torque required to operate dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, mounting and air flow conditions. The recommended damper sizes are guide values.

Special actuators		Full-rotation actuators	Linear actuators			Very fast running linear actuators	
		LU..A	CH..	LH..A	SH..A	LHQ..A	SHQ..A
Page		21	22	22	22	23	23
Torque ¹⁾		3 Nm					
Universal spindle clamp		6 ... 12 mm					
Actuating force			125 N	150 N	450 N	100 N	200 N
Stroke range			0 ... 100 mm	0 ... 300 mm	0 ... 300 mm	0 ... 100 mm	0 ... 100 mm
Form-fit		8 mm 10 mm ²⁾ 12 mm					
For damper size up to approx. ¹⁾							
0.6 m ²							
1 m ²							
2 m ²							
3 m ²							

Special actuators	Actuators with damper blade	
	<p>CM..D</p>	
Page	24	
Damper actuator	CM (2 Nm)	
Damper blade diameter	100 ... 160 mm	
Pipe diameter according to DIN EN 1506	DN 100 ... DN 160	

The following are included in the scope of delivery of the CM..D:
Actuator, damper blade and fastening kit

Using Belimo damper actuators

The actuators listed in this documentation are intended for the operation of air dampers in HVAC systems.

- ¹⁾ **Damper size** When calculating the torque required to operate dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, mounting and air flow conditions. The recommended damper sizes are guide values.
- ²⁾ **Form-fit 10 mm** With form-fit adapter ZF10-LUA.

Subject to technical modifications

		Actuators without emergency control function							
		Rotary actuators				Linear actuators			
		CM..	TMC..A LM..A LMC..A	NM..A NMC..A LMQ..A	SM..A SMC..A SMD..A NMQ..A	GM..A SMQ..A	CH..	LH..A LHQ..A	SH..A SHQ..A
Electrical accessories									
	Feedback potentiometer ¹⁾	P140A, P200A, P500A, P1000A, P2800A, P5000A, P10000A							
	Auxiliary switch ¹⁾	S1A, S2A							
	Positioner	CRP24-B1, SGA24, SGE24, SGF24							
	Position indication	ZAD24							
	Signal converter voltage/current	Z-UIC							
	Room temperature controller	CR24..							
Mechanical accessories									
	Shaft extension	AV6-20		AV8-25					
	Actuator crank arm			AH-25	AH-20 (SM..A, SMC..A and SMD..A only) AH-25 (SMD..A and NMQ..A only)	AH-GMA			
	Damper crank arm			KH8		KH10			
	Ball joint			KG8					
	Ball joint			KG10A		Z-KS2		Z-KS1	
	Single sided spindle clamp	K-ELA..		K-ENMA	K-ENSA				
	Reversible spindle clamp			K-NA	K-SA				
	Mounting kit for damper linkage			ZG-NMA	ZG-SMA (SM..A, SMC..A and SMD..A only) ZG-NMA (NMQ..A only)	ZG-GMA			
	Extension for ground plate			Z-NMA	Z-SMA (SM..A, SMC..A and SMD..A only)	Z-GMA (GM..A only)			
	Kit for end stop and rotary support					Z-AS2 Z-DS1		Z-AS1 Z-DS1	
Parameterising devices									
	Adjustment and diagnostic device	ZTH-GEN ²⁾				ZTH-GEN ²⁾			

For form-fit adapters Please contact your Belimo representative.

¹⁾ LMQ..A, NMQ..A, SMQ..A Auxiliary switches and feedback potentiometers can be used with a reversible spindle clamp (mounted below for short axis installation) only in combination with the adapter Z-SPA.

²⁾ ZTH-GEN In the contracting and retrofit business for all ..24A-MF(..) actuators.

Subject to technical modifications

		Actuators with emergency control function								
		Rotary actuators							Linear actuators	
		TF..	LF..	NF..A	SF..A	EF..A	SKM230.. + CM24K..	GK..A	NKQ..A	SHK..A
Electrical accessories										
	Feedback potentiometer ¹⁾			P200A-F ²⁾				P140A, P200A, P500A, P1000A, P2800A, P5000A, P10000A		
	Auxiliary switch ¹⁾			S2A-F ²⁾				S1A, S2A		
	Positioner	CRP24-B1, SGA24, SGE24, SGF24						CRP24-B1, SGA24, SGE24, SGF24		
	Position indication	ZAD24						ZAD24		
	Signal converter voltage/current	Z-UIC						Z-UIC		
	Room temperature controller	CR24..						CR24..		
Mechanical accessories										
	Shaft extension	AV6-20		AV8-25			AV6-20		AV8-25	
	Actuator crank arm	AH-TF	KH-LF	KH-AFB				AH-GMA	AH-25	
	Damper crank arm	KH8			KH-EFB			KH10	KH8	
	Ball joint	KG8							KG8	
	Ball joint	KG10A						KG10A		
	Reversible clamp		K6-1	K7-2		K9-2			K-SA	
	Angle of rotation limiter	ZDB-TF	ZDB-LF							
	Mounting kit for damper linkage	ZG-TF1	ZG-LF1 ZG-LF3	ZG-AFB		ZG-EFB		ZG-GMA	ZG-NMA	
	Extension for ground plate			Z-SF				Z-GMA		
Parameterising devices										
	Adjustment and diagnostic device			ZTH-GEN ³⁾				ZTH-GEN ³⁾		

For form-fit adapters Please contact your Belimo representative.

¹⁾ **GK..A, NKQ..A** GK..A: Auxiliary switches and feedback potentiometers can be used with a reversible spindle clamp (mounted below for short axis installation) only in combination with the adapter Z-SPA. NKQ..A: Auxiliary switches and feedback potentiometers can be used in all cases only with the Z-SPA adapter.

²⁾ **LF.., NF..A, SF..A** Further versions for LF.., NF..A and SF..A on request.









³⁾ **ZTH-GEN** In the contracting and retrofit business for all ..24A-MF(..) actuators.

		Actuators without emergency control function					
		Full-rotation actuators LU..A	Actuators with damper blade CM..D	RobustLine actuators		IP66/NEMA4 actuators	
				NM..P	SM..P	GM..G	SMQ..G
Electrical accessories							
	Feedback potentiometer			P140A GR, P200A, P500A GR, P1000A GR, P2800A GR, P5000A GR, P10000A GR		P140A, P200A, P500A, P1000A, P2800A, P5000A, P10000A	
	Auxiliary switch			S2A GR		S1A, S2A	
	Positioner	CRP24-B1, SGA24, SGE24, SGF24					
	Position indication	ZAD24					
	Signal converter voltage/current	Z-UIC					
	Room temperature controller	CR24..					
	Heating with thermostat AC/DC 24V (available built-in ex works only)					Z-HT24-MG	
	Heating with hygrostat AC/DC 24V (available built-in ex works only)					Z-HH24-MG	
	Heating with thermostat AC 230V (available built-in ex works only)			Z-HT230		Z-HT230-MG	
	Heating with hygrostat AC 230V (available built-in ex works only)			Z-HH230		Z-HH230-MG	
Mechanical accessories							
	Shaft extension						AV12-25-I
	Actuator crank arm					AH-GMA	
	Damper crank arm					KH10	
	Ball joint					KG10A	
	Single sided spindle clamp	K-LU					
	Angle of rotation limiter	ZDB-LU					
	Mounting kit for damper linkage					ZG-GMA	
Parameterising devices							
	Adjustment and diagnostic device	ZTH-GEN 1)		ZTH-GEN 1)			

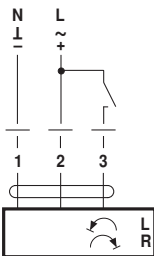
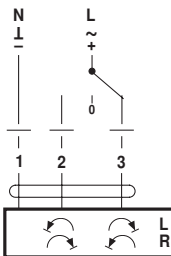
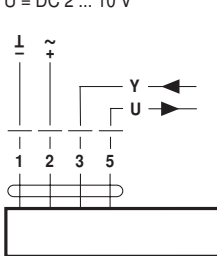
1) ZTH-GEN In the contracting and retrofit business for all ..24A-MF(..), ..24P-MF(..) and ..24G-MF(..) actuators.

		Actuators with emergency control function			
		RobustLine actuators	IP66/NEMA4 actuators		
		 NKQ..P 	 NF..G 	 SF..G 	 GK..G
Electrical accessories					
	Feedback potentiometer				P140A, P200A, P500A, P1000A, P2800A, P5000A, P10000A
	Auxiliary switch				S1A, S2A
	Positioner	CRP24-B1, SGA24, SGE24, SGF24			
	Position indication	ZAD24			
	Signal converter voltage/current	Z-UIC			
	Room temperature controller	CR24..			
	Heating with thermostat AC/DC 24V (available built-in ex works only)		Z-HT24-FG		Z-HT24-MG
	Heating with hygostat AC/DC 24V (available built-in ex works only)		Z-HH24-FG		Z-HH24-MG
	Heating with thermostat AC 230V (available built-in ex works only)	Z-HT230	Z-HT230-FG		Z-HT230-MG
	Heating with hygostat AC 230V (available built-in ex works only)	Z-HH230	Z-HH230-FG		Z-HH230-MG
Mechanical accessories					
	Actuator crank arm			AH-GMA	
	Damper crank arm			KH10	
	Ball joint			KG10A	
	Mounting kit for damper linkage			ZG-GMA	
Parameterising devices					
	Adjustment and diagnostic device	ZTH-GEN ¹⁾			




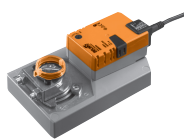

¹⁾ ZTH-GEN In the contracting and retrofit business for all ..24P-MF(..) and ..24G-MF(..) actuators.

		CM..						
		2 Nm						
								
		0.4 m²						
		For damper sizes up to approx.						
		Open-close actuators						
AC/DC 24V	Rotation to the left		CM24-L	CM24-T-L	CM24G-L			
	Rotation to the right		CM24-R	CM24-T-R	CM24G-R			
AC 230V	Rotation to the left		CM230-L CM230-1-L		CM230G-L			
	Rotation to the right		CM230-R CM230-1-R		CM230G-R			
		Modulating actuators						
		Control Signal Y: DC 0 ... 10 V, 100 kΩ / Position feedback DC 2 ... 10 V, max. 1 mA						
AC/DC 24V	Rotation to the left	0 V 				CM24-SR-L	CM24-SR-T-L	CM24G-SR-L
	Rotation to the right	0 V 				CM24-SR-R	CM24-SR-T-R	CM24G-SR-R
		Technical data						
Damper spindle		6 ... 12.7 mm						
Running time		75 s / 90°						
Manual override		Gear disengagement with magnet						
Connection		Cable 1 m	Terminals	Cable 1 m	Cable 1 m	Terminals	Cable 1 m	
Direction of rotation		Selectable with order number						
Angle of rotation		0 ... 287.5° / endless			Max. 95°, can be limited at both ends with adjustable mechanical end stops			
Position indication		Mechanical, pluggable						
Sound power level		≤35 dB(A) @ 75 s						
Degree of protection		IP 54		IP 66		IP54		IP 66
EMC		CE according to 2004/108/EC						
Ambient temperature		-30 ... +50 °C						
Non-operating temperature		-40 ... +80 °C						
Ambient humidity		95% r.h., non-condensating						

Other versions on request.

Electrical installation	CM24.., CM230.., CM230-1..	CM24.., CM230..	CM24-SR..
	Open-close control	3-point control (unsuitable for CM230-1..)	modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V
			

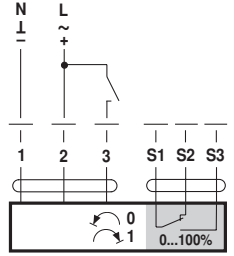
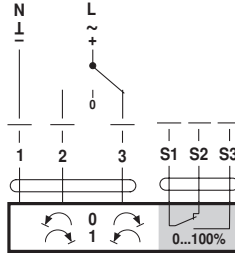
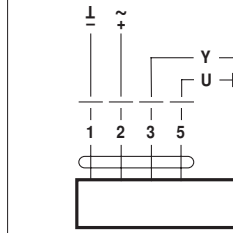
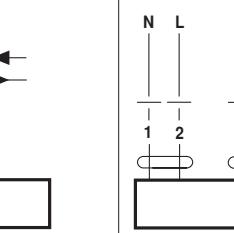
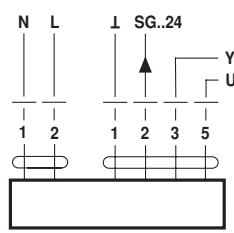
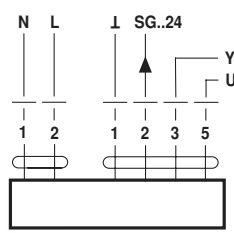


Electrical and mechanical accessories on page 6

	LM..A ²⁾	NM..A ²⁾	SM..A ²⁾	GM..A ²⁾
	5 Nm 	10 Nm 	20 Nm 	40 Nm 
For air damper sizes up to approx.	1 m ²	2 m ²	4 m ²	8 m ²
Open-close actuators				
AC/DC 24V	LM24A(-TP)	NM24A(-TP)	SM24A(-TP)	GM24A(-TP)
with auxiliary switch, 1 x SPDT	LM24A-S(-TP)	NM24A-S(-TP)	SM24A-S(-TP)	
AC 230V	LM230A(-TP)	NM230A(-TP)	SM230A(-TP)	GM230A(-TP)
with auxiliary switch, 1 x SPDT	LM230A-S(-TP)	NM230A-S(-TP)	SM230A-S(-TP)	
Modulating actuators				
	Control Signal Y: DC 0 ... 10 V, 100 kΩ / Position feedback DC 2 ... 10 V, max. 1 mA			
AC/DC 24V	LM24A-SR(-TP)	NM24A-SR(-TP)	SM24A-SR(-TP)	GM24A-SR(-TP)
AC 230V	LM230ASR(-TP)	NM230ASR(-TP)	SM230ASR(-TP)	
Parameterisable actuators				
	parameterisable ¹⁾			
AC/DC 24V	LM24A-MF(-TP)	NM24A-MF(-TP)	SM24A-MF(-TP)	GM24A-MF(-TP)
Technical data				
Damper spindle 	6 ... 20 mm	8 ... 26 mm	10 ... 20 mm	12 ... 26 mm
Running time	150 s / 90° ↺			
Manual override	Gear disengagement with push button, can be locked			
Connection	Cable 1 m / Terminals			
Direction of rotation	Selectable with switch			
Angle of rotation	Max. 95° ↺, can be limited at both ends with adjustable mechanical end stops			
Position indication	Mechanical, pluggable			
Sound power level	≤35 dB(A) @ 150 s		≤45 dB(A) @ 150 s	
Degree of protection	IP 54			
EMC	CE according to 2004/108/EC			
Ambient temperature	-30 ... +50 °C			
Non-operating temperature	-40 ... +80 °C			
Ambient humidity	95% r.h., non-condensating			

1) Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN.

2) Actuator types **with** extension «-TP» with terminal connection
 Actuator types **without** extension «-TP» with cable connection

Other versions on request.

Electrical installation	..M24A(-S), ..M230A(-S)..	..M24A-SR..	..M24A-MF..	..M230ASR..
	Open-close control 	3-point control (not permitted for GM..A) 	modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V 	parameterisable Y = Control signal U = Measuring voltage 
modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V 	modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V 			
Direction of rotation 				

Electrical and mechanical accessories on page 6

		TF..	LF..	NF..A	SF..A	EF..A
		2.5 Nm	4 Nm	10 Nm	20 Nm	30 Nm
For air damper sizes up to approx.		0.5 m ²	0.8 m ²	2 m ²	4 m ²	6 m ²
Open-close actuators						
AC/DC 24V		TF24	LF24	NF24A	SF24A	EF24A
	with auxiliary switch, 1 x SPDT	TF24-S	LF24-S			
	with auxiliary switch, 2 x SPDT			NF24A-S2	SF24A-S2	EF24A-S2
AC 230V		TF230	LF230	NF230A	SF230A	EF230A
	with auxiliary switch, 1 x SPDT	TF230-S	LF230-S			
	with auxiliary switch, 2 x SPDT			NF230A-S2	SF230A-S2	EF230A-S2
AC 24 ... 240V / DC 24 ... 125V				NFA	SFA	
	with auxiliary switch, 2 x SPDT			NFA-S2	SFA-S2	
3-point actuator						
AC 24V		TF24-3		NF24A-3	SF24A-3	
Modulating actuators						
Control Signal Y: DC 0 ... 10 V, 100 kΩ Position feedback DC 2 ... 10 V or DC 0 ... 10 V, max. 1 mA						
AC/DC 24V	Operating range DC 2 ... 10 V	TF24-SR	LF24-SR	NF24A-SR	SF24A-SR	EF24A-SR
	with auxiliary switch, 2 x SPDT			NF24A-SR-S2	SF24A-SR-S2	EF24A-SR-S2
	Operating range DC 0 ... 10 V			NF24A-SZ	SF24A-SZ	
	with auxiliary switch, 2 x SPDT			NF24A-SZ-S2	SF24A-SZ-S2	
230V AC	Operating range DC 2 ... 10 V	TF230-SR				
Parameterisable actuators						
parameterisable ¹⁾						
AC/DC 24V		TF24-MFT	LF24-MFT	NF24A-MF	SF24A-MF	EF24A-MF
Technical data						
Damper spindle		6 ... 12 mm	8 ... 16 mm	10 ... 25.4 mm	10 ... 25.4 mm	12 ... 26.7 mm
Running time	Motor	<75 s / 90°↯ (SR: 150 s / 90°↯)	40 ... 75 s / 90°↯ (SR: 150 s / 90°↯)	<75 s / 90°↯ (SR/SZ: 150 s / 90°↯)	<75 s / 90°↯ (SR/SZ: 150 s / 90°↯)	<75 s / 90°↯ (SR: 150 s / 90°↯)
	Emergency control function	<25 s / 90°↯	~20 s / 90°↯	<20 s / 90°↯	<20 s / 90°↯	<20 s / 90°↯
Manual override		Hand crank				
Connection		Cable 1 m, PVC				Cable FRNC 1 m
Direction of rotation		Can be selected by mounting L / R				
Angle of rotation		Max. 95°↯, can be limited at both ends with adjustable mechanical end stops				
Position indication		Mechanical, pluggable				
Sound power level	Motor	≤50 dB(A) @ 75 s =62 dB(A) @ 25 s	≤50 dB(A) @ 75 s =62 dB(A) @ 20 s	≤45 dB(A) @ 75 s =62 dB(A) @ 20 s		≤50 dB(A) @ 75 s =62 dB(A) @ 20 s
	Emergency control function					
Degree of protection		IP 42	IP 54			IP 54 ²⁾
EMC		CE according to 2004/108/EC				
Ambient temperature		-30 ... +50 °C				
Non-operating temperature		-40 ... +80 °C				
Ambient humidity		95% r.h., non-condensating				

¹⁾ Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN.

²⁾ EF..: IP 66 versions on request.

Other versions on request.

<p>Electrical installation</p>	<p>..F24(-S), ..F230(-S)</p> <p>Open-close control</p>	<p>..F24A(-S), ..F230A(-S)</p>
<p>TF24-3, ..F24A-3</p>		
<p>3-point control</p>		
<p>..F24A-SR(-S), ..F24A-SZ(-S) ..F24A-MF, ..F24-MFT</p>		
<p>modulating</p> <p>..SR: Y = DC 0 ... 10 V ..SZ: Y = DC 0 ... 10 V U = DC 2 ... 10 V U = DC 0 ... 10 V</p>		<p>parameterisable</p> <p>Y = Control signal U = Measuring voltage</p>
<p>Direction of rotation</p>		
<p>TF24-3</p> <p>3-point actuators</p>		<p>..F24A-3</p>
<p>TF24-SR, TF230-SR LF24-SR</p> <p>Modulating actuators</p>		<p>..F24A-SR(-S), ..F24A-SZ(-S)</p>

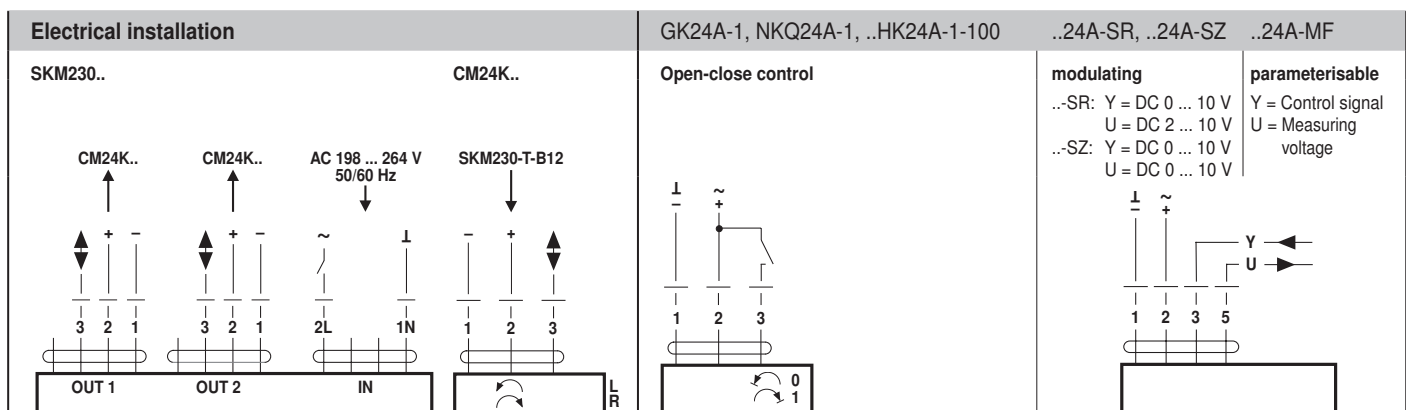
Electrical and mechanical accessories on page 7

	SKM230.. + CM24K..	GK..A	NKQ..A	LHK..A	SHK..A
	 2 Nm 	 40 Nm 	 6 Nm 	 150 N 	 450 N
For air damper sizes up to approx.	0,4 m ²	8 m ²	1,2 m ²	1 m ²	3 m ²
Open-close actuators					
AC/DC 24 V	CM24K-T-L, CM24K-T-R	GK24A-1	NKQ24A-1	LHK24A-1-100	SHK24A-1-100
Stetige Antriebe					
Control Signal Y: DC 0 ... 10 V, 100 kΩ Position feedback DC 2 ... 10 V or DC 0 ... 10 V, max. 1 mA					
AC/DC 24 V	Operating range DC 2 ... 10 V	GK24A-SR	NKQ24A-SR	LHK24A-SR100	SHK24A-SR100
	Operating range DC 0 ... 10 V	GK24A-SZ	NKQ24A-SZ	LHK24A-SZ100	SHK24A-SZ100
Parameterisable actuators					
parameterisable ¹⁾					
AC/DC 24 V		GK24A-MF	NKQ24A-MF	LHK24A-MF100	SHK24A-MF100
External SuperCap module					
AC/DC 24 V	SKM230-T-B12.1				
Technical data					
Damper spindle	6 ... 12,7 mm	12 ... 26 mm	8 ... 26 mm		
Running time	Motor	75 s / 90° <	150 s / 90° <	4 s / 90° <	150 s / 100 mm
	Emergency control function	15 s / 90° <	35 s / 90° <	4 s / 90° <	35 s / 100 mm
Manual override	Gear disengagement with magnet	Gear disengagement with push button			
Connection	Terminals	Cable 1 m			
Direction of rotation	Selectable with actuator ²⁾	Selectable with switch			
Angle of rotation	Max. 95° <, can be limited at both ends with adjustable mechanical end stops				
Stroke range					0 ... 100 mm
Position indication	Mechanical, pluggable				
Sound power level	Motor	≤35 dB(A) @ 75 s	≤52 dB(A) @ 150 s	≤60 dB(A) @ 4 s	≤45 dB(A) @ 120 s
	Emergency control function	≤55 dB(A) @ 15 s	≤61 dB(A) @ 35 s	≤60 dB(A) @ 4 s	≤65 dB(A) @ 35 s
Degree of protection	IP 20	IP 54			
EMC	CE according to 2004/108/EC				
Ambient temperature	-30 ... +50°C				
Non-operating temperature	-40 ... +80°C				
Ambient humidity	95% r.h., non-condensating				

¹⁾ Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN.

²⁾ CM..-L: Rotation to the left / CM..-R: Rotation to the right

Other versions on request.



Electrical and mechanical accessories on page 7





	LM24A-MF-TP	NM24A-MF-TP	SM24A-MF-TP	GM24A-MF-TP	LH24A-MF..-TP
	5 Nm 	10 Nm 	20 Nm 	40 Nm 	150 N
For air damper sizes up to approx.	1 m ²	2 m ²	4 m ²	8 m ²	1 m ²
Parameterisable actuators	parameterisable ¹⁾				
AC/DC 24V	LM24A-MF-TP	NM24A-MF-TP	SM24A-MF-TP	GM24A-MF-TP	
Max. 60 mm stroke					LH24A-MF60-TP
Max. 100 mm stroke					LH24A-MF100-TP
Max. 200 mm stroke					LH24A-MF200-TP
Max. 300 mm stroke					LH24A-MF300-TP
Technical data					
Damper spindle	6 ... 20 mm	8 ... 26 mm	10 ... 20 mm	12 ... 26 mm	
Running time	150 s / 90° ↺ (35 ... 150 s)	150 s / 90° ↺ (43 ... 173 s)	150 s / 90° ↺ (86 ... 346 s)	150 s / 90° ↺ (75 ... 290 s)	150 s / 100 mm (LH..60..: 90 s / 60 mm)
Manual override	Gear disengagement with push button, can be locked				
Connection	Terminals				
Direction of rotation	Selectable with switch				
Angle of rotation	Max. 95° ↺, can be limited at both ends with adjustable mechanical end stops				
Direction of stroke					Selectable with switch
Height of stroke					Adjustable in 20 mm increments
Position indication	Mechanical, pluggable				
Sound power level	≤35 dB(A) @ 150 s		≤45 dB(A) @ 150 s		≤35 dB(A) @ 150 s
Degree of protection	IP 54				
EMC	CE according to 2004/108/EC				
Ambient temperature	-30 ... +50 °C				
Non-operating temperature	-40 ... +80 °C				
Ambient humidity	95% r.h., non-condensating				

¹⁾ Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN. Other versions on request.

Electrical installation	..24A-MF-TP
	<p>parameterisable</p> <p>Y = Control signal U = Measuring voltage</p> <p>Direction of rotation </p> <p>Direction of stroke </p>

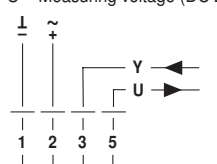
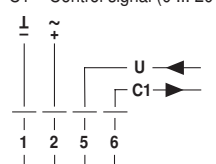
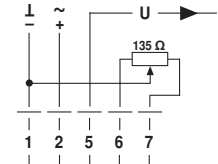


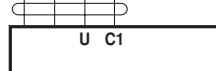
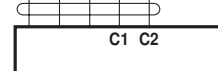
Electrical and mechanical accessories on page 6



	SM24A-MA	SM24A-PC	SM24A-R9
	20 Nm 	20 Nm 	20 Nm 
For air damper sizes up to approx.	4 m ²	4 m ²	4 m ²
Parameterisable actuators	parameterisable ¹⁾		
AC/DC 24V Control 4 ... 20 mA	SM24A-MA		
Control 0 ... 20V phase-cut		SM24A-PC	
Control 0 ... 135 Ω			SM24A-R9
Technical data			
Damper spindle 	10 ... 20 mm	10 ... 20 mm	10 ... 20 mm
Running time	150 s / 90° ↯ (86 ... 346 s)		
Manual override	Gear disengagement with push button, can be locked		
Connection	Cable 1 m		
Direction of rotation	Selectable with switch		
Angle of rotation	Max. 95° ↯, can be limited at both ends with adjustable mechanical end stops		
Position indication	Mechanical, pluggable		
Sound power level	≤45 dB(A) @ 150 s		
Degree of protection	IP 54		
EMC	CE according to 2004/108/EC		
Ambient temperature	-30 ... +50 °C		
Non-operating temperature	-40 ... +80 °C		
Ambient humidity	95% r.h., non-condensating		

¹⁾ Running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN.

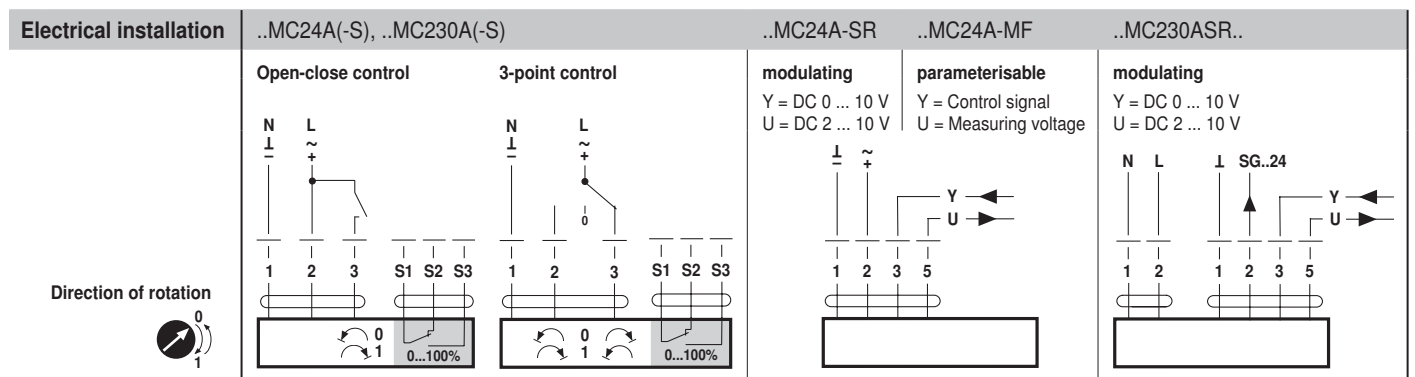
Other versions on request.

Electrical installation	SM24A-MA	SM24A-PC	SM24A-R9
	<p>modulating</p> <p>Y = Control signal (4 ... 20 mA) U = Measuring voltage (DC 2 ... 10 V)</p> 	<p>U = Measuring voltage (DC 2 ... 10 V) C1 = Control signal (0 ... 20V phase-cut)</p> 	<p>U = Measuring voltage (DC 2 ... 10 V)</p> 
Direction of rotation 	  		

Electrical and mechanical accessories on page 6

	TMC..A	LMC..A	NMC..A	SMC..A
	2 Nm	5 Nm	10 Nm	20 Nm
For air damper sizes up to approx.	0.4 m²	1 m²	2 m²	4 m²
Open-close actuators				
AC/DC 24V	TMC24A	LMC24A		
with auxiliary switch, 1 x SPDT	TMC24A-S			
230V AC	TMC230A	LMC230A		
with auxiliary switch, 1 x SPDT	TMC230A-S			
Modulating actuators				
	Control Signal Y: DC 0 ... 10 V, 100 kΩ / Position feedback DC 2 ... 10 V, max. 1 mA			
AC/DC 24V	TMC24A-SR	LMC24A-SR		
AC 230V	TMC230ASR			
Parameterisable actuators				
	parameterisable ¹⁾			
AC/DC 24V			NMC24A-MF	SMC24A-MF
Technical data				
Damper spindle	6 ... 20 mm	6 ... 20 mm	8 ... 26 mm	10 ... 20 mm
Running time	35 s / 90°↔			
Manual override	Gear disengagement with push button, can be locked			
Connection	Cable 1 m			
Direction of rotation	Selectable with switch			
Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops			
Position indication	Mechanical, pluggable			
Sound power level	≤35 dB(A) @ 35 s	≤45 dB(A) @ 35 s	≤55 dB(A) @ 35 s	
Degree of protection	IP 54			
EMC	CE according to 2004/108/EC			
Ambient temperature	-30 ... +50 °C			
Non-operating temperature	-40 ... +80 °C			
Ambient humidity	95% r.h., non-condensating			

¹⁾ Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN. Other versions on request.



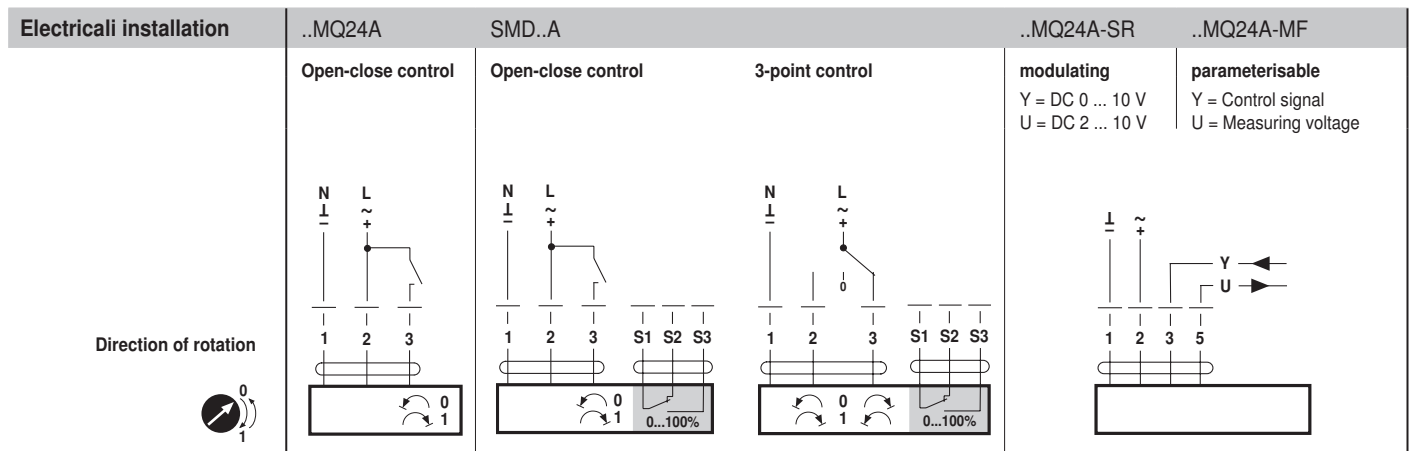
Electrical and mechanical accessories on page 6

	LMQ..A	NMQ..A	SMQ..A	SMD..A
	4 Nm	8 Nm	16 Nm	16 Nm
For air damper sizes up to approx.	0,8 m ²	1,5 m ²	3,2 m ²	3,2 m ²
Open-close actuators				
AC/DC 24 V	LMQ24A	NMQ24A	SMQ24A	SMD24A
AC 230 V				SMD230A
Modulating actuators				
Control Signal Y: DC 0 ... 10 V, 100 kΩ / Position feedback DC 2 ... 10 V, max. 1 mA				
AC/DC 24 V	LMQ24A-SR	NMQ24A-SR	SMQ24A-SR	
Parameterisable actuators				
parameterisable ¹⁾				
AC/DC 24 V	LMQ24A-MF	NMQ24A-MF	SMQ24A-MF	
Technical data				
Damper spindle	8 ... 26 mm		12 ... 26 mm	10 ... 20 mm
Running time	2,5 s / 90° ↺	4 s / 90° ↺	7 s / 90° ↺	20 s / 90° ↺
Manual override	Gear disengagement with push button, can be locked			
Connection	Cable 1 m			
Direction of rotation	Selectable with switch			
Angle of rotation	Max. 95° ↺, can be limited at both ends with adjustable mechanical end stops			
Position indication	Mechanical, pluggable			
Sound power level	≤52 dB(A) @ 2,5 s	≤52 dB(A) @ 4 s	≤52 dB(A) @ 7 s	≤55 dB(A) @ 20 s
Degree of protection	IP 54			
EMC	CE according to 2004/108/EC			
Ambient temperature	-30 ... +40 °C (+40 ... +50 °C with restrictions) ²⁾			-30 ... +50 °C
Non-operating temperature	-40 ... +80 °C			
Ambient humidity	95% r.h., non-condensating			

¹⁾ Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN.

²⁾ Please contact your Belimo representative.

Other versions on request.



Electrical and mechanical accessories on page 6

	NM..P	SM..P	NKQ..P
	10 Nm 	20 Nm 	 6 Nm
For air damper sizes up to approx.	2 m²	4 m²	1.2 m²
Open-close actuators			
AC/DC 24V	NM24P	SM24P	NKQ24P-1
with auxiliary switch, 1 x SPDT	NM24P-S	SM24P-S	
230V AC	NM230P ²⁾	SM230P ²⁾	
with auxiliary switch, 1 x SPDT	NM230P-S ²⁾	SM230P-S ²⁾	
Modulating actuators			
	Control Signal Y: DC 0 ... 10 V, 100 kΩ / Position feedback DC 2 ... 10 V, max. 1 mA		
AC/DC 24V	NM24P-SR	SM24P-SR	NKQ24P-SR
230V AC	NM230PSR ²⁾	SM230PSR ²⁾	
Parameterisable actuators			
	parameterisable ¹⁾		
AC/DC 24V	NM24P-MF	SM24P-MF	NKQ24P-MF
Technical data			
Damper spindle	10 ... 20 mm	14 ... 20 mm	10 ... 20 mm
Running time Motor Emergency control function	150 s / 90° \leftarrow		4 s / 90° \leftarrow 4 s / 90° \leftarrow
Manual override	Gear disengagement with push button, can be locked		
Connection	Cable FRNC 1 m		
Direction of rotation	Selectable with switch		
Angle of rotation	Max. 95° \leftarrow, can be limited at both ends with adjustable mechanical end stops		
Position indication	Mechanical, pluggable		
Sound power level	≤35 dB(A) @ 150 s	≤45 dB(A) @ 150 s	≤60 dB(A) @ 4 s
Degree of protection	IP 66 + IP 67		
EMC	CE according to 2004/108/EC		
Ambient temperature	-30 ... +50°C (with heating to -40°C) ²⁾		
Non-operating temperature	-40 ... +80°C		
Ambient humidity	100% r.h.		

1) Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN.

2) Available with heating and thermostat AC 230 V or heating and hygrostat AC 230 V (see «Overview accessories», pages 8 and 9).

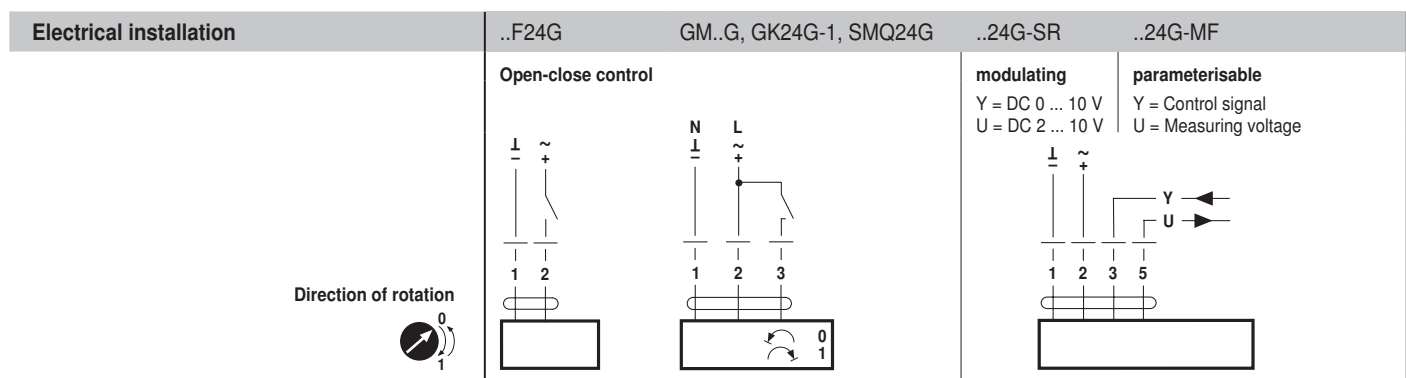
Other versions on request.

Electrical installation	NKQ24P-1, ..M24P(-S), ..M230P(-S)	..24P-SR	..24P-MF	..M230PSR
	Open-close control Direction of rotation	3-point control (not permitted for NKQ24P-1) 	modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V 	parameterisable Y = Control signal U = Measuring voltage
	modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V 			modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V

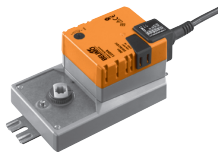
Electrical and mechanical accessories on pages 8 and 9

	GM..G	NF..G	SF..G	GK..G	SMQ..G
	40 Nm 	10 Nm 	20 Nm 	40 Nm 	16 Nm
For air damper sizes up to approx.	8 m ²	2 m ²	4 m ²	8 m ²	3.2 m ²
Open-close actuators					
AC/DC 24V	GM24G-T			GK24G-1	SMQ24G
230V AC	GM230G-T				
AC 24 ... 240V / DC 24 ... 125V		NFG-L	SFG-L		
with auxiliary switch, 2 x SPDT		NFG-S2-L	SFG-S2-L		
Modulating actuators Control Signal Y: DC 0 ... 10 V, 100 kΩ / Position feedback DC 2 ... 10 V, max. 1 mA					
AC/DC 24V	GM24G-SR-T	NF24G-SR-L	SF24G-SR-L	GK24G-SR	SMQ24G-SR
with auxiliary switch, 2 x SPDT		NF24G-SR-S2-L	SF24G-SR-S2-L		
Parameterisable actuators parameterisable ¹⁾					
AC/DC 24V	GM24G-MF-T	NF24G-MF-L	SF24G-MF-L	GK24G-MF	SMQ24G-MF
Technical data					
Damper spindle	14 ... 26.7 mm	12 ... 26.7 mm	12 ... 26.7 mm	14 ... 26.7 mm	12 ... 26.7 mm
Running time Motor	150 s / 90° \triangleleft	<math><75\text{ s} / 90^\circ \triangleleft</math> (SR: 150 s / 90° \triangleleft)		150 s / 90° \triangleleft	7 s / 90° \triangleleft
Emergency control function		<math><20\text{ s} / 90^\circ \triangleleft</math>		35 s / 90° \triangleleft	
Manual override	Gear disengagement with push button, can be locked	Hand crank		Gear disengagement with push button	Gear disengagement with push button, can be locked
Connection	Terminals	Cable 1 m, FRNC			
Direction of rotation	Selectable with switch				
Angle of rotation	Max. 95° \triangleleft, can be limited at both ends with adjustable mechanical end stops				
Position indication	Mechanical, pluggable				
Sound power level Motor	≤45 dB(A) @ 150 s	≤45 dB(A) @ 150 s		≤52 dB(A) @ 150 s	≤52 dB(A) @ 7 s
Emergency control function		≤62 dB(A) @ 20 s		≤61 dB(A) @ 35 s	
Degree of protection	IP 66				
EMC	CE according to 2004/108/EC				
Ambient temperature	-30 ... +50 °C				
Non-operating temperature	-40 ... +80 °C				
Ambient humidity	100% r.h.				

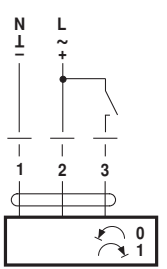
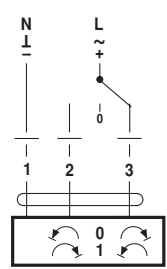
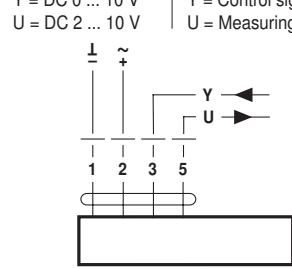

¹⁾ Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN. Other versions on request.



Electrical and mechanical accessories on pages 8 and 9

LU..A			
3 Nm			
			
0.6 m²			
For air damper sizes up to approx.			
Open-close actuators			
AC/DC 24V	LU24A		
AC 230V	LU230A		
Modulating actuators			
Control Signal Y: DC 0 ... 10 V, 100 kΩ / Position feedback DC 2 ... 10 V, max. 1 mA			
AC/DC 24V		LU24A-SR	
Parameterisable actuators			
parameterisable ¹⁾			
AC/DC 24V			LU24A-MF
Technical data			
Spindle driver	Form-fit 12 mm or 8 mm (with insert)		
Running time	150 s / 360° \triangleleft		
Manual override	Gear disengagement with push button, can be locked		
Connection	Cable 1 m		
Direction of rotation	Selectable with switch		
Angle of rotation	endless	0 ... 330° \triangleleft, permanently set	max. 0 ... 1800° \triangleleft
Sound power level	≤35 dB(A) @ 150 s		
Degree of protection	IP 54		
EMC	CE according to 2004/108/EC		
Ambient temperature	-30 ... +50 °C		
Non-operating temperature	-40 ... +80 °C		
Ambient humidity	95% r.h., non-condensating		

¹⁾ Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN. Other versions on request.

Electrical installation	LU24A, LU230A	LU24A-SR	LU24A-MF
	<p>Open-close control</p> 	<p>3-point control</p> 	<p>modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V</p> <p>parameterisable Y = Control signal U = Measuring voltage</p> 
<p>Direction of rotation</p> 			

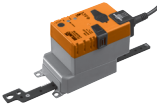
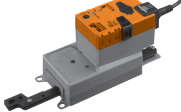
Electrical and mechanical accessories on page 8

		CH..	LH..A	SH..A
		125 N	150 N	450 N
For air dampers and sliders size up to approx.		0.8 m ²	1 m ²	3 m ²
Open-close actuators				
AC/DC 24V	Max. 60 mm stroke	CH24-L60.2	LH24A60	
	Max. 100 mm stroke	CH24-L100.2	LH24A100	SH24A100
	Max. 200 mm stroke		LH24A200	SH24A200
	Max. 300 mm stroke		LH24A300	SH24A300
AC 230V	Max. 60 mm stroke	CH230-L60.2	LH230A60	
	Max. 100 mm stroke	CH230-L100.2	LH230A100	SH230A100
	Max. 200 mm stroke		LH230A200	SH230A200
	Max. 300 mm stroke		LH230A300	SH230A300
Modulating actuators		Control Signal Y: DC 0 ... 10 V, 100 kΩ / Position feedback DC 2 ... 10 V, max. 1 mA		
AC/DC 24V	Max. 60 mm stroke	CH24-SR-L60.2, CH24-SR-R60.2		
	Max. 100 mm stroke	CH24-SR-L100.2, CH24-SR-R100.2	LH24A-SR100	SH24A-SR100
	Max. 200 mm stroke		LH24A-SR200	SH24A-SR200
AC 230V	Max. 100 mm stroke		LH230A-SR100	SH230A-SR100
	Max. 200 mm stroke		LH230A-SR200	SH230A-SR200
Parameterisable actuators		parameterisable ¹⁾		
AC/DC 24V	Max. 60 mm stroke		LH24A-MF60	
	Max. 100 mm stroke		LH24A-MF100	SH24A-MF100
	Max. 200 mm stroke		LH24A-MF200	SH24A-MF200
	Max. 300 mm stroke		LH24A-MF300	SH24A-MF300
Technical data				
Running time		380 s / 100 mm	150 s / 100 mm (LH..60: 90 s / 60 mm)	
Manual override		Gear disengagement with magnet	Gear disengagement with push button, can be locked	
Connection		Cable 1 m		
Direction of stroke		Selectable with contacting (SR: Selectable with order number)	Selectable with switch	
Height of stroke		Adjustable in 20 mm increments		
Sound power level		≤35 dB(A) @ 380 s	≤35 dB(A) @ 150 s	≤50 dB(A) @ 150 s
Degree of protection		IP 54		
EMC		CE according to 2004/108/EC		
Ambient temperature		-30 ... +50 °C		
Non-operating temperature		-40 ... +80 °C		
Ambient humidity		95% r.h., non-condensating		

¹⁾ Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN. Other versions on request.

Electrical installation	..H24A.., ..H230A.. (CH..-L.. corresponds to direction of stroke 0)	..H24A-SR..	..H24A-MF..	..H230ASR..
	Open-close control Priority on 3 3-point control 	modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V 	parameterisable Y = Control signal U = Measuring voltage 	modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V
Direction of stroke				

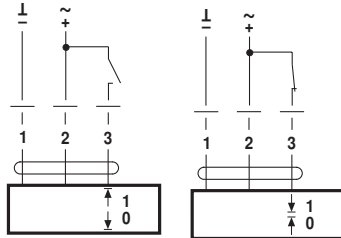
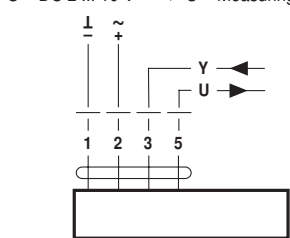
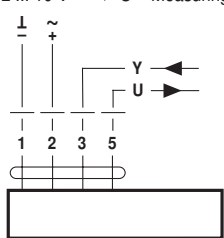

Electrical and mechanical accessories on page 6

	LHQ..A	SHQ..A
	100 N 	200 N 
For air damper sizes up to approx.	0.7 m ²	1.3 m ²
Open-close actuators		
AC/DC 24V	LHQ24A100	SHQ24A100
Modulating actuators	Control Signal Y: DC 0 ... 10 V, 100 kΩ / Position feedback DC 2 ... 10 V, max. 1 mA	
AC/DC 24V	LHQ24A-SR100	SHQ24A-SR100
Parameterisable actuators	parameterisable ¹⁾	
AC/DC 24V	LHQ24A-MF100	SHQ24A-MF100
Technical data		
Running time	3.5 s / 100 mm	7 s / 100 mm
Manual override	Gear disengagement with push button, can be locked	
Connection	Cable 1 m	
Direction of stroke	Selectable with switch	
Height of stroke	20 ... 100 mm, adjustable in 20 mm increments	
Position indication	Mechanical, pluggable	
Sound power level	≤52 dB(A) @ 3.5 s	≤52 dB(A) @ 7 s
Degree of protection	IP 54	
EMC	CE according to 2004/108/EC	
Ambient temperature	-30 ... +40 °C (+40 ... +50 °C with restrictions) ²⁾	
Non-operating temperature	-40 ... +80 °C	
Ambient humidity	95% r.h., non-condensating	

¹⁾ Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH-GEN.

²⁾ Please contact your Belimo representative.

Other versions on request.

Electrical installation	..HQ24A100	..HQ24A-SR100	..HQ24A-MF100
	Open-close control Priority on 3 	modulating Y = DC 0 ... 10 V U = DC 2 ... 10 V 	parameterisable Y = Control signal U = Measuring voltage 
Direction of stroke			

Electrical and mechanical accessories on page 6

	CM..-100D	CM..-125D	CM..-150D	CM..-160D
	2 Nm	2 Nm	2 Nm	2 Nm
For air ducts according to DIN EN 1506	DN 100	DN 125	DN 150	DN 160
Open-close actuators				
AC/DC 24V	CM24-L-100D	CM24-L-125D	CM24-L-150D	CM24-L-160D
230V AC	CM230-L-100D	CM230-L-125D	CM230-L-150D	CM230-L-160D
Modulating actuators				
	Control Signal Y: DC 0 ... 10 V, 100 kΩ / Position feedback DC 2 ... 10 V, max. 1 mA			
AC/DC 24V	CM24-SR-L-100D	CM24-SR-L-125D	CM24-SR-L-150D	CM24-SR-L-160D
Technical data				
Duct diameter	100 mm	125 mm	150 mm	160 mm
Running time	58 s / 70°\triangleleft			
Airtight according to DIN EN 1751	Class 3	Class 2		
Resistance coefficient ζ in open position	0.48	0.3		
Static Δp via the damper	≤ 1000 Pa			
Manual override	Gear disengagement with magnet			
Connection	Cable 1 m			
Direction of rotation	Rotation to the left (position Closed)			
Angle range, damper blade	70°\triangleleft (open-close)			
Position indication	Mechanical, pluggable			
Sound power level	≤ 35 dB(A) @ 58 s			
Degree of protection	IP 54			
EMC	CE according to 2004/108/EC			
Damper blade fire index	BKZ 4.3 (CH)			
Ambient temperature	-30 ... +50°C			
Non-operating temperature	-40 ... +80°C			
Ambient humidity	95% r.h., non-condensating			

Electrical installation	CM24-L-., CM230-L-.	CM24-SR-L-.
	<p>Open-close control</p>	<p>3-point control</p>
		<p>modulating</p> <p>Y = DC 0 ... 10 V U = DC 2 ... 10 V</p>

Electrical and mechanical accessories on page 8

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 contact your local Belimo sales organisation.

Examples

LM..A



Cable lengths

1 m, 3 m, 5 m

Mechanical interfaces

various spindle clamps and form-fit types, etc.

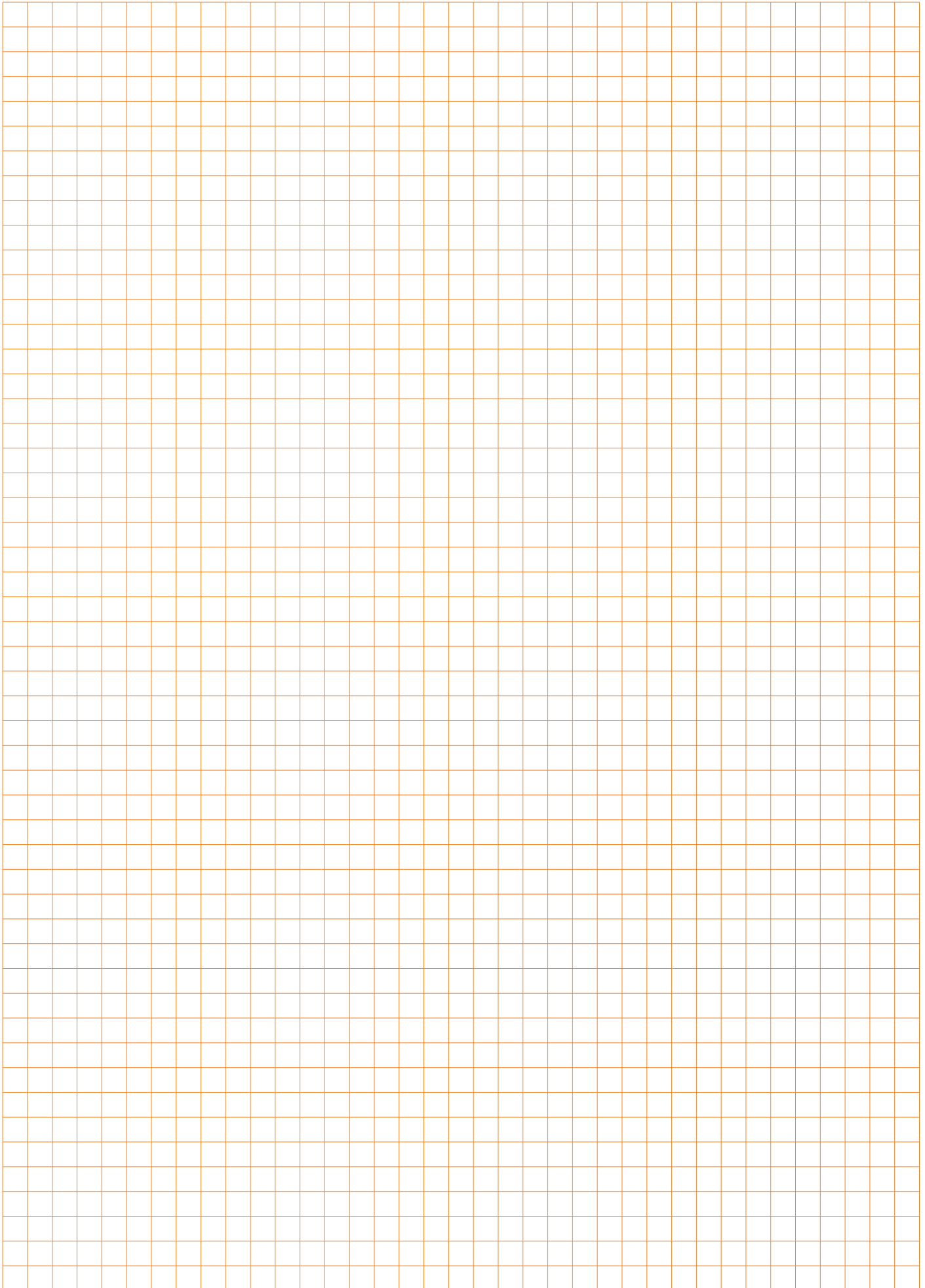
Running times

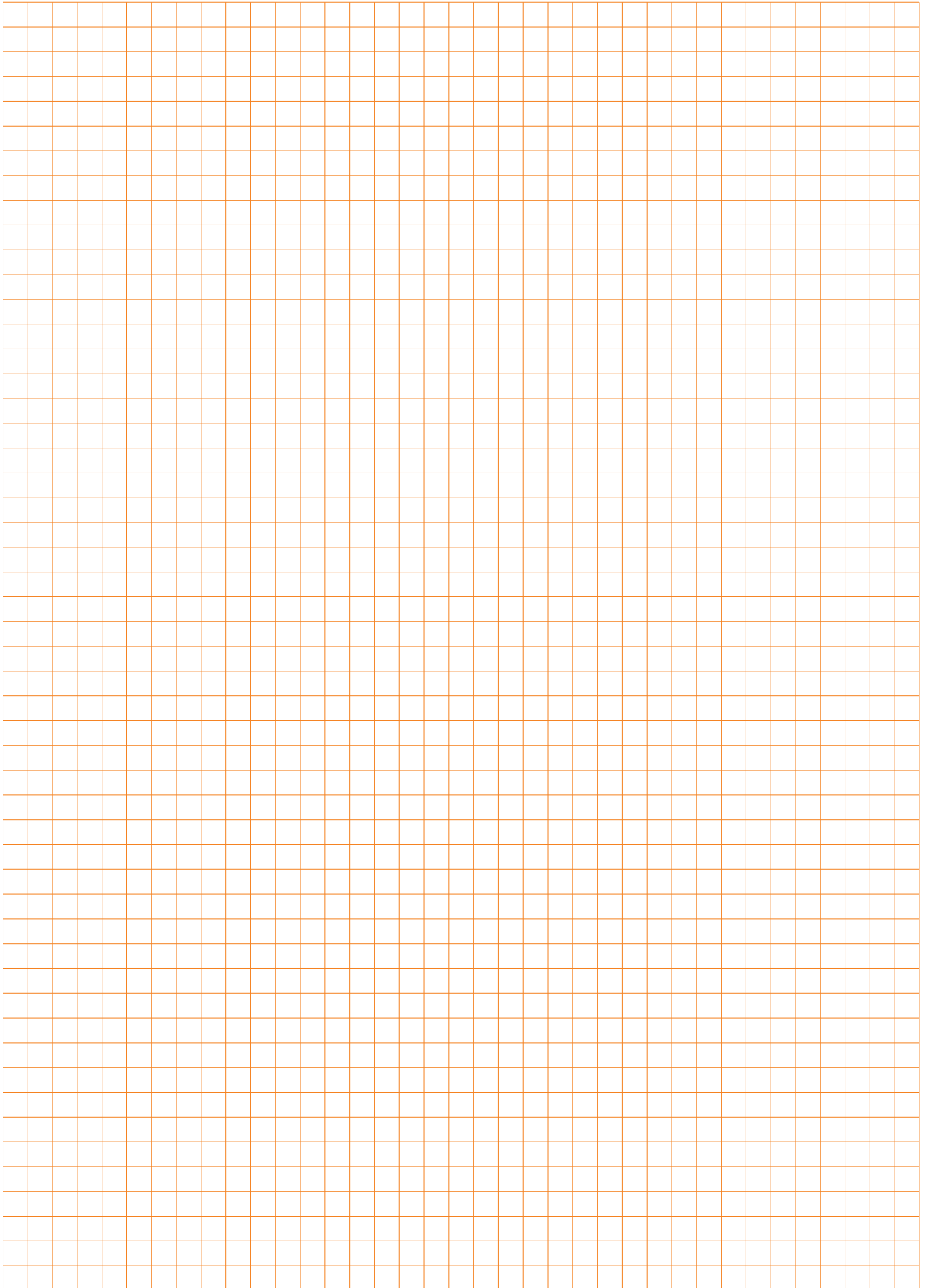
35 s, 45 s, 90 s, 150 s

Operating range

0...10V / 2...10V

List is not exhaustive





All-inclusive.



5-year
warranty



On site
around the globe



A complete
product range
from one source



Tested
quality



Short
delivery times



Comprehensive
support

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