









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...26.7 mm	10...20 mm	12...26.7 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...26.7 mm	8...26.7 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




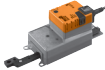
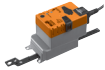

















		Retrofit actuators	Retrofit linear actuators	Fast running actuators	Very fast running actuators	RobustLine actuators		
		LM..A NM..A SM..A GM..A 	LH..A 	TMC..A LMC..A NMC..A SMC..A 	LMQ..A NMQ..A SMQ..A SMD..A 	NM..P 	SM..P 	 NKQ..P 
Page		15, 16	15	17	18	19	19	19
Torque ¹⁾		5...40 Nm		2...20 Nm	4...16 Nm	10 Nm	20 Nm	6 Nm
Universal spindle clamp 		6...26.7 mm		6...26.7 mm	8...26.7 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⁾								


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⁾						

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.

		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 ³⁾	CRP24-B1, SGA24, SGE24, SGF24							
	Position indication ³⁾	ZAD24							
	Signal converter voltage/current ³⁾	Z-UIC							
	Room temperature controller ³⁾	CR24..							
Mechanical accessories									
	Shaft extension	AV6-20		AV8-25 AV12-25-I <small>(only SM..A, SMC..A and SMD..A)</small>					
	Actuator crank arm			AH-20 <small>(only NM..A, and NMC..A)</small>	AH-20 <small>(only SM..A, SMC..A and SMD..A)</small>	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	K-ENSA K-ENSA-I <small>(only SM..A, SMC..A and SMD..A)</small>				
	Reversible spindle clamp			K-NA	K-SA				
	Mounting kit for damper linkage			ZG-NMA	ZG-SMA <small>(only SM..A, SMC..A and SMD..A)</small>	ZG-GMA			
	Extension for ground plate			Z-NMA	Z-SMA <small>(only SM..A, SMC..A and SMD..A)</small>	Z-GMA <small>(only GM..A)</small>			
	Kit for end stop and rotary support					Z-AS2 Z-DS1		Z-AS1 Z-DS1	
Parameterising devices									
	Adjustment and diagnostic device	ZTH EU ²⁾				ZTH EU 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 EU In the contracting and retrofit business for all ..24A-MF(.) actuators.

³⁾ for modulating actuators only

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 ³⁾			CRP24-B1, SGA24, SGE24, SGF24			CRP24-B1, SGA24, SGE24, SGF24						
	Position indication ³⁾			ZAD24			ZAD24						
	Signal converter voltage/current ³⁾			Z-UIC			Z-UIC						
	Room temperature controller ³⁾			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-10 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 EU ³⁾			ZTH EU 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⁾ ZTH EU

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

³⁾ for modulating actuators only
























⁴⁾ LF.., NF..A, SF..A

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

Subject to technical modifications

		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		S2A	
	Positioner ²⁾	CRP24-B1, SGA24, SGE24, SGF24					
	Position indication ²⁾	ZAD24					
	Signal converter voltage/current ²⁾	Z-UIC					
	Room temperature controller ²⁾	CR24..					
	Heating with thermostat AC/DC 24 V (available built-in ex works only)					HT24-MG	
	Heating with hygrostat AC/DC 24 V (available built-in ex works only)					HH24-MG	
	Heating with thermostat AC 230 V (available built-in ex works only)				HT230	HT230-MG	
	Heating with hygrostat AC 230 V (available built-in ex works only)				HH230	HH230-MG	
Mechanical accessories							
	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 EU ¹⁾		ZTH EU ¹⁾			



¹⁾ ZTH EU In the contracting and retrofit business for all ..24A-MF(..), ..24P-MF(..) and ..24G-MF(..) actuators.
²⁾ for modulating actuators only

		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		** (S2A)		
	Positioner ²⁾	CRP24-B1, SGA24, SGE24, SGF24			
	Position indication ²⁾	ZAD24			
	Signal converter voltage/current ²⁾	Z-UIC			
	Room temperature controller ²⁾	CR24..			
	Heating with thermostat AC/DC 24 V (available built-in ex works only)		HT24-FG	HT24-MG	
	Heating with hygrometer AC/DC 24 V (available built-in ex works only)		HH24-FG	HH24-MG	
	Heating with thermostat AC 230 V (available built-in ex works only)	HT230	HT230-FG	HT230-MG	
	Heating with hygrometer AC 230 V (available built-in ex works only)	HH230	HH230-FG	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 EU ¹⁾		

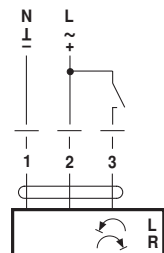
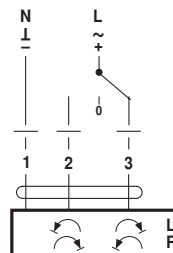
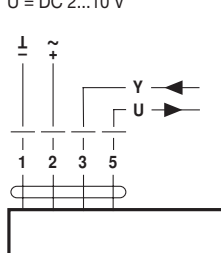
** Combinations only on request.
Please contact your Belimo representative.

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




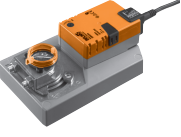

²⁾ for modulating actuators only

		CM..					
		2 Nm 					
For damper sizes up to approx.		0.4 m²					
Open-close actuators							
AC/DC 24 V	Rotation to the left	↶	CM24-L	CM24-T-L	CM24G-L		
	Rotation to the right	↷	CM24-R	CM24-T-R	CM24G-R		
AC 230 V	Rotation to the left	↶	CM230-L		CM230G-L		
	Rotation to the right	↷	CM230-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 24 V	Rotation to the left	0 V ↶				CM24-SR-L	CM24-SR-T-L
	Rotation to the right	0 V ↷				CM24-SR-R	CM24-SR-T-R
						CM24G-SR-L	CM24G-SR-R
Modulating actuators with adaption		Control Signal Y: DC 0...10 V, 100 kΩ / Position feedback DC 2...10 V, max. 1 mA					
AC/DC 24 V	Rotation to the left	0 V ↶				CM24-SX-L	CM24-SX-T-L
	Rotation to the right	0 V ↷				CM24-SX-R	CM24-SX-T-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			SR: max. 95°, can be limited at both ends with adjustable mechanical end stops SX: max. 3600°		
Position indication		Mechanical, pluggable					
Sound power level		≤35 dB(A) @ 75 s					
Degree of protection		IP 54	IP 20	IP 66	IP 54	IP 20	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..	CM24.., CM230..	CM24-SR.., CM24SX..
	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

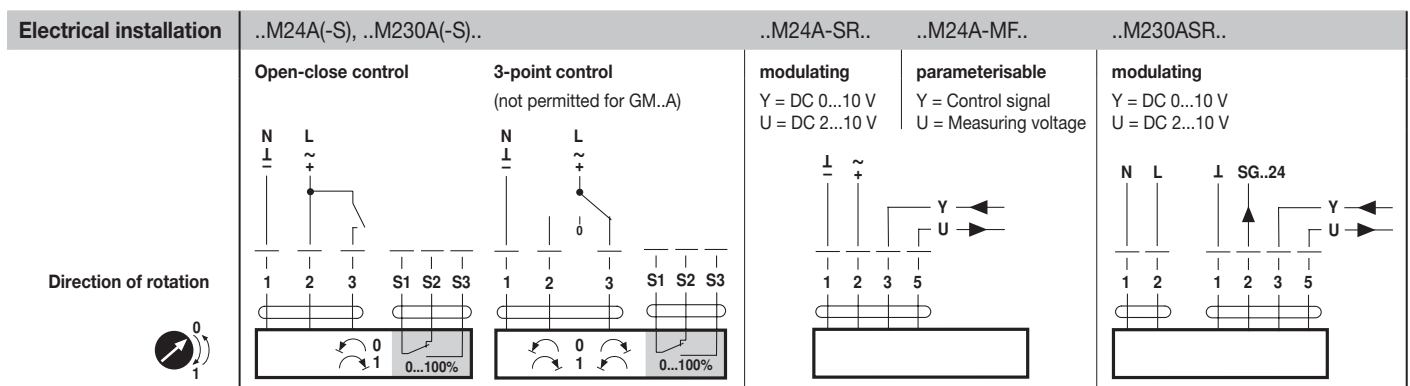
	LM..A ²⁾	NM..A ²⁾	SM..A ²⁾	GM..A ²⁾
	5 Nm 	10 Nm 	20 Nm 	40 Nm 
For air damper sizes up to approx.	1 m ²	2 m ²	4 m ²	8 m ²
Open-close actuators				
AC/DC 24 V	LM24A(-TP)	NM24A(-TP)	SM24A(-TP)	GM24A(-TP)
with auxiliary switch, 1 x SPDT	LM24A-S(-TP)	NM24A-S(-TP)	SM24A-S(-TP)	
AC 230 V	LM230A(-TP)	NM230A(-TP)	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 24 V	LM24A-SR(-TP)	NM24A-SR(-TP)	SM24A-SR(-TP)	GM24A-SR(-TP)
AC 230 V	LM230ASR(-TP)	NM230ASR(-TP)	SM230ASR(-TP)	
Parameterisable actuators parameterisable ¹⁾				
AC/DC 24 V	LM24A-MF(-TP)	NM24A-MF(-TP)	SM24A-MF(-TP)	GM24A-MF(-TP)
Technical data				
Damper spindle 	6...20 mm	8...26.7 mm	10...20 mm	12...26.7 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 EU.

²⁾ Actuator types **with** extension «-TP» with terminal connection

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

Other versions on request.



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 24 V	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 230 V	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...240 V / DC 24...125 V			NFA	SFA	
with auxiliary switch, 2 x SPDT			NFA-S2	SFA-S2	
3-point actuator					
AC 24 V	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 24 V 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	
AC 230 V Operating range DC 2...10 V	TF230-SR				
Parameterisable actuators parameterisable ¹⁾					
AC/DC 24 V	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	≤50 dB(A) @ 75 s	≤45 dB(A) @ 75 s		≤50 dB(A) @ 75 s
Emergency control function	=62 dB(A) @ 25 s	=62 dB(A) @ 20 s	=62 dB(A) @ 20 s		=62 dB(A) @ 20 s
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 EU.

²⁾ EF..: IP 66 versions on request.

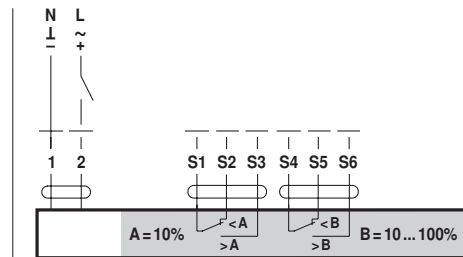
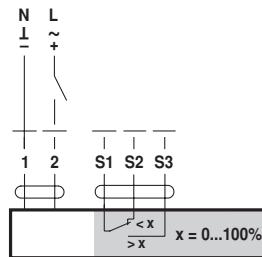
Other versions on request.

Electrical installation

..F24(-S), ..F230(-S)

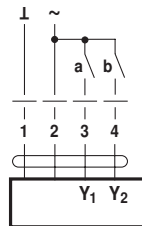
..F24A(-S), ..F230A(-S)

Open-close control



TF24-3, ..F24A-3

3-point control

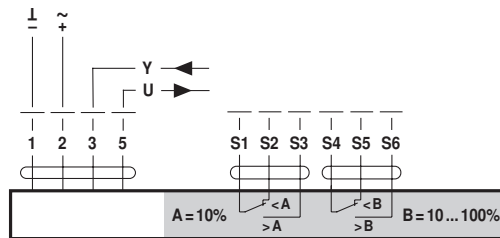


..F24A-SR(-S), ..F24A-SZ(-S)

..F24A-MF, ..F24-MFT

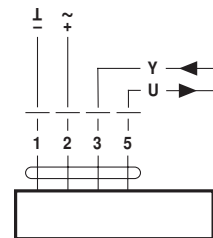
modulating

..-SR: Y = DC 0...10 V U = DC 2...10 V ..-SZ: Y = DC 0...10 V U = DC 0...10 V



parameterisable

Y = Control signal U = Measuring voltage

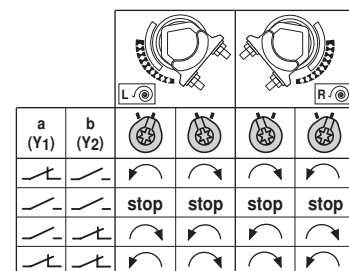
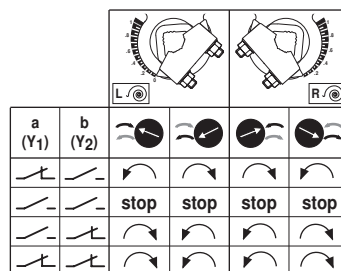


Direction of rotation

TF24-3

..F24A-3

3-point actuators

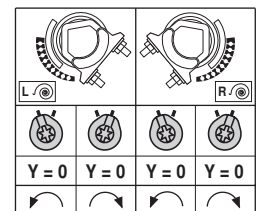
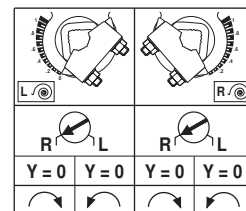
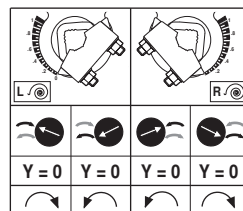


TF24-SR, TF230-SR

LF24-SR

..F24A-SR(-S), ..F24A-SZ(-S)

Modulating actuators



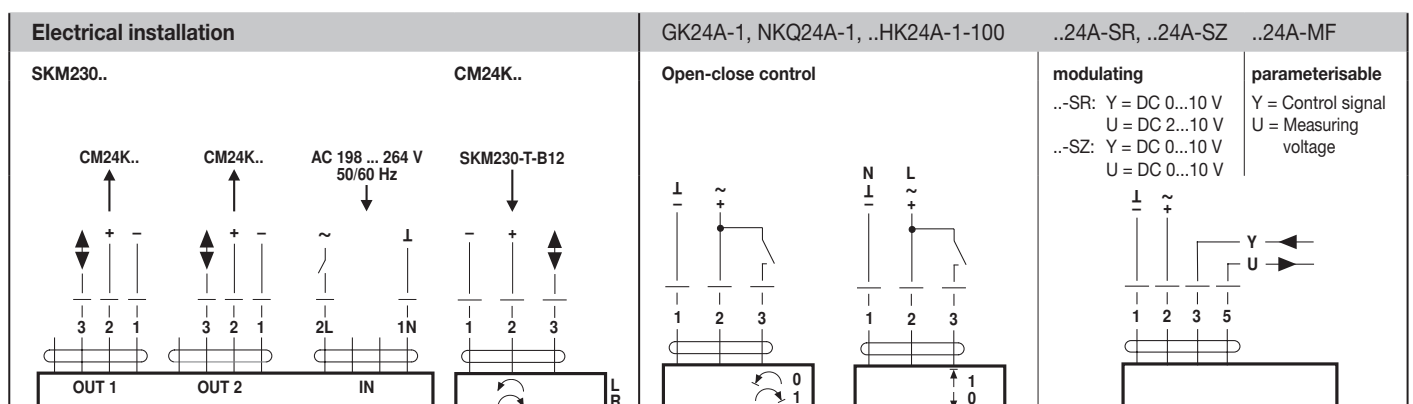
Electrical and mechanical accessories on page 7

	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
Modulating actuators					
Control Signal Y: DC 0...10 V, 100 kΩ Position feedback DC 2...10 V or DC 0...10 V, 0.5 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 230 V	SKM230-T-B12.1				
Technical data					
Damper spindle	6...12.7 mm	12...26.7 mm	8...26.7 mm		
Running time Motor	75 s / 90°↙	150 s / 90°↙	4 s / 90°↙	120 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	≤52 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	≤61 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 EU.

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 24 V	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...26.7 mm	10...20 mm	12...26.7 mm	
Running time	150 s / 90°\swarrow (35...150 s)	150 s / 90°\swarrow (43...173 s)	150 s / 90°\swarrow (86...346 s)	150 s / 90°\swarrow (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°\swarrow, 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 EU. Other versions on request.

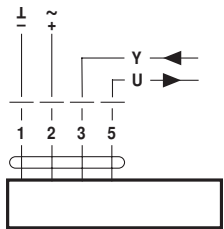
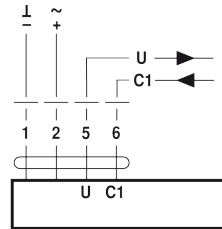
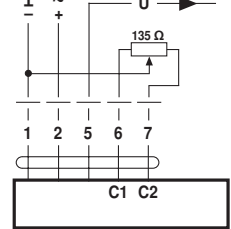

Electrical installation	..24A-MF-TP
	<p>parameterisable</p> <p>Y = Control signal U = Measuring voltage</p> <p>Direction of rotation </p> <p>Direction of stroke </p>

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 24 V 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° \triangleleft (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° \triangleleft, 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		

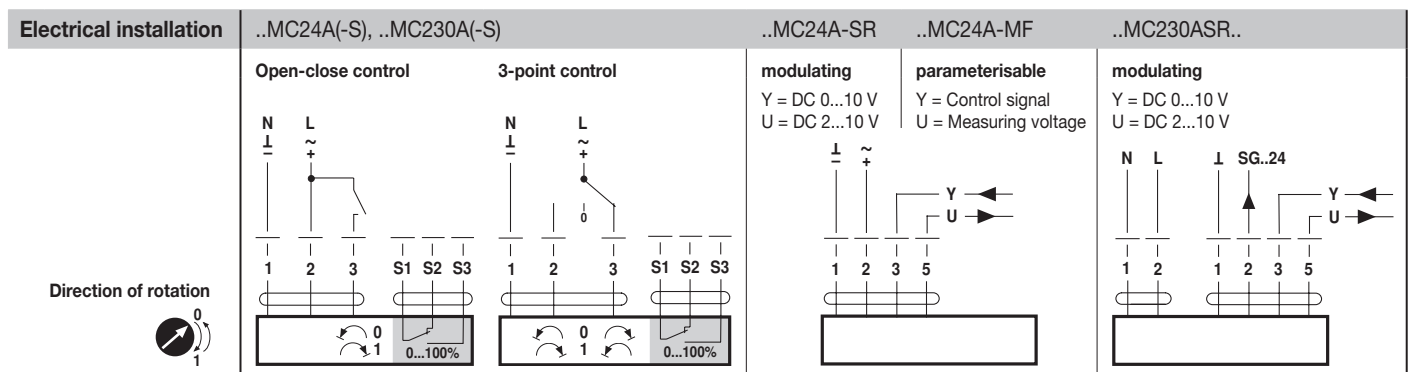
¹⁾ Running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH EU.
Other versions on request.

Electrical installation	SM24A-MA	SM24A-PC	SM24A-R9
	<p>modulating 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 m ²	1 m ²	2 m ²	4 m ²
Open-close actuators				
AC/DC 24 V	TMC24A	LMC24A		
with auxiliary switch, 1 x SPDT	TMC24A-S			
AC 230 V	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 24 V	TMC24A-SR	LMC24A-SR		
AC 230 V	TMC230ASR			
Parameterisable actuators	parameterisable ¹⁾			
AC/DC 24 V			NMC24A-MF	SMC24A-MF
Technical data				
Damper spindle	6...20 mm	6...20 mm	8...26.7 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 EU. 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 (0.5 mA for LMQ..A, NMQ..A, SMQ..A)			
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...26.7 mm		12...26.7 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 EU.

²⁾ Please contact your Belimo representative.

Other versions on request.

Electrical installation	..MQ24A	SMD..A	..MQ24A-SR	..MQ24A-MF
	Open-close control	Open-close control	3-point control	modulating Y = DC 0...10 V U = DC 2...10 V
				parameterisable Y = Control signal U = Measuring voltage
Direction of rotation				

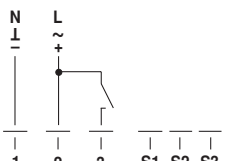
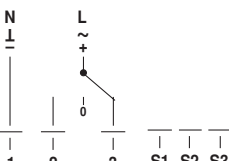
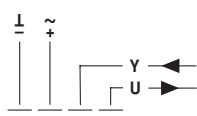

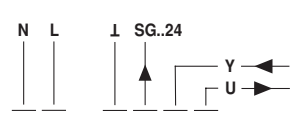

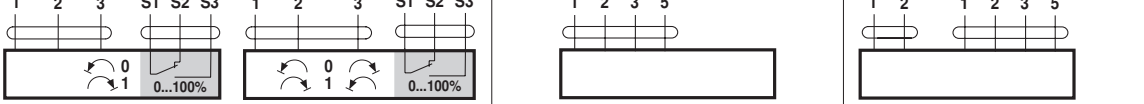
Electrical and mechanical accessories on page 6

	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 24 V	NM24P	SM24P	NKQ24P-1
with auxiliary switch, 1 x SPDT	NM24P-S	SM24P-S	
AC 230 V	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 (0.5 mA for NKQ..P)			
AC/DC 24 V	NM24P-SR	SM24P-SR	NKQ24P-SR
AC 230 V	NM230PSR ²⁾	SM230PSR ²⁾	
Parameterisable actuators parameterisable ¹⁾			
AC/DC 24 V	NM24P-MF	SM24P-MF	NKQ24P-MF
Technical data			
Damper spindle 	10...20 mm	14...20 mm	10...20 mm
Running time Motor	150 s / 90°◀		4 s / 90°◀
Emergency control function			4 s / 90°◀
Manual override	Gear disengagement with push button, can be locked		Gear disengagement with push button
Connection	Cable FRNC 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) @ 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 EU.

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

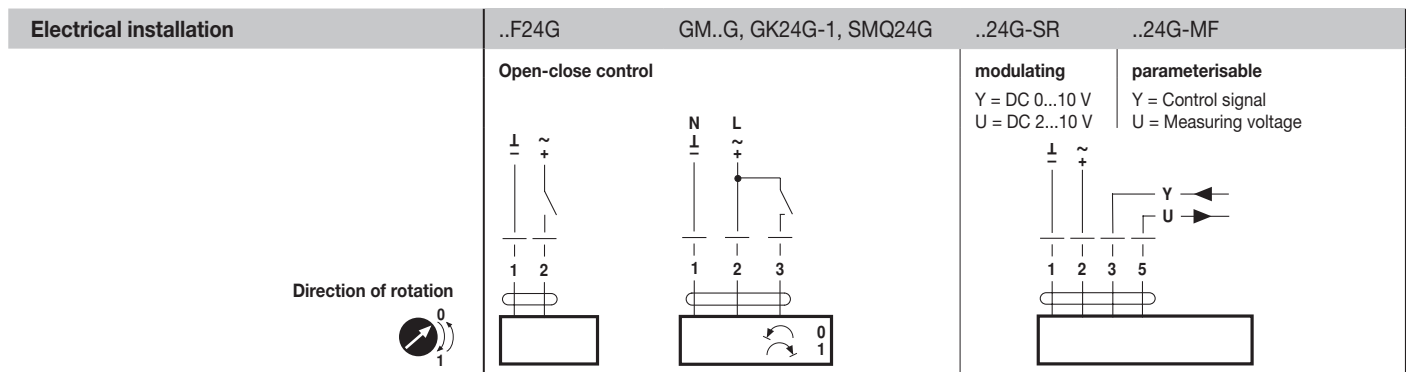
Other versions on request.

Electrical installation	NKQ24P-1, ..M24P(-S), ..M230P(-S)	..24P-SR	..24P-MF	..M230PSR
	Open-close control  	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 rotation 				

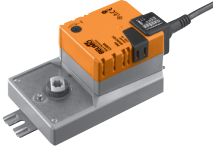
Electrical and mechanical accessories on pages 8 and 9

	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 24 V	GM24G-T			GK24G-1	SMQ24G
AC 230 V	GM230G-T				
AC 24...240 V / DC 24...125 V		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 (0.5 mA for GK..G, SMQ..G)				
AC/DC 24 V	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 24 V	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°↙	<75 s / 90°↙ (SR: 150 s / 90°↙)		150 s / 90°↙	7 s / 90°↙
Emergency control function		<20 s / 90°↙		35 s / 90°↙	
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 (only for GM..G, GK..G, SMQ..G)				
Angle of rotation	Max. 95°↙, 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.				


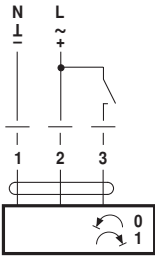
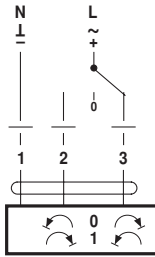
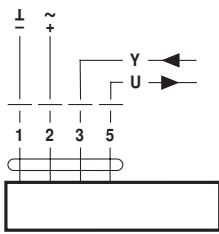
¹⁾ Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool or with the parameterising device ZTH EU. Other versions on request.



Electrical and mechanical accessories on pages 8 and 9

	LU..A		
	3 Nm		
			
For air damper sizes up to approx.	0.6 m²		
Open-close actuators			
AC/DC 24 V	LU24A		
AC 230 V	LU230A		
Modulating actuators	Control Signal Y: DC 0...10 V, 100 kΩ Position feedback DC 2...10 V, max. 1 mA		
AC/DC 24 V		LU24A-SR	
Parameterisable actuators	parameterisable ¹⁾		
AC/DC 24 V			LU24A-MF
Technical data			
Spindle driver	Form-fit 12 mm or 8 mm (with insert)		
Running time	150 s / 360°◁		
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°◁, permanently set	max. 0...1800°◁
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 EU. Other versions on request.

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

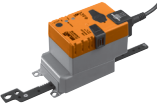
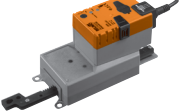
Electrical and mechanical accessories on page 8

	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 24 V 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 230 V 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 24 V 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 230 V Max. 100 mm stroke		LH230A-SR100	SH230A-SR100
Max. 200 mm stroke		LH230A-SR200	SH230A-SR200
Modulating actuators with adaption Control Signal Y: DC 0...10 V, 100 kΩ / Position feedback DC 2...10 V, max. 1 mA			
AC/DC 24 V Max. 40 mm stroke	CH24-SX-L40.2, CH24-SX-R40.2		
Max. 100 mm stroke	CH24-SX-L100.2, CH24-SX-R100.2		
Parameterisable actuators parameterisable ¹⁾			
AC/DC 24 V 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 EU.

Electrical installation	..H24A.., ..H230A.. (CH..-L.. corresponds to direction of stroke 0)	..H24A-SR..	..H24A-MF..	..H230ASR..
	<p>Open-close control Priority on 3</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>modulating Y = DC 0...10 V U = DC 2...10 V</p>			

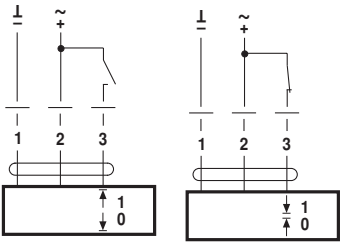
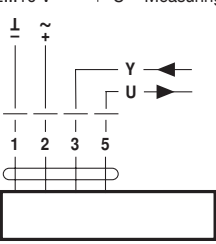
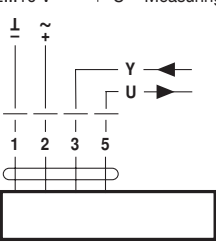

Electrical and mechanical accessories on page 6

	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 24 V	LHQ24A100	SHQ24A100
Modulating actuators	Control Signal Y: DC 0...10 V, 100 kΩ / Position feedback DC 2...10 V, max. 1 mA	
AC/DC 24 V	LHQ24A-SR100	SHQ24A-SR100
Parameterisable actuators	parameterisable ¹⁾	
AC/DC 24 V	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	
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 EU.

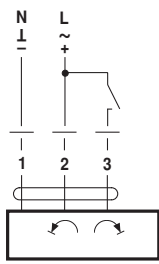
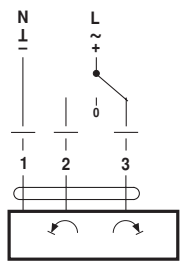
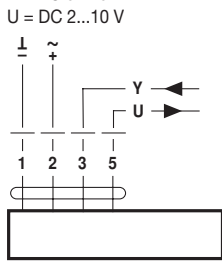
²⁾ Please contact your Belimo representative.

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 24 V	CM24-L-100D	CM24-L-125D	CM24-L-150D	CM24-L-160D
AC 230 V	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 24 V	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°↔			
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°↔ (open-close)			
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.

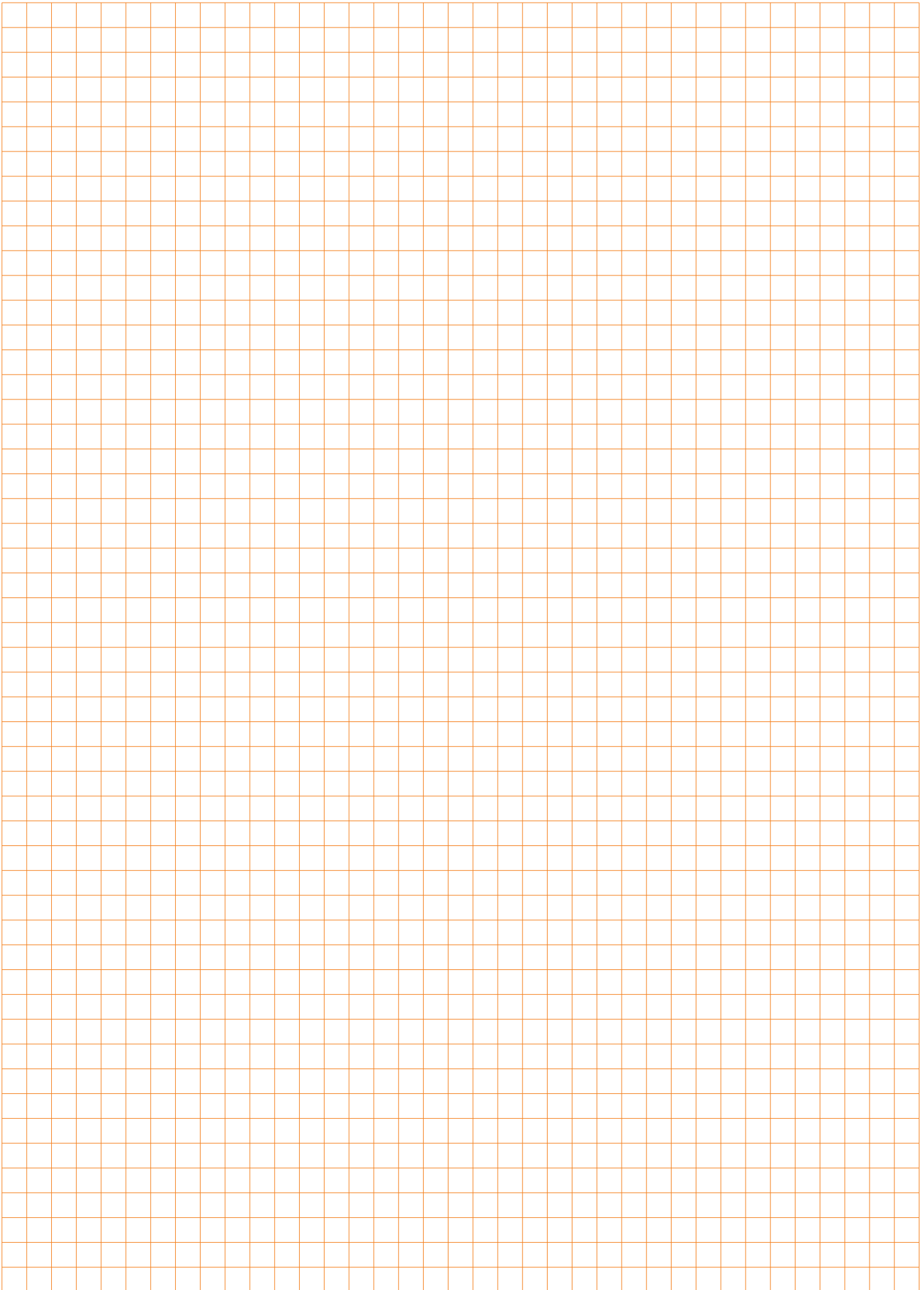
Running times

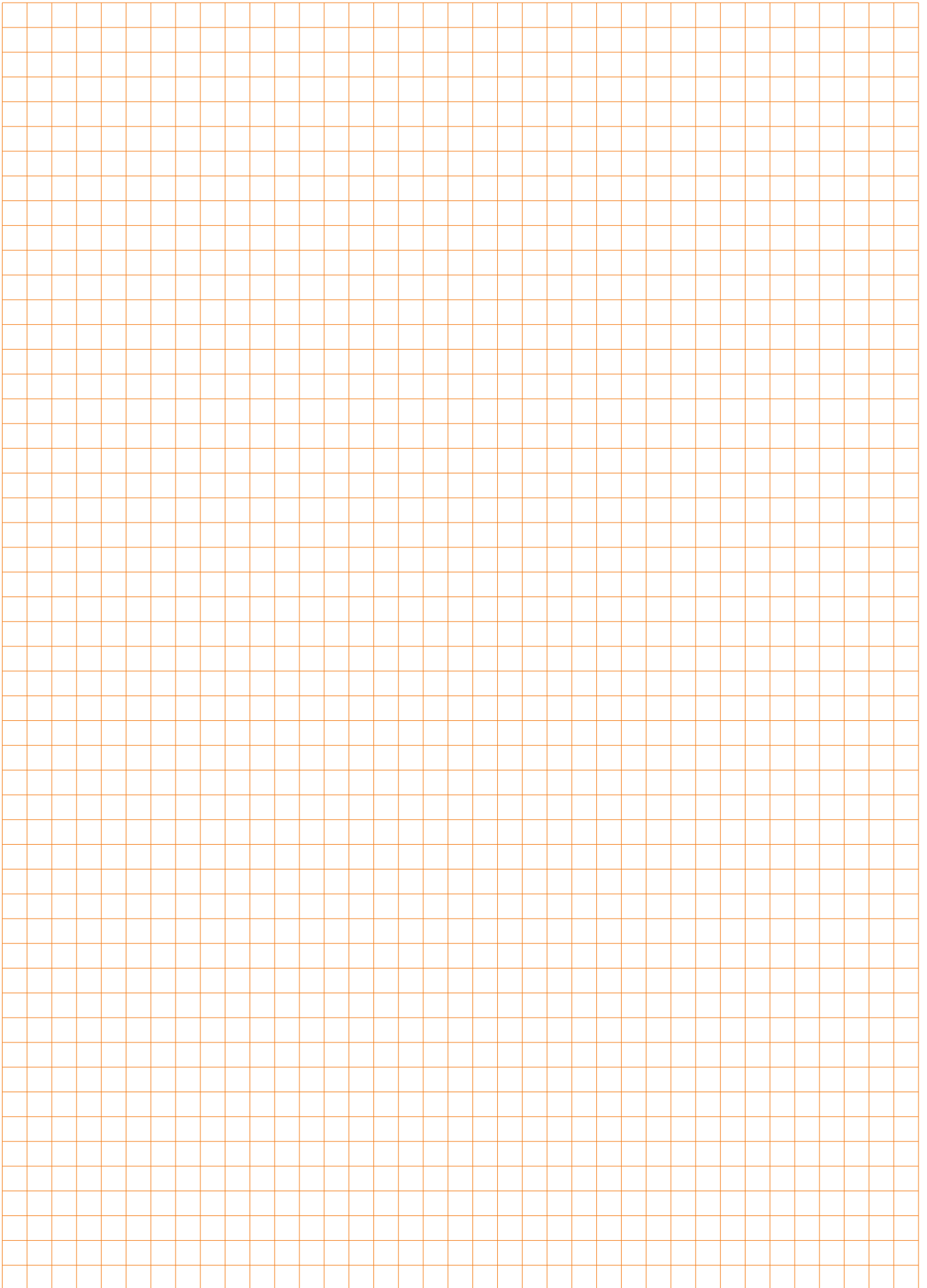
35 s, 45 s, 90 s, 150 s

Operating range

0.5...10 V / 2...10 V

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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