

Actuators for shut-off dampers

Open/Close actuators



For the opening and closing of shut-off dampers in air conditioning systems

Actuators for Type AK or AKK shut-off dampers

- Change of the damper blade position for two different operating situations
- Supply voltage 24 V AC/DC or 230 V AC or operating pressure 1 bar
- Control input signal: 1-wire control or 2-wire control (3-point)
- Mechanical stops
- Retrofit possible

Type		Page
Open/Close actuators	General information	OC – 2
	Function	OC – 3
	Technical data	OC – 5
	Variants	OC – 8
	Electrical connection	OC – 11

Application

Application

- Actuators for opening and closing

- Opening and closing of Type AK or AKK shut-off dampers
-

Description

Parts and characteristics

- Mechanical stops for setting the damper blade positions
- Electric or pneumatic operation
- Overload protection
- Control input signal: 1-wire control, 2-wire control (3-point) or pneumatic control

- Optional spring return actuator for damper blade safety function
- Optional auxiliary switch for capturing the end positions

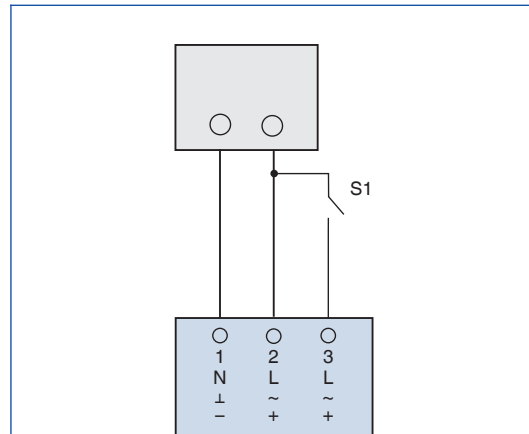
Functional description

The actuator opens or closes the damper blade. Minimum and maximum positions can be set using mechanical stops.

1-wire control or 2-wire control (3-point) can be used.

1-wire control is actually an open/close control.

1-wire control



Switch functions

S1 open: Direction of rotation 1

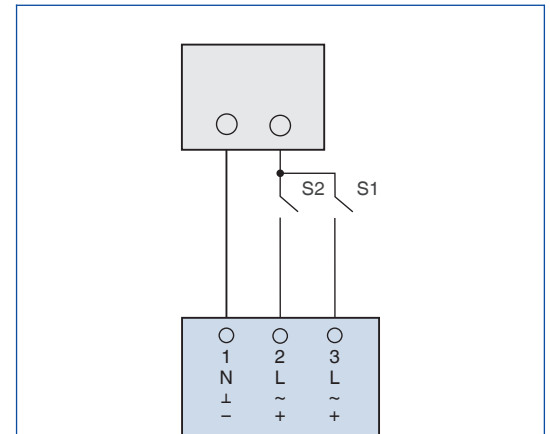
S1 closed: Direction of rotation 2

A spring return actuator moves the damper blade to the safe position in case of a power failure.

Define the safe position with the order code: NC (normally closed) or NO (normally open). The spring return actuator is factory set according to the safe position.

The normal position of the damper blade is only achieved with 1-wire control (control voltage).

2-wire control (3-point)



Switch functions

S1 open

S2 open: Actuator has stopped (any position)

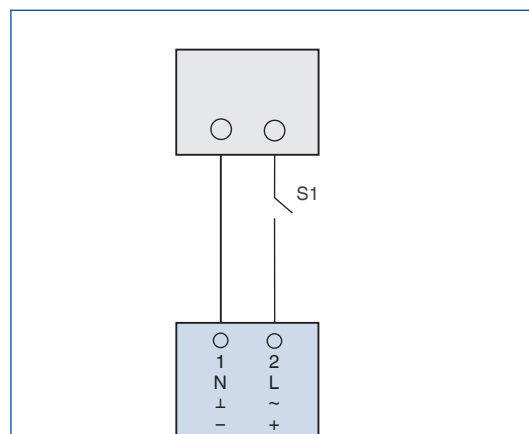
S2 closed: Direction of rotation 1

S1 closed

S2 open: Direction of rotation 2

S2 closed: Direction of rotation 2

1-wire control (control input signal for spring return actuators)



Switch functions

S1 open: Safe position (spring return)

S1 closed: Normal operation (spring-winding mechanism)

Damper blade position (OPEN or CLOSED), depending on defined safe position

Control options and effect of actuator action in case of factory setting

Order code detail	Function	Control	Direction of rotation	
			1	2
B30, B32	Open/close	1-wire control, 2-wire control	CLOSED	OPEN
B40, B42	Open/close	1-wire control, 2-wire control	CLOSED	OPEN
BP0, BP2	Open/close	1-wire control (spring return)		
BR0, BR2	Open/close	1-wire control (spring return)		

Actuators LM24A and LM24A-F

Supply voltage (AC)	24 V AC \pm 20 %, 50/60 Hz
Supply voltage (DC)	24 V DC \pm 20 %
Power consumption – load	1 W
Power consumption – idle	0.2 W
Power rating	1.5 VA
Torque	5 Nm
Running time for 90°	150 s
Control input signal	1-wire control or 2-wire control (3-point)
Connecting cable	3 \times 0.75 mm ² , 1 m long
IEC protection class	III (protective extra-low voltage)
Protection level	IP 54
EC conformity	EMC to 2014/30/EU, RoHS to 2011/65/EU
Operating temperature	-30 to 50 °C
Weight	0.5 kg

Actuator LM230A and LM230A-F

Supply voltage	100 – 240 V AC -15 % +10 %, 50/60 Hz
Power consumption – load	1.5 W
Power consumption – idle	0.5 W
Power rating	3.5 VA
Torque	5 Nm
Running time for 90°	150 s
Control input signal	1-wire control or 2-wire control (3-point)
Connecting cable	3 \times 0.75 mm ² , 1 m long
IEC protection class	II (protective insulation)
Protection level	IP 54
EC conformity	EMC to 2014/30/EU, low voltage to 2014/35/EU, RoHS to 2011/65/EU
Operating temperature	-30 to 50 °C
Weight	0.5 kg

Auxiliary switch S2A

Type of contact	2 changeover contacts ¹⁾
Max. switching voltage (AC)	250 V AC
Max. switching current (AC)	3 A (resistive load); 0.5 A (inductive load)
Max. switching voltage (DC)	110 V DC
Max. switching current (DC)	0.5 A (resistive load); 0.2 A (inductive load)
Connecting cable	6 \times 0.75 mm ² , 1 m long
IEC protection class	II (protective insulation)
Protection level	IP 54
EC conformity	EMC to 2014/30/EU, low voltage to 2014/35/EU, RoHS to 2011/65/EU
Operating temperature	-30 to 50 °C
Weight	0.250 kg

¹⁾ If both auxiliary switches are used the switching voltages must be the same

Spring return actuator NF24A

Supply voltage (AC)	24 V AC \pm 20 %, 50/60 Hz
Supply voltage (DC)	24 V DC -10 %, +20 %
Power consumption – load	6 W
Power consumption – idle	2.5 W
Power rating	8.5 VA
Torque	10 Nm
Motor running time for 90°	< 75 s
Spring return time	20 s (for < -20 °C up to 60 s)
Control input signal	Supply voltage on/off
Connecting cable	2 \times 0.75 mm ² , 1 m long
IEC protection class	III (protective extra-low voltage)
Protection level	IP 54
EC conformity	EMC to 2014/30/EU, RoHS to 2011/65/EU
Operating temperature	-30 to 50 °C
Weight	1.8 kg

Spring return actuator NFA

Supply voltage (AC)	24 – 240 V AC -20 % +10 %, 50/60 Hz
Supply voltage (DC)	24 – 125 V DC \pm 10 %
Power consumption – load	6 W
Power consumption – idle	2.5 W
Power rating	9.5 VA
Torque	10 Nm
Motor running time for 90°	< 75 s
Spring return time	20 s (for < -20 °C up to 60 s)
Control input signal	Supply voltage on/off
Connecting cable	2 \times 0.75 mm ² , 1 m long
IEC protection class	II (protective insulation)
Protection level	IP 54
EC conformity	EMC to 2014/30/EU, low voltage to 2014/35/EU, RoHS to 2011/65/EU
Operating temperature	-30 to 50 °C
Weight	2.0 kg

Spring return actuator NF24A-S2

Supply voltage (AC)	24 V AC \pm 20 %, 50/60 Hz
Supply voltage (DC)	24 V DC -10 %, +20 %
Power consumption – load	6 W
Power consumption – idle	2.5 W
Power rating	8.5 VA
Torque	10 Nm
Motor running time for 90°	< 75 s
Spring return time	20 s (for < -20 °C up to 60 s)
Control input signal	Supply voltage on/off
Auxiliary switch: type of contact	2 changeover contacts ¹⁾
Max. switching voltage (AC)	250 V AC
Max. switching current (AC)	3 A (resistive load); 0.5 A (inductive load)
Max. switching voltage (DC)	110 V DC
Max. switching current (DC)	0.5 A (resistive load); 0.2 A (inductive load)
Connecting cable – actuator	2 \times 0.75 mm ² , 1 m long
Connecting cable – auxiliary switch	6 \times 0.75 mm ² , 1 m long
IEC protection class	III (protective extra-low voltage)
Protection level	IP 54
EC conformity	EMC to 2014/30/EU, RoHS to 2011/65/EU
Operating temperature	-30 to 50 °C
Weight	2.0 kg

¹⁾ If both auxiliary switches are used the switching voltages must be the same

Spring return actuator NFA-S2

Supply voltage (AC)	24 – 240 V AC –20 % +10 %, 50/60 Hz
Supply voltage (DC)	24 – 125 V DC ±10 %
Power consumption – load	6 W
Power consumption – idle	2.5 W
Power rating	9.5 VA
Torque	10 Nm
Motor running time for 90°	< 75 s
Spring return time	20 s (for < –20 °C up to 60 s)
Control input signal	Supply voltage on/off
Auxiliary switch: type of contact	2 changeover contacts ¹⁾
Max. switching voltage (AC)	250 V AC
Max. switching current (AC)	3 A (resistive load); 0.5 A (inductive load)
Max. switching voltage (DC)	110 V DC
Max. switching current (DC)	0.5 A (resistive load); 0.2 A (inductive load)
Connecting cable – actuator	2 × 0.75 mm ² , 1 m long
Connecting cable – auxiliary switch	6 × 0.75 mm ² , 1 m long
IEC protection class	II (protective insulation)
Protection level	IP 54
EC conformity	EMC to 2014/30/EU, low voltage to 2014/35/EU, RoHS to 2011/65/EU
Operating temperature	–30 to 50 °C
Weight	2.2 kg

¹⁾ If both auxiliary switches are used the switching voltages must be the same

Pneumatic actuator B555DC2

Control pressure	0.2 – 1.0 bar
Maximum pressure	2.0 bar
Compressed air	Compressed air for instruments, free of oil, water and dust
Weight	0.840 kg

Actuator LM24A



Actuator LM230A



Hilfsschalter S2A



Spring return actuator NF24A



Spring return actuator NFA



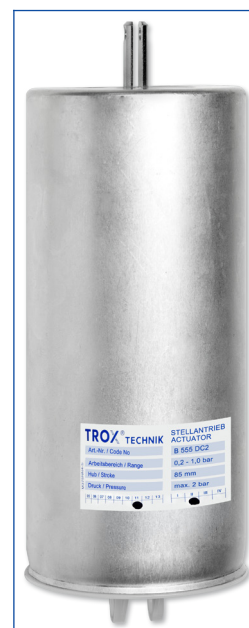
Spring return actuator NF24A-S2



Spring return actuator NFA-S2



Pneumatischer Stellantrieb B555DC2



Any attachments are to be defined with the order code of the shut-off damper.

B3*

Application

- Actuator LM24A
- Opening and closing of Type AK or AKK shut-off dampers

Variants

- B32: with auxiliary switch for capturing the end positions

Parts and characteristics

- Supply voltage 24 V AC/DC
- 1-wire control or 2-wire control (3-point)
- Mechanical stops for setting the volume flow rate setpoints
- Switch for setting the direction of rotation
- Release button to allow for manual operation

Installation and commissioning

- Change the direction of rotation if necessary, using the switch

B4*

Application

- Actuator LM230A
- Opening and closing of Type AK or AKK shut-off dampers

Variants

- B42: with auxiliary switch for capturing the end positions

Parts and characteristics

- Supply voltage 100 – 240 V AC
- 1-wire control or 2-wire control (3-point)
- Mechanical stops for setting the volume flow rate setpoints
- Switch for setting the direction of rotation
- Release button to allow for manual operation

Installation and commissioning

- Change the direction of rotation if necessary, using the switch

B*2

Application

- Auxiliary switch S2A for capturing damper blade end positions (end positions reached through actuator operation)

- Volt-free contacts for signalling or activating switch functions
- Two integral switches, e.g. for damper blade OPEN and damper blade CLOSED
- Potentiometer for setting any switch point

BP0

Application

- Pneumatic actuator NF24A for the opening and closing of Type AK or AKK shut-off dampers
- Opening and closing with safety function
- The safety function of the shut-off damper is defined with the order code

Parts and characteristics

- Supply voltage 24 V AC/DC
- Control input signal: Supply voltage on/off
- Mechanical stops for setting the volume flow rate setpoints
- Manual operation using crank handle and position lock

BR0

Application

- Pneumatic actuator NFA for the opening and closing of Type AK or AKK shut-off dampers
- Opening and closing with safety function
- The safety function of the shut-off damper is defined with the order code

Parts and characteristics

- Supply voltage 24 – 240 V AC/24 – 125 V DC
- Control input signal: Supply voltage on/off
- Mechanical stops for setting the volume flow rate setpoints
- Manual operation using crank handle and position lock

BP2

Application

- Spring return actuator NF24A-S2 with integral auxiliary switches for the opening and closing of Type AK or AKK shut-off dampers
- Opening and closing of shut-off dampers with safety function
- The safety function of the shut-off damper is defined with the order code

- Control input signal: Supply voltage on/off
- Mechanical stops for setting the volume flow rate setpoints
- Manual operation using crank handle and position lock
- One fixed and one adjustable auxiliary switch for signalling rotation angles of 10 % and 10 – 90 %.
- Fixed auxiliary switch, switching point 10 %
- Adjustable auxiliary switch, switching point 10 – 90 %

Parts and characteristics

- Supply voltage 24 V AC/DC

BR2

Application

- Spring return actuator NFA-S2 with integral auxiliary switches for the opening and closing of Type AK or AKK shut-off dampers

- Opening and closing with safety function
- The safety function of the shut-off damper is defined with the order code

Parts and characteristics

- Supply voltage 24 – 240 V AC or 24 – 125 V DC

- Control input signal: Supply voltage on/off
- Mechanical stops for setting the volume flow rates
- Manual operation using crank handle and position lock
- Two auxiliary switches with volt-free contacts for signalling or activating switch functions
- Fixed auxiliary switch, switching point 10 %
- Adjustable auxiliary switch, switching point 10 – 90 %

TN0

Application

- Pneumatic actuator B555DC2 for the opening and closing of Type AK or AKK shut-off dampers
- Opening and closing with safety function
- The safety function of the shut-off damper is defined with the order code

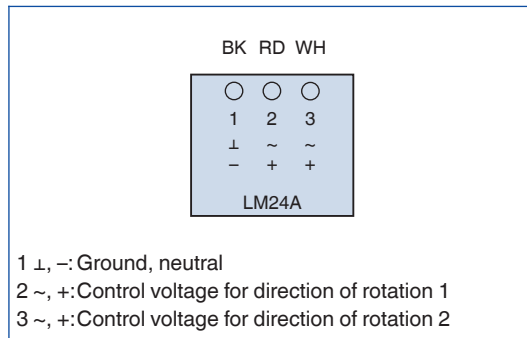
Parts and characteristics

- Control pressure 0.2 – 1 bar
- Control input signal: pneumatic, control pressure on/off
- Piston rod with 85 mm stroke
- When the control pressure increases, the piston rod extends; it retracts by means of the spring force

Actuators for Type AK or AKK shut-off dampers

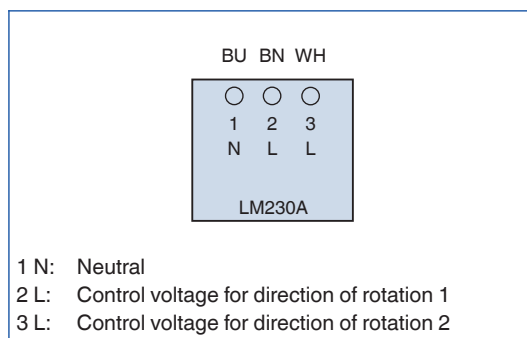
Order code detail	Actuator			Auxiliary switch	
	Part number	Type	Supply voltage	Part number	Type
B30	M466DU5	LM24A	24 V	-	-
B32	M466DU5	LM24A	24 V	M536AI3	S2A
B40	M466DU4	LM230A	230 V	-	-
B42	M466DU4	LM230A	230 V	M536AI3	S2A
BP0	M466ET0	NF24A spring return actuator	24 V	-	-
BP2	M466ET2	NF24A-S2 spring return actuator	24 V	-	integrated
BR0	M466ET1	NFA spring return actuator	24 – 240 V AC 24 – 125 V DC	-	-
BR2	M466ET3	NFA-S2 spring return actuator	24 – 240 V AC 24 – 125 V DC	-	integrated
TN0	B555DC2	Pneumatic control	0.2 – 1 bar	-	-

LM24A, connecting cable core identification

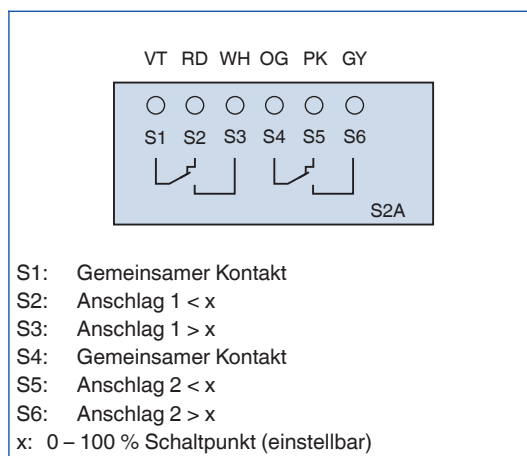


LM24A and LM24A-F

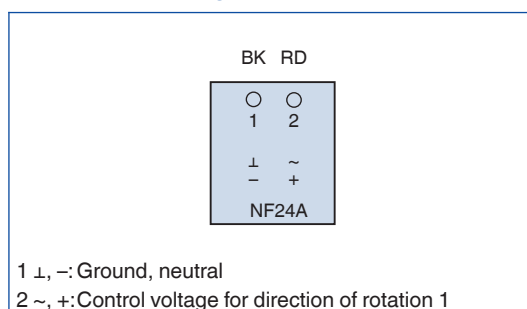
LM230A, connecting cable core identification



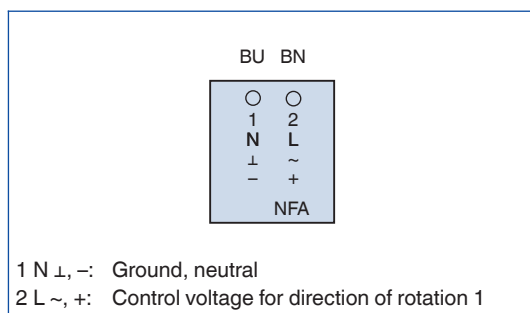
S2A, Belegung der Anschlussleitung



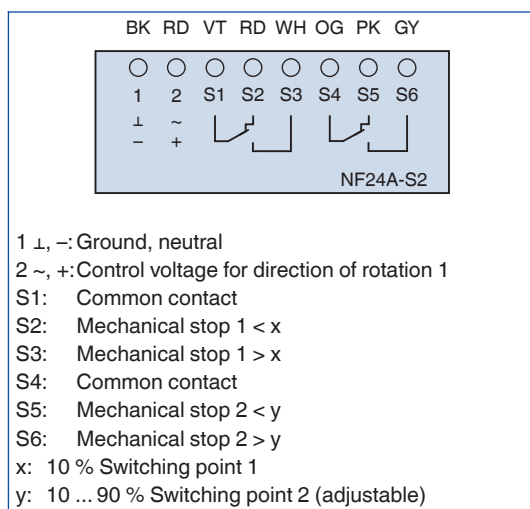
NF24A, connecting cable core identification



NFA, connecting cable core identification



NF24A-S2, connecting cable core identification



NFA-S2, connecting cable core identification

