

OpenAir™

## Actuators for Fire and Smoke Protection Dampers

GRA126.1E/.., GRA326.1E/..



### Electric motor driven actuators for 2-position control, for controlling fire and smoke protection dampers

- Operating voltage:
  - GRA126.1E/..: AC 24 V / DC 24...48 V
  - GRA326.1E/..: AC 230 V
- Nominal torque 4 Nm
- Spring return to failsafe position
- Mechanically adjustable span between 0...90°
- Prewired with connection cables (0.9 m)
- Optional temperature monitoring unit with 3 thermal cutouts (72 °C) and test button
- Fixed auxiliary switches for switching points 5° and 80°
- Rigid connection between actuator and damper shaft

## Features

### Drive motor

The brushless DC motor ensures accurate speed control, torque monitoring for protecting the actuator and the air damper, and provides a reliable failsafe function.

### Spring return mechanism in the event of power failure

The mechanical spring ensures the failsafe function.

## Use

For the control of fire and smoke protection dampers:

- Nominal torque of 4 Nm for damper surfaces up to about 0.6 m<sup>2</sup> (friction dependent).
- In fire protection sections of plant where, in the event the thermal fuse cuts out at a duct or ambient temperature of 72 °C, or in case of a power failure, the actuator must travel to the failsafe position (zero position).

## Functions

### Rotary movement

- The direction of rotation (clockwise or counterclockwise) is determined by the way the actuator is mounted on the damper shaft.
- When operating voltage is applied, the actuator travels toward the 90° position.

### Failsafe function

- If the thermal fuse cuts out at a duct or ambient temperature of 72 °C, the return spring drives the actuator to the failsafe position (0°).
  - Optional: Thermal fuse cutting out at 95 °C.
- In the event of a power failure or if the operating voltage is turned off, the return spring drives the actuator to the failsafe position (0°).

### Behavior in the event the damper is blocked

The actuator is equipped with an automatic switch-off mechanism.

### Position indication

The position indicator located on the shaft adapter shows the rotational angle position of the damper blade.

### Manual adjustment when actuator is without voltage

- When dead, the actuator can be driven to any angular position using a hex wrench and can then be secured with a screwdriver.
- The actuator returns to its zero position when mechanically delocked with a hex wrench (turning toward "90° - opening") or by applying power for a short moment.

### Rigid connections

Square shafts, 10 x 10 mm or 12 x 12 mm.

The two last digits of the ASN indicate the shaft size:

- e.g.:GRA126.1E/C**12** = 12 x 12 mm shaft

Basic components

- Housing**
  - Robust, lightweight all metal housing made from die-cast aluminium.
    - Guarantees a long service life even under extreme environmental conditions.
  
- Gear train**
  - Maintenance-free and low-noise gear train.
  - Stall and overload protection even in continuous use.
  
- Spring preload**

The spring has a factory-set preload of 5° to ensure tight shutoff for the fire and smoke protection dampers.
  
- Manual adjustment**

A hole with a screw in the center of the actuator allows manual setting of the gears, using the supplied hex wrench.
  
- Mounting bracket**

A perforated bracket with pin available, depending on the way the actuator is fixed.
  
- Electrical connection**

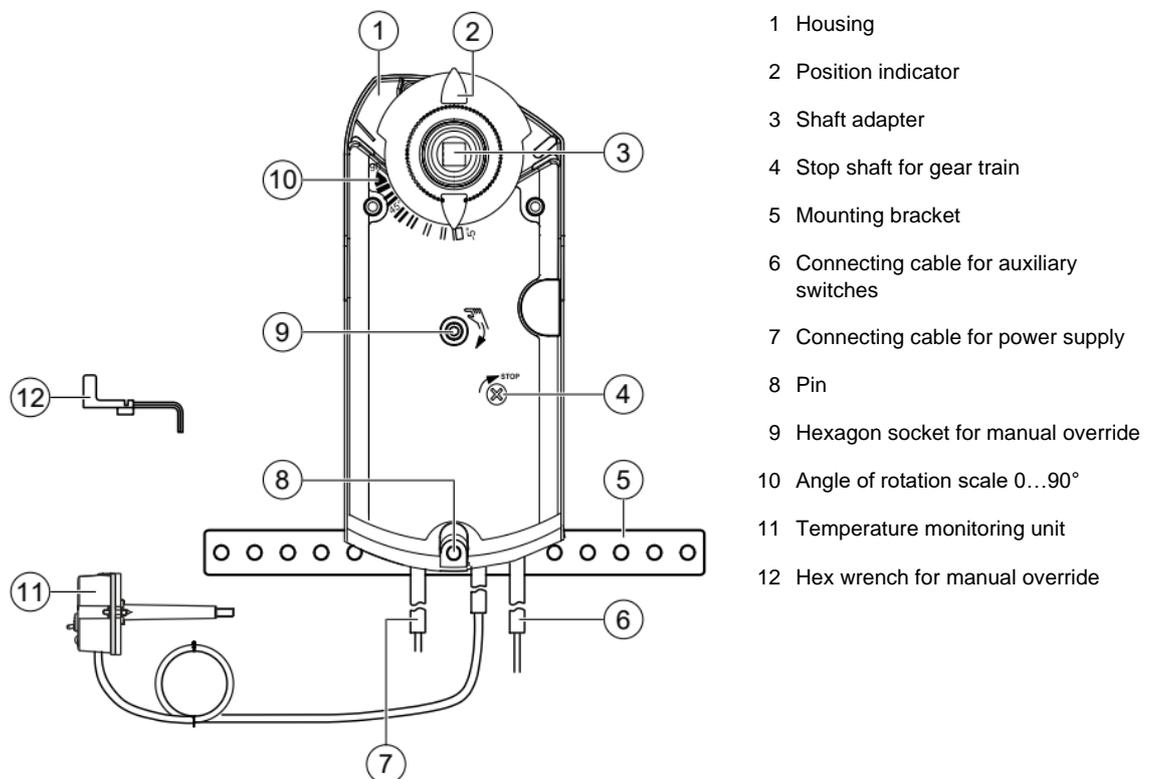
All actuators come with prewired 0.9 m long connecting cables.
  
- Information**

The actuators can be mounted on either side, depending on the required direction of rotation. All setting and operating elements are available on both sides of the actuator.
  
- Auxiliary switches**

The auxiliary switches are built-in and have fixed switching points at 5° and 80°.

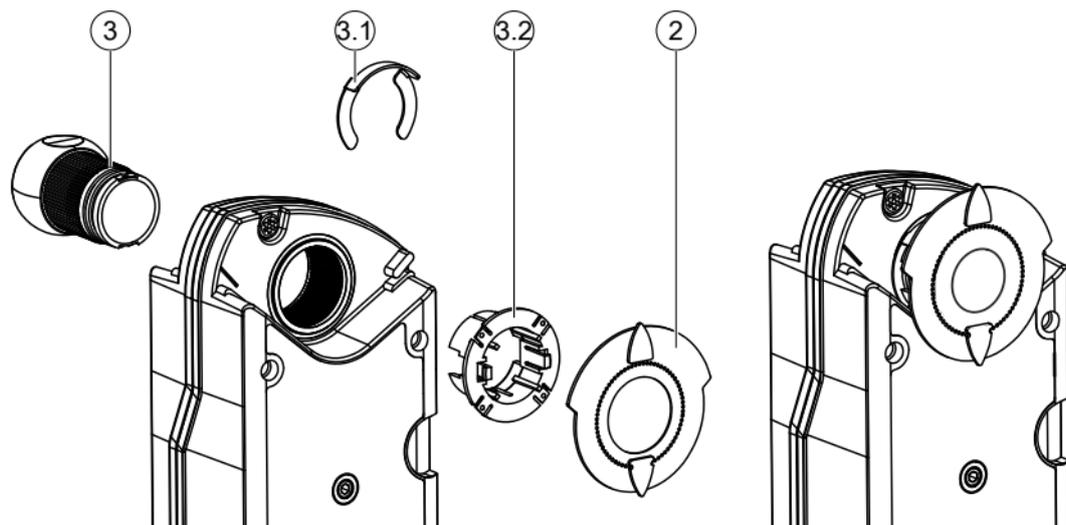
Setting and operating elements

See also „Features [ ▶ 2]“ and „Commissioning [ ▶ 8]“.



- 1 Housing
- 2 Position indicator
- 3 Shaft adapter
- 4 Stop shaft for gear train
- 5 Mounting bracket
- 6 Connecting cable for auxiliary switches
- 7 Connecting cable for power supply
- 8 Pin
- 9 Hexagon socket for manual override
- 10 Angle of rotation scale 0...90°
- 11 Temperature monitoring unit
- 12 Hex wrench for manual override

## Arrangement for shaft adapters



2 Position indicator

3.1 Locking ring for shaft adapter

3 Shaft adapter

3.2 Adapter for position indicator

## Temperature monitoring unit (GNA../C.., GNA../T..)

### Use

The temperature monitoring unit is ready connected to the actuator and is used for forced control of motorized fire and smoke protection dampers should excessive temperatures occur.

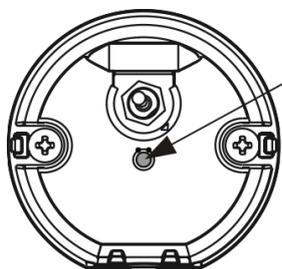
### Mode of operation

The temperature monitoring unit contains 3 thermal fuses, 2 for monitoring the duct temperature and 1 for the ambient temperature.

If the temperature at any of these fuses exceeds the level of 72 °C (optionally: 95 °C), the power supply will be irreversibly cut. As a result, the return spring will drive the actuator to the failsafe position.

A test button is built-in for making functional checks. When pressed, the current path will be cut.

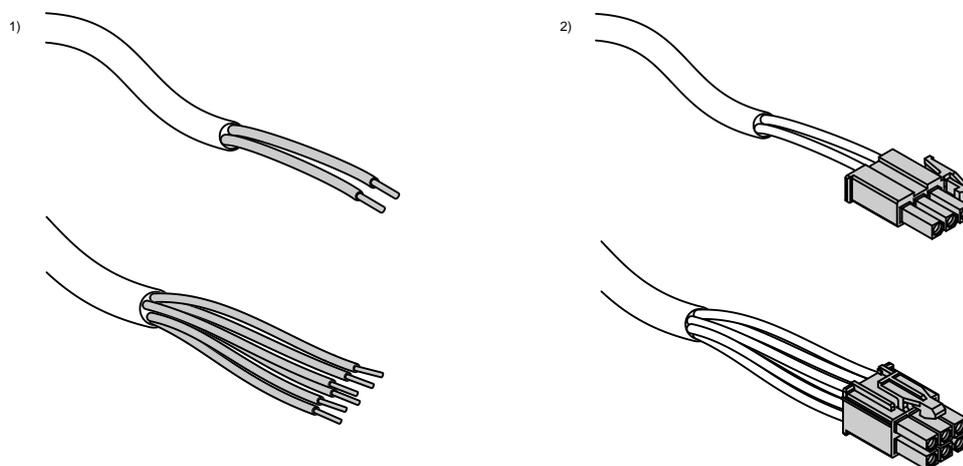
### LED functions



- Red = Operating voltage OK  
Thermo sensor defect
- Green = Operating voltage OK  
Thermo sensor OK
- Dark = No operating voltage

## Type summary

Type	Stock no.	Operating voltage	Auxiliary switches	Temperature monitoring unit	Cable ends
GRA126.1E/10	S55499-D294	AC 24 V DC 24...48 V	Fixed switching points at 5° and 80°	No	Open <sup>1)</sup>
GRA126.1E/12	S55499-D296			Yes	
GRA126.1E/T10	S55499-D290				
GRA126.1E/T12	S55499-D292				
GRA126.1E/C12	S55499-D566			AMP plug <sup>2)</sup>	
GRA326.1E/10	S55499-D295	AC 230 V		No	Open <sup>1)</sup>
GRA326.1E/12	S55499-D297			Yes	
GRA326.1E/T10	S55499-D291				
GRA326.1E/T12	S55499-D293				



### Scope of delivery

Due to the mounting choices depending on the direction of rotation and the shaft length, shaft adapter with position indicator and other mounting accessories are shipped unassembled together with the actuator.

### Connecting cables

The actuators come with 0.9 m long prewired connecting cables. The cable length to the ready fitted temperature monitoring unit is 0.9 m.

## Accessories

Type / Stock no.	Designation
ASK79.4	Duct tip for temperature monitoring unit: 72 °C
ASK79.5	Duct tip for temperature monitoring unit: 95 °C

## Equipment combinations

The damper actuators can be used with all types of controllers having a 2-position output and delivering a switching voltage of AC 24 V / DC 24...48 V or AC 230 V.

Topic	Title	Document ID
Mounting instructions	Rotary actuator with spring return GRA...1E/..	A6V10890425
Mounting instructions	Duct tip for temperature monitoring unit ASK79.4, ASK79.5	M4610

Related documents such as the environmental declarations, CE declarations, etc., can be downloaded from the following Internet address:

<https://siemens.com/bt/download>

Notes

Safety

 <b>CAUTION</b>	
	<p><b>National safety regulations</b></p> <p>Failure to comply with national safety regulations may result in personal injury and property damage.</p> <ul style="list-style-type: none"> <li>Observe national provisions and comply with the appropriate safety regulations.</li> </ul>

Engineering

**Correct use**

These damper actuators must be used on applications as described in the basic system data documents for the relevant control systems. Additionally, all actuator-specific features and rules must be observed as described in the brief description on the front page of this Data Sheet and in „Use [▶ 2]“, „Engineering [▶ 6]“ and „Technical data [▶ 10]“.

**Power supply**

 <b>WARNING</b>	
	<p><b>AC 24 V / DC 24...48 V</b></p> <p>These actuators must be used with safety extra low-voltage (SELV) or protection by extra low-voltage (PELV) in accordance with HD 384.</p> <ul style="list-style-type: none"> <li>Unearthed = <b>Safety Extra Low Voltage SELV</b></li> <li>Grounded = <b>Protection by Extra Low Voltage PELV</b></li> </ul>

 <b>WARNING</b>	
	<p><b>AC 230 V</b></p> <p>The actuators are double-insulated and do not provide a connection for protective ground.</p>

## Auxiliary switches A, B

### ⚠ WARNING



#### Operation with different phases is not permitted

For auxiliary switches A and B use either:

- **only mains voltage;** or
- **only safety low-voltage.**

#### Parallel connection of actuators

Electric parallel connection of the same types of actuator is permitted provided operating voltage is within the required tolerance.

Voltage drops on the supply lines must be taken into consideration.

#### Sizing transformers (AC 24 V)

- Use safety isolating transformers with double insulation conforming to EN60742. The transformers must be suited for 100 % duty.
- Observe all local safety rules and regulations relating to the sizing and protection of transformers.
- Determine the transformer's size by adding up the power consumption in VA of all actuators used.

## Mounting

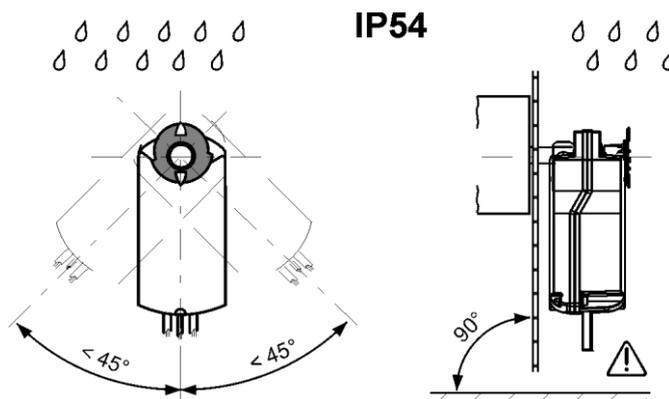
### Mounting instructions

For detailed information on the correct preparation of the actuator, refer to Mounting Instructions A6V10890425.

The actuator must be fitted to the fire and smoke protection damper as specified by the OEM.

Shaft adapter and other accessory items come unassembled, since their assembly depends on the direction of rotation and the length of the shaft, see „Mechanical design [► 3]“.

### Housing



### Mounting bracket / pin

If the actuator is mounted directly on the damper shaft, the mounting bracket / pin must be used. The insertion depth for the shaft into the housing must be sufficient.

### Damper shafts

For information on minimum length and diameter of the damper shaft, see „Dimensions / Weight“ (Technical data [► 12]).

### Spring preload

The actuator is supplied with a 5° spring preload to ensure a certain closing pressure for the air damper.

### Mechanical limitation of the angle of rotation

If required, the angle of rotation can be limited in increments of 5° for the entire correcting span by placing the shaft adapter in the respective position.

### Temperature monitoring unit

The temperature monitoring unit is to be fitted to the duct wall or the damper housing using 2 self-tapping screws of 3.5 mm diameter.

The enclosed drilling template facilitates mounting. When mounting, it must be ensured that the thermal fuse is fully exposed to the airflow.

## Commissioning

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### Actuator

All information required for commissioning is contained in the following pieces of documentation:

- present Data Sheet N4617;
- Mounting Instructions M4617;
- Plant Diagram.

#### 1. Environmental conditions

- Check to ensure that all permissible values as specified in „Technical data [► 10]“ are observed.

#### 2. Mechanical check

- Check for proper mounting to ensure that all mechanical settings are in accordance with plant-specific requirements.  
Check in particular, whether the air dampers are shut tight when in the fully closed position.
- Fasten the actuator securely to avoid side load.
- Check the direction of rotation by turning the gearing with a hex wrench in accordance with the Mounting Instructions.

#### 3. Electrical check

- Check to ensure that the cables are connected in accordance with the plant wiring diagram.
- Operating voltage AC 24 V / DC 24...48 V (SELV/PELV) or AC 230 V must be within the tolerance.
- Auxiliary switches A and B change over when the actuator reaches the respective positions.



### Temperature monitoring unit

Functional check on site:

1. Press the button to simulate overtemperature.
  - This simulates the response of the fuse, enabling you to check the proper functioning of the actuator.
2. In plant equipped with a fire alarm device BAM, fire alarm will be triggered.
  - Appropriate measures must be taken before the functional check is made.

## Maintenance

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### CAUTION



#### The actuator is maintenance-free.

- Do not open the actuator!
- Maintenance work may only be carried out by the manufacturer.

## Disposal

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The device is considered an electronic device for disposal in accordance with European Directive and may not be disposed of as domestic waste.

- Use only designated channels for disposing the devices.
- Comply with all local and currently applicable laws and regulations.

**Actuator**

Power supply					
Operating voltage					
	GRA126..		AC	24 V ± 20 %	(SELV/PELV)
			DC	24...48 V ± 20 %	
	GRA326..		AC	230 V ± 15 %	
Power consumption					
	GRA126..	Running	AC	5 VA / 3.5 W	
			DC	3.5 W	
		Holding	AC/DC	2 W	
	GRA326..	Running		7 VA / 4.5 W	
Holding			3.5 W		
Frequency				50/60 Hz	

Functional data		
Torque		
	Nominal torque	4 Nm
Angle of rotation		
	Nominal angle of rotation	90°
	Maximum angle of rotation	95° ± 2°
Runtimes		
	Runtime for nominal angle of rotation 90° (motor operation)	90 s
	Closing time with spring return (on power failure)	15 s

Auxiliary switches			
AC power supply			
	Switching voltage		AC 24...230 V
	Nominal current	Resistive	6° A
		Inductive	2° A
	Life	6 A resistive, 2 A inductive	10 <sup>4</sup> cycles
Without load		10 <sup>6</sup> cycles	
DC power supply			
	Switching voltage		DC 12...30 V
	Nominal current		DC 2 A
Electrical strength auxiliary switches against housing			AC 4 kV
Switching hysteresis			2°

Auxiliary switches		
Factory switch settings		
	Switch A	5°
	Switch B	80°

Connecting cables			
Halogen-free			
Power supply line			
	AC 24 V	(wires 1-2)	2 x 0.75 mm <sup>2</sup>
	AC 230 V	(wires 3-4)	2 x 0.75 mm <sup>2</sup>
Auxiliary switch cable		(wires S1...S6)	6 x 0.75 mm <sup>2</sup>
Standard length			0.9 m

Degree of protection		
Housing		IP54 to EN 60529 (observe „Mounting [▶ 7]“)
Protection class		
	Power supply AC 24 V / DC 24...48 V	III to EN 60730
	Power supply 230 V	II to EN 60730

Environmental conditions		
Operation		IEC 721-3-3
	Temperature	-32...50 °C
	Humidity (non-condensing)	< 95 % r.h.
Transport		IEC 721-3-2
	Temperature	-32...50 °C
	Humidity (non-condensing)	< 95 % r.h.

Standards and directives	
Product standard	EN 60730 Part 2-14: Automatic electronic controls for household and similar use (type 1)
Electromagnetic compatibility (field of use)	For residential, commercial, and industrial environments
EU conformity (CE)	A5W00008649 <sup>1)</sup>
UK conformity (UKCA)	A5W00198181 <sup>1)</sup>
RCM conformity	A5W00008650 <sup>1)</sup>
EAC compliance	Eurasian compliance for all GRA..

Environmental compatibility	
The product environmental declaration contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).	

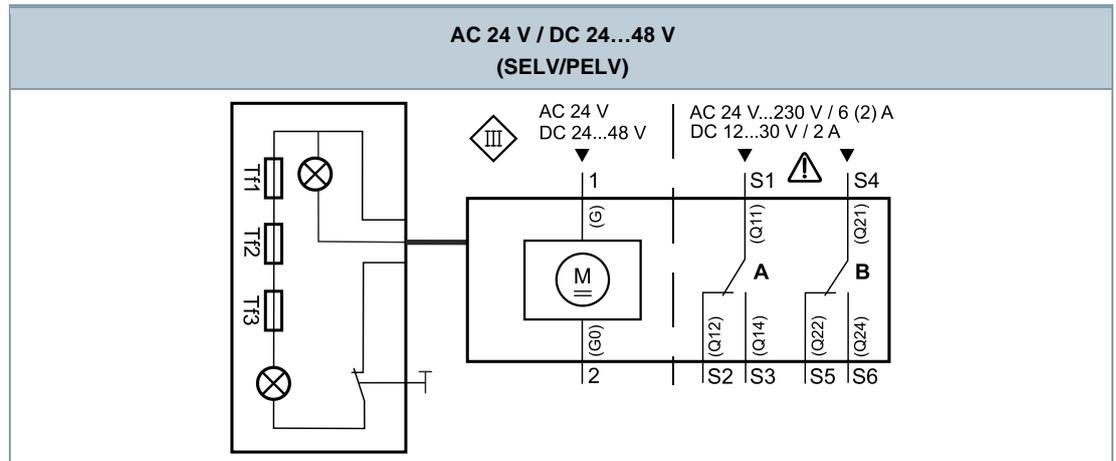
Dimensions / Weight			
Actuator W x H x D (see „Dimensions [► 15]“)		81 x 178 x 63 mm	
Damper shaft			
	Square	GRA..10	10 x 10 mm
		GRA..12	12 x 12 mm
	Min. shaft length		20 mm
Weight		Without packaging	
	GRA126.1E/..		1.2 kg
	GRA126.1E/T... GRA126.1E/C..		1.3 kg
	GRA326.1E/..		1.3 kg
	GRA326.1E/T... GRA326.1E/C..		1.4 kg

- 1) The documents can be downloaded from:  
<https://siemens.com/bt/download>

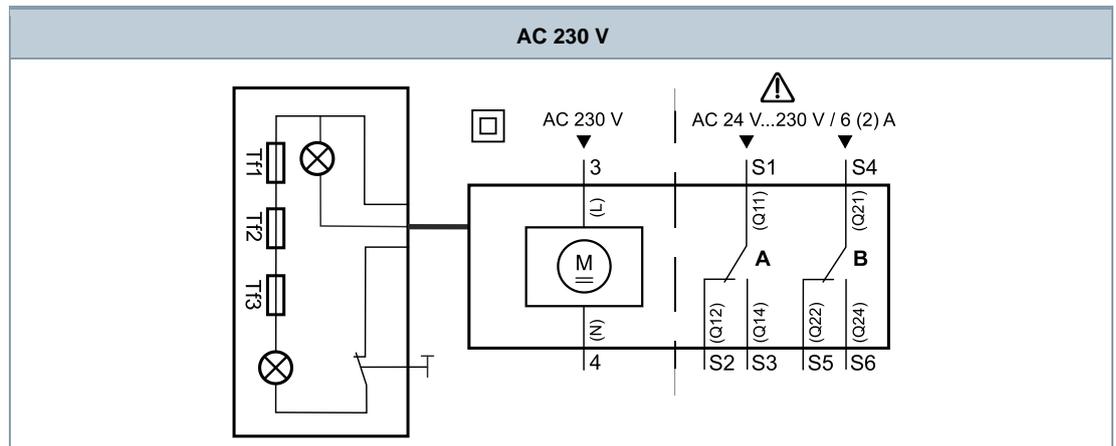
### Temperature monitoring unit (ready connected to GRA..26.1E/T.., GRA..26.1E/C..)

Connecting cable		Halogen-free
	Length	0.9 m
	Wires	2 x 0.5 mm <sup>2</sup>
Switching temperature for sizing (Tf)		
	Tf1	Outside the duct 72 °C
	Tf2	Inside the duct 72 °C
	Tf3	Inside the duct 72 °C
Temperature tolerance Tf1, Tf2, Tf3		72 °C + 0 °C / - 2 °C
Insulation class		III (safety extra low-voltage)
Degree of protection		IP54
Environmental conditions		
	Ambient temperature	-20...50 °C
	Storage temperature	-20...50 °C
	Ambient humidity	KL D to DIN 40040
Maintenance		Maintenance-free
Weight		0.1 kg

GRA126.1E..



GRA326.1E..

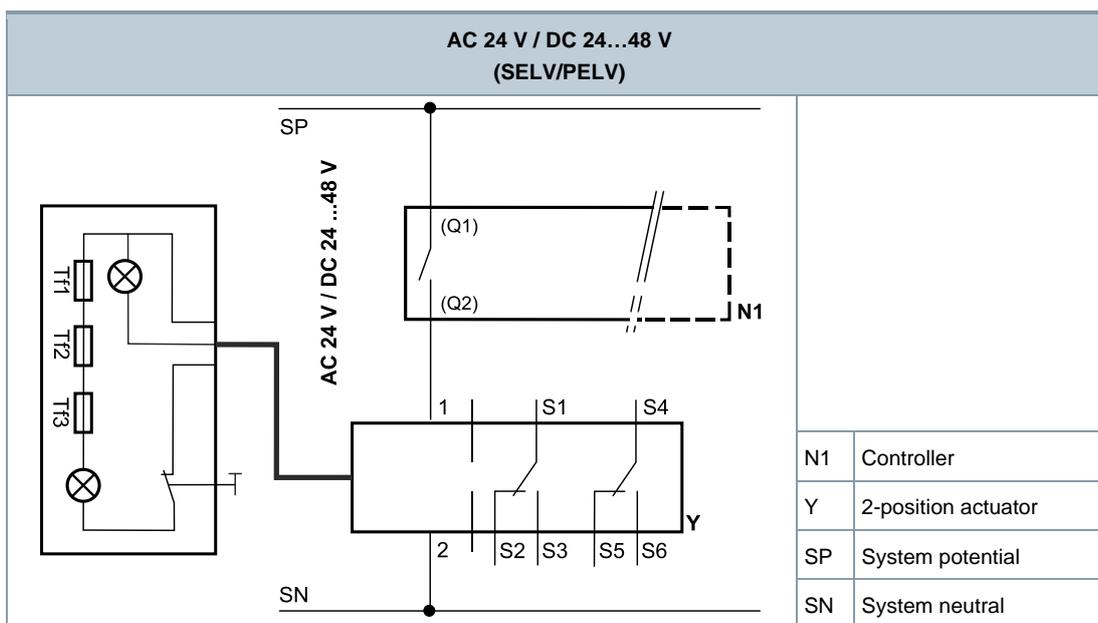


### Cable designations

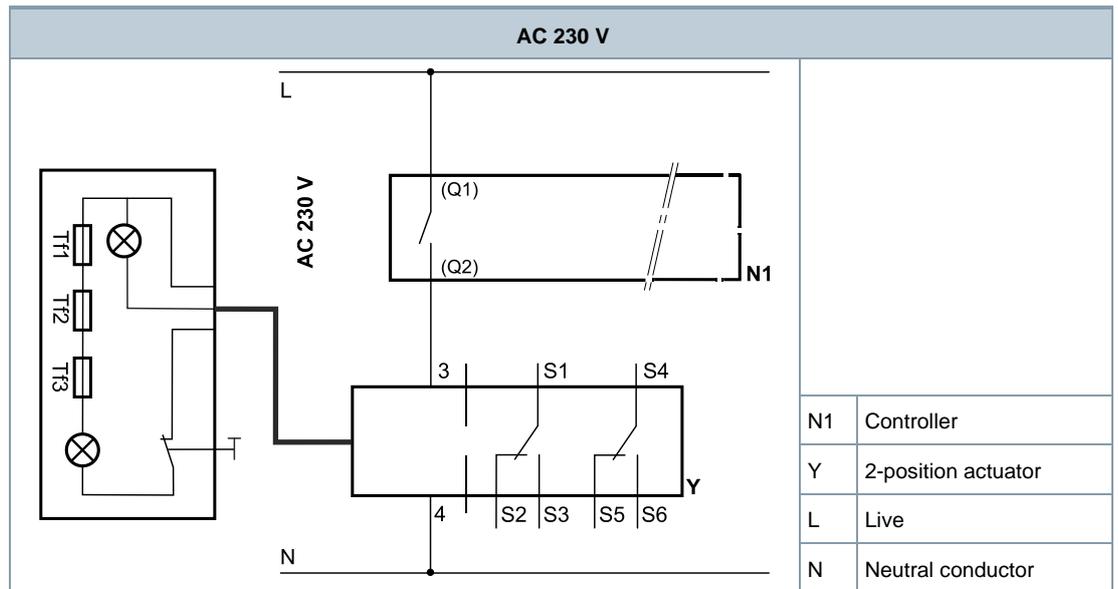
Connection	Cable				Meaning
	Code	No.	Color	Abbreviation	
Actuators AC 24 V / DC 24...48 V	G	1	red	RD	System potential AC 24 V / DC 24...48 V
	G0	2	black	BK	System neutral
Actuators AC 230 V	L	3	brown	BN	Line AC 230 V
	N	4	blue	BU	Neutral
Auxiliary switches	Q11	S1	grey/red	GYRD	Switch A input
	Q12	S2	grey/blue	GYBU	Switch A normally-closed contact
	Q14	S3	grey/pink	GYPK	Switch A normally-open contact
	Q21	S4	black/red	BKRD	Switch B input
	Q22	S5	black/blau	BKBU	Switch B normally-closed contact
	Q24	S6	black/pink	BKPK	Switch B normally-open contact

### Connection diagrams

#### GRA126.1E..

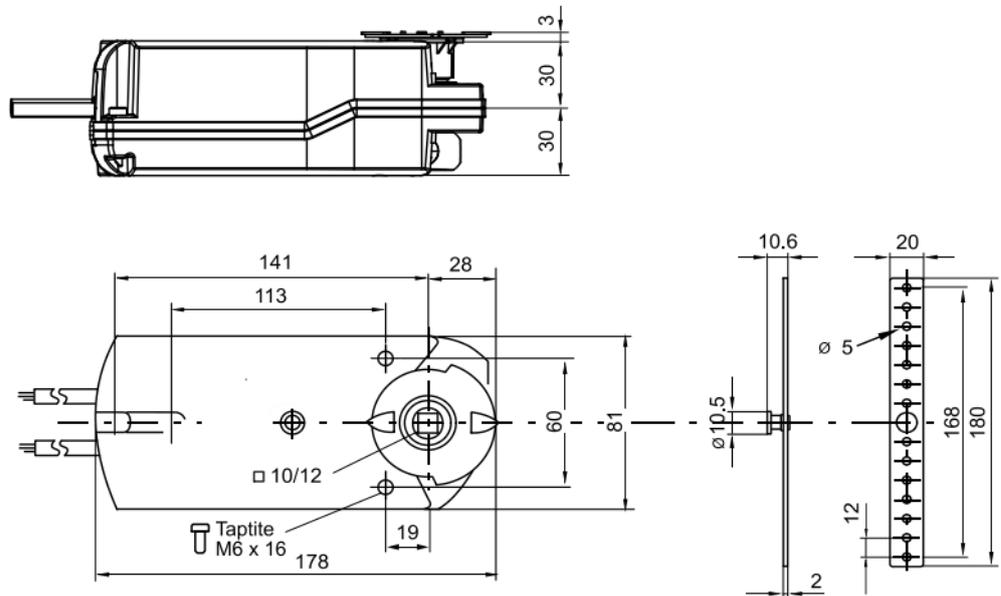


# GRA326.1E..



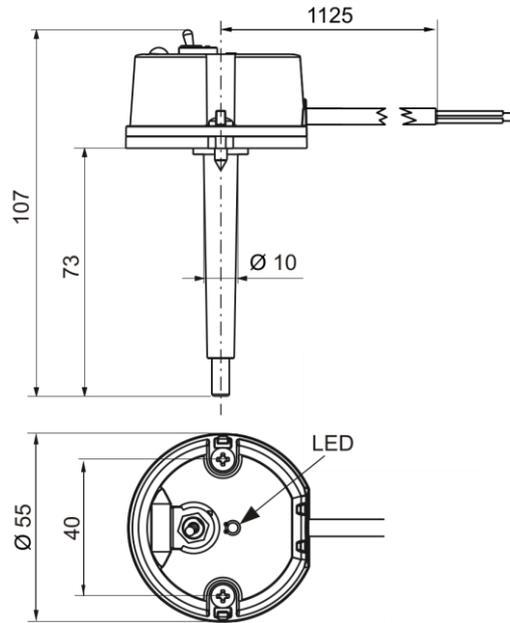
## Dimensions

### Actuator



Dimensions in mm

## Temperature monitoring unit



### LED functions

- Red = Operating voltage OK  
Thermo sensor defect
- Green = Operating voltage OK  
Thermo sensor OK
- Dark = No operating voltage

Dimensions in mm

## Revision numbers

Type	Valid from rev. no.	Type	Valid from rev. no.
GRA126.1E/10 S55499-D294	..A	GRA326.1E/10 S55499-D295	..A
GRA126.1E/12 S55499-D296	..A	GRA326.1E/12 S55499-D297	..A
GRA126.1E/T10 S55499-D290	..A	GRA326.1E/T10 S55499-D291	..A
GRA126.1E/T12 S55499-D292	..A	GRA326.1E/T12 S55499-D293	..A
GRA126.1E/C12 S55499-D566	..A		



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