SIEMENS

4617



OpenAir™

Actuators for Fire and Smoke Protection Dampers

GGA126.1E/..
GGA326.1E/..

- **Electric motor driven actuators for 2-position control, nominal torque 18 Nm, with spring return to failsafe position, mechanically adjustable span between 0...90°, prewired with 0.9 m long connecting cables**
- **Operating voltage AC 24 V / DC 24…48 V or AC 230 V**
- **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.**

Use

For the control of fire and smoke protection dampers.

- Nominal torque of 18 Nm for damper surfaces up to about 2.5 m^2 (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

Basic functions

Rotary movement

- Direction of rotation (clockwise or counterclockwise) 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 (Optional: 95 °C), the return spring drives the actuator to the failsafe position (0°)
- 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 dead

- 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 connection

Square shafts 8 x 8, 10 x 10, 12 x 12 mm, or 15 x 15 mm

Type summary

Operating voltage	Auxiliary switches	With temperature monitoring unit	Without temperature monitoring unit
AC 24 V DC 24…48 V	Fixed switching points at 5° and 80°	**GGA126.1E/T08** **GGA126.1E/T10** **GGA126.1E/T12** **GGA126.1E/T15**	**GGA126.1E/08** **GGA126.1E/10** **GGA126.1E/12** **GGA126.1E/15**
AC 230 V	Fixed switching points at 5° and 80°	**GGA326.1E/T08** **GGA326.1E/T10** **GGA326.1E/T12** **GGA326.1E/T15**	**GGA326.1E/08** **GGA326.1E/10** **GGA326.1E/12** **GGA326.1E/15**

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

Designation	Type reference	Data sheet / mounting instruction
Duct tip to temperature monotoring unit	**ASK79.4 / 72 °C** **ASK79.5 / 95 °C**	N4617 / M4610

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 / DC24…48 V or AC 230 V.

Technical design

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	Mechanical spring ensure the failsafe function.

Mechanical design

Basic components

Housing	Robust, lightweight all metal housing made from die-cast aluminium which guarantees long service life even under extreme environmental conditions.
Gear train	Maintenance- and noise-free gear train with stall and overload protection for the life of the actuator.
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. A hex wrench is supplied.
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.
Note	The actuator 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	Fixed switching points at 5° and 80°.

Temperature monitoring unit

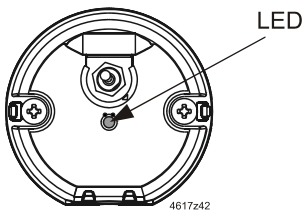
Use

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, two for monitoring the duct temperature and one for the ambient temperature. If the temperature at any of these fuses exceeds the level of 72 °C (Optional: 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 integrated for making functional checks. When pressed, the current path will be cut.

LED functions



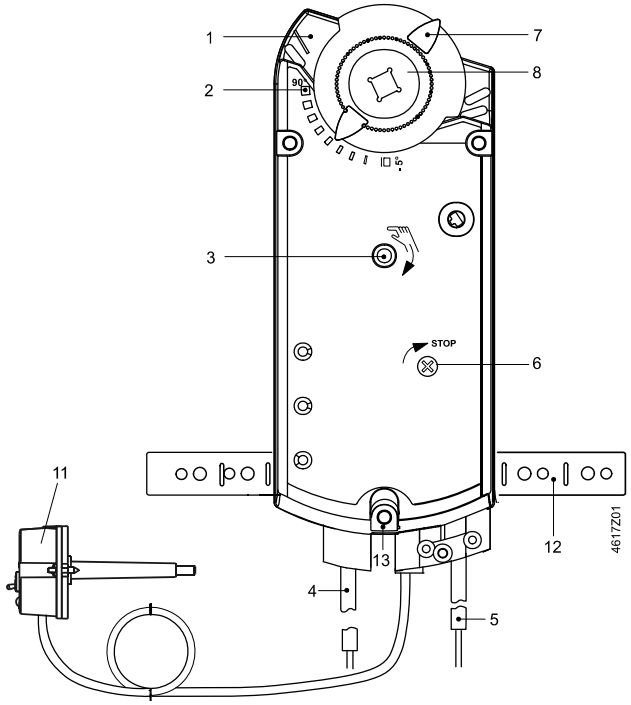
O Red = Operating voltage OK.
Thermo sensor defect

O Green = Operating voltage OK
Thermo sensor OK

● Dark = No operating voltage

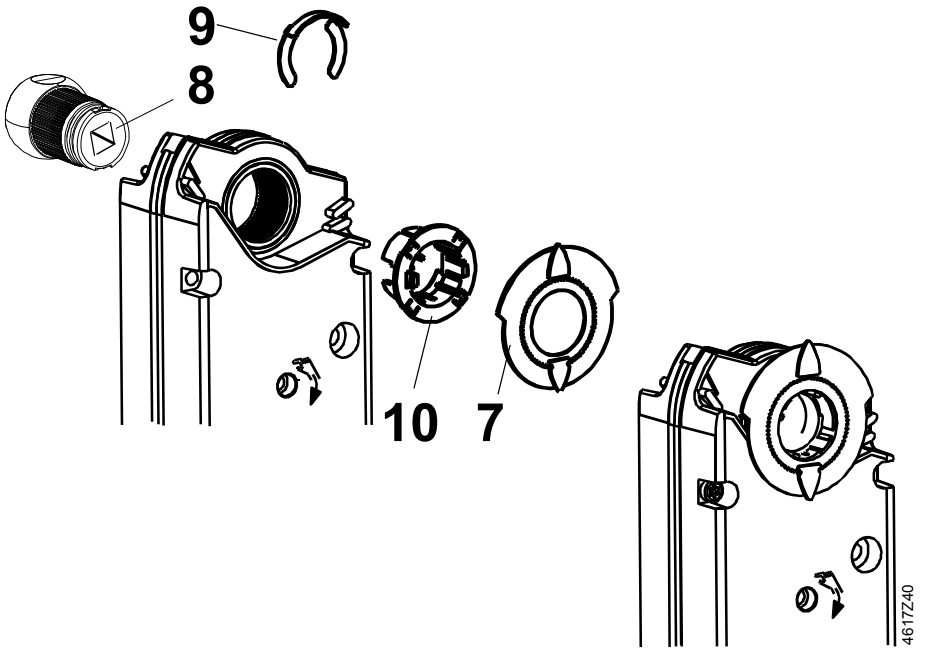
Setting and operating elements

Refer to "Technical design" and "Commissioning notes" in this data sheet.



1 Housing
2 Angle of rotation scale 0°...90°
3 Screw for manual override
4 Connecting cable for power supply
5 Connecting cable for auxiliary switches
6 Stop shaft for geartrain
7 Position indicator
8 Shaft adapter
9 Locking ring for shaft adapter
10 Adapter for position indicator
11 Temperature monitoring unit
12 Mounting bracket
13 Pin

Arrangement for shaft adapters



Engineering notes



The basic system data for the control systems in use contain all engineering notes. Read all the engineering notes before mounting, wiring and commissioning the damper actuator and pay special attention to all safety instructions.

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 (bold print) and in "Use", "Engineering notes", and "Technical data".

⚠

All paragraphs marked with the special warning triangle as illustrated on the left contain additional safety instructions and limitations that must be observed under any circumstances to avoid physical injuries or damage to equipment.

⚠ Power supply
AC 24 V
DC 24…48 V

These actuators must be used with **safety extra low-voltage (SELV**) or **protection by extra low-voltage (PELV)** in accordance with HD 384.

⚠ Power supply
AC 230 V

The actuators are double-insulated and do not provide a connection for protective ground.

⚠ Auxiliary switches
“A”, “B”

Use **either mains voltage or safety extra low-voltage** for auxiliary switches “A” and “B”. Do not mix the 2 for operation. Operation with different phases is **not** permitted.


Warning,
maintenance

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

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 for AC 24 V

- Use safety isolating transformers with double insulation conforming to EN 60 742. 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

Wiring and commissioning

Refer to "Commissioning notes" and "Internal diagram" as well as to the plant diagram.

Mounting notes

Mounting instructions

For detailed information on the correct preparation of the actuator, refer to Mounting Instructions GGA…1E/.. M4617. 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 (refer to “Technical design“).

Housing protection

In order to comply with the requirements of IP54 (temperature monitoring unit has IP54), the following mounting conditions must be satisfied:

- Always mount the actuator vertically (cable entry at the bottom) in the case of air dampers with horizontal shafts
- When the actuator is mounted directly on the damper shaft, the mounting angle may be a maximum of +/–45°

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, refer to "Technical data".
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 rotational angle	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 notes

References	All information required for commissioning is contained in the following pieces of documentation: • The present Data Sheet N4617 • Mounting Instructions M4617 • Plant diagram
Environmental conditions	• Check to ensure that all permissible values as specified in "Technical data" are observed
Mechanical check	• Check for proper mounting to ensure that all mechanical settings are in accordance with plant-specific requirements. In addition, ensure that 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
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: Press the button to simulate overtemperature. This simulates the response of the fuse, enabling you to check the proper functioning of the actuator. 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.

Technical data

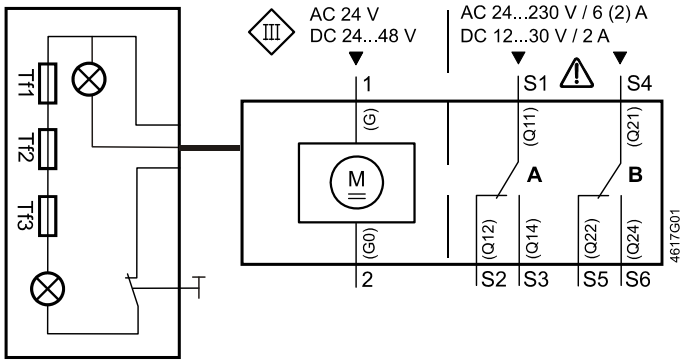
⚠ Power supply AC 24 V DC 24...48 V (SELV/PELV)	Operating voltage AC / frequency		AC 24 V ±20 % / 50/60 Hz
	Operating voltage (DC)		DC 24...48 V ±20 %
	Power consumption GGA126.1:	when running	AC: 7 VA / 5 W
		when running	DC: 4 W
		when holding	AC: 5 VA / 3 W
		when holding	DC: 3 W
	Safety class		III to EN 60 730
⚠ Power supply AC 230 V	Operating voltage / frequency		AC 230 V ±15 % 50/60 Hz
	Power consumption GGA326.1:	when running	8 VA / 6 W
		when holding	6 VA / 4 W
	Safety class		II to EN 60 730
Mechanical data	Nominal torque		18 Nm
	Maximum torque (blocked)		50 Nm
	Nominal angle of rotation / maximum angle of rotation		90° / 95° ± 2°
	Running time for nominal angle of rotation 90° (motor operation)		90 s
	Closing with spring return (on power failure)		15 s
⚠ Auxiliary switches	AC power supply		
	Switching voltage		AC 24...230 V
	Nominal current res./ind.		AC 6 A / 2 A
	Life: 6 A res., 2 A ind.		10^4 cycles
	without load		10^6 cycles
	DC power supply		
	Switching voltage		DC 12..30 V
	Nominal current		DC 2 A
	Electric strength auxiliary switch against housing		AC 4 kV
	Switching hysteresis		2°
	Factory switch setting		
	Switch A		5°
	Switch B		80°
Connecting cables (halogen free)	Power supply line	AC 24 V (wires 1-2)	2 x 0.75 mm²
		AC 230 V (wires 3-4)	2 x 0.75 mm²
	Auxiliary switch cable (wires S1…S6)		6 x 0.75 mm²
	Standard length		0.9 m
Degree of protection	Housing (actuator only)		IP54 to EN 60 529
Environmental conditions	Operation / transport		IEC 721-3-3 / IEC 721-3-2
	Temperature		–32...+50 °C / –32...+50 °C
	Humidity (non-condensing)		< 95 % r.h. / < 95 % r.h.
Standards and directives	Product safety:		
	automatic electrical controls for household and similar use		EN 60 730-2-14 (mode of action type 1)
	Electromagnetic compatibility (EMC):		
	Immunity for all models		IEC/EN 61 000-6-2
	Emissions for all models		IEC/EN 61 000-6-3
	CE Conformity to:		
	EMC-directive		2004/108/EEC
	Low-voltage directive		2006/95/EEC
	C-Tick Conformity to:		
	Emissions		AS/NZS 61000-6-3

Dimensions	Actuator W x H x D (see "Dimensions")		100 x 264 x 71 mm
	Damper shaft: square		8x8, 10x10, 12x12, 15x15 mm
	min. shaft length		20 mm
Weight	Without packaging:	GGA126.1E/T...	2.4 kg
		GGA326.1E/T…	2.5 kg
		GGA126.1E/..	2.3 kg
		GGA326.1E/..	2.4 kg
Temperature monitoring unit (ready connected to actuator GGA..26.1E/T..)	Connecting cable (halogen free)		0.9 m long (2 x 0.5 mm^2)
	Switching temperature for sizing		Tf1: outside the duct 72 °C
			Tf2: inside the duct 72 °C
			Tf3: inside the duct 72 °C
	Temperatur tolerance Tf1, Tf2, Tf3		72 °C +0 °C/–2 °C
	Safety class		III (safety extra-low voltage)
	Degree of protection		IP54
	Ambient temperature / storage temperature		–20…+50 °C / –20…+50 °C
	Ambient humidity		KL D to DIN 40040
	Maintenance		maintenance-free
	Weight		0.1 kg

Diagrams

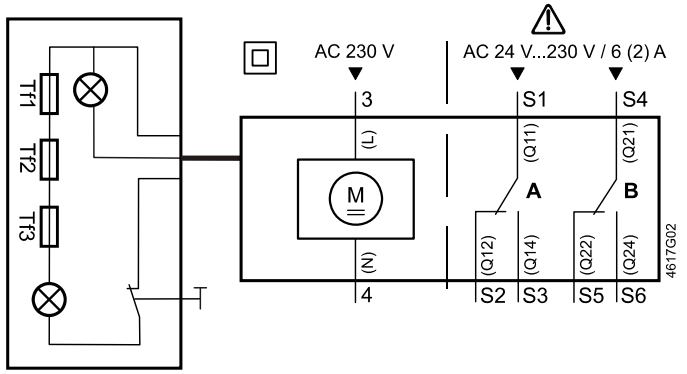
Internal diagrams

GGA126.1E/T..



AC 24 V
DC 24…48 V
(SELV/PELV)

GGA326.1E/T..



AC 230 V

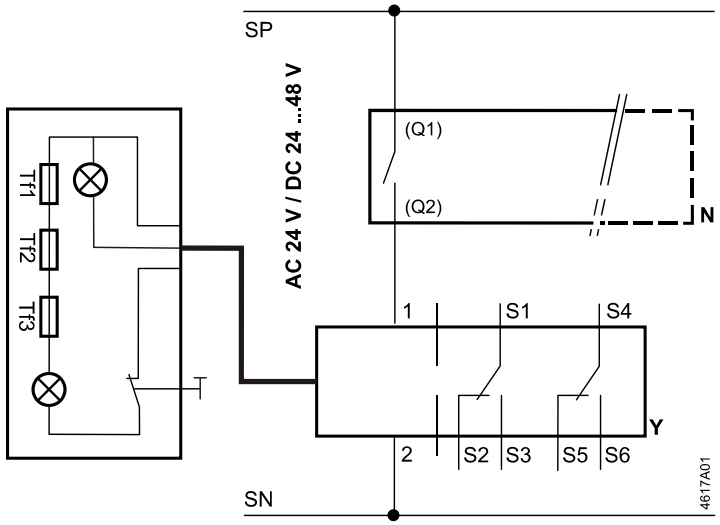
Wire designations

All wires are color-coded and labeled.

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 switch	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/blue	BKBU	Switch B normally-closed contact
	Q24	S6	black/pink	BKPK	Switch B normally-open contact

Connection diagram

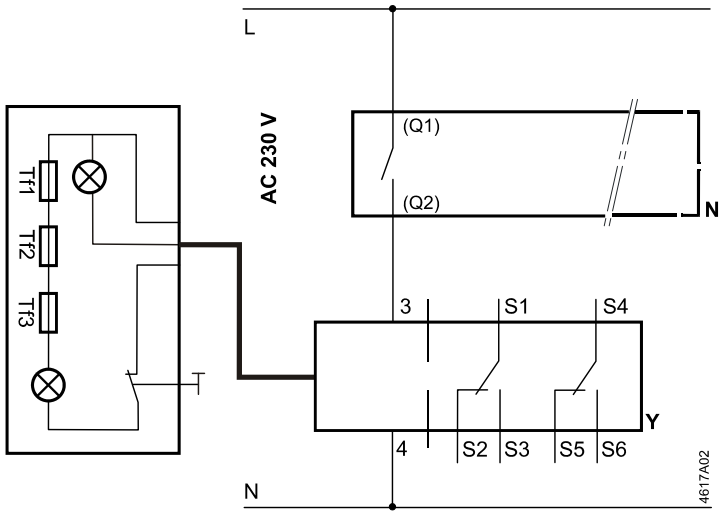
GGA126.1E/T..



AC 24 V
DC 24…48 V
(SELV/PELV)

N Controller
Y 2-position actuator
SP System potential
SN System neutral

GGA326.1E/T..

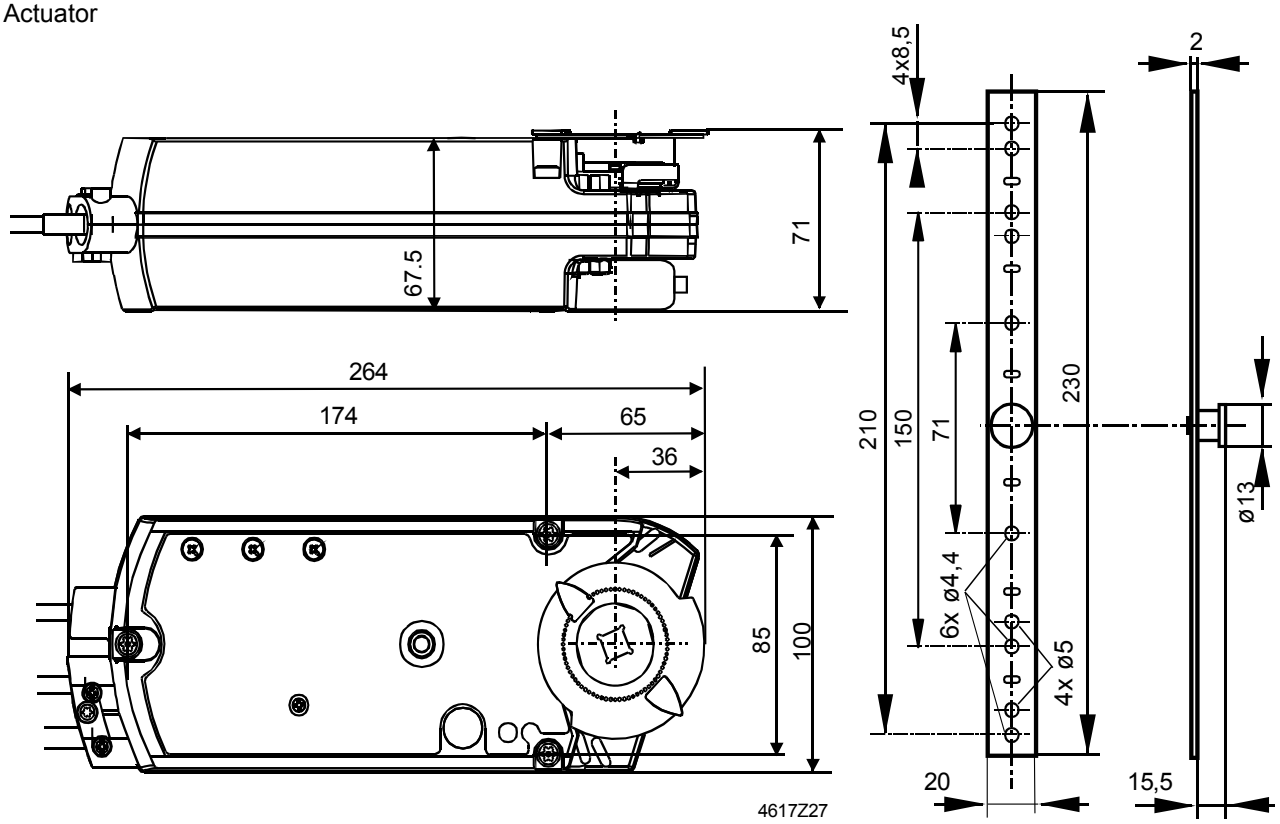


AC 230 V

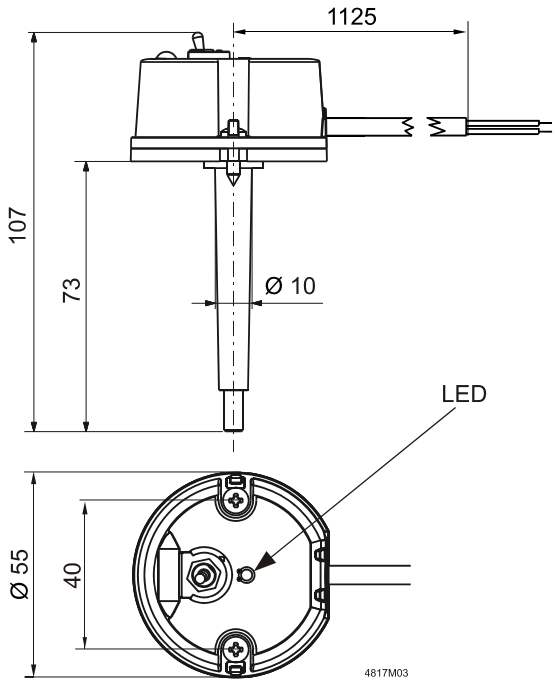
N Controller
Y 2-position actuator
L Live
N Neutral conductor

Dimensions

Actuator



Temperature monitoring unit



LED function

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

Dimensions in mm

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Subject to alteration