



OpenAir™

Actuators for Fire Protection Dampers

GNA126.1E/T...
GNA326.1E/T...

Rotary version, 2-position control, with spring return and ready connected temperature monitoring unit, AC 24 V / DC 24...48 V / AC 230 V

Electric motor driven actuators for 2-position control, nominal torque 7 Nm, with spring return to failsafe position, mechanically adjustable span between 0...90°, prewired with 0.9 m long connecting cables.

Temperature monitoring unit with 2 thermal cutouts (72 °C) and test button.

Special version with fixed auxiliary switches for switching points 5° and 80°, rigid connection between actuator and damper shaft.

Use

For the control of fire protection dampers.

- Nominal torque of 7 Nm for damper surfaces up to about 1.5 m² (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, 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

Specific functions

- Auxiliary switches
- Fixed switching points at 5° and 80°.
- Rigid connection
- Square shafts 8 x 8, 10 x 10, 12 x 12 mm, or 15 x 15 mm.

Type summary

<i>Operating voltage</i>		
AC 24 V DC 24...48 V	With 2 ready set auxiliary switches	GNA126.1E/T08 GNA126.1E/T10 GNA126.1E/T12 GNA126.1E/T15
AC 230 V	With 2 ready set auxiliary switches	GNA326.1E/T08 GNA326.1E/T10 GNA326.1E/T12 GNA326.1E/T15

- 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.

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.

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	Springs ensure the failsafe function.

Mechanical design

Basic components

Housing	Robust, lightweight all metal housing made from die-cast aluminium which guarantees a 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 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.
<i>Note</i>	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.

Specific elements

Auxiliary switches	Fixed switching points at 5° and 80°.
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Use

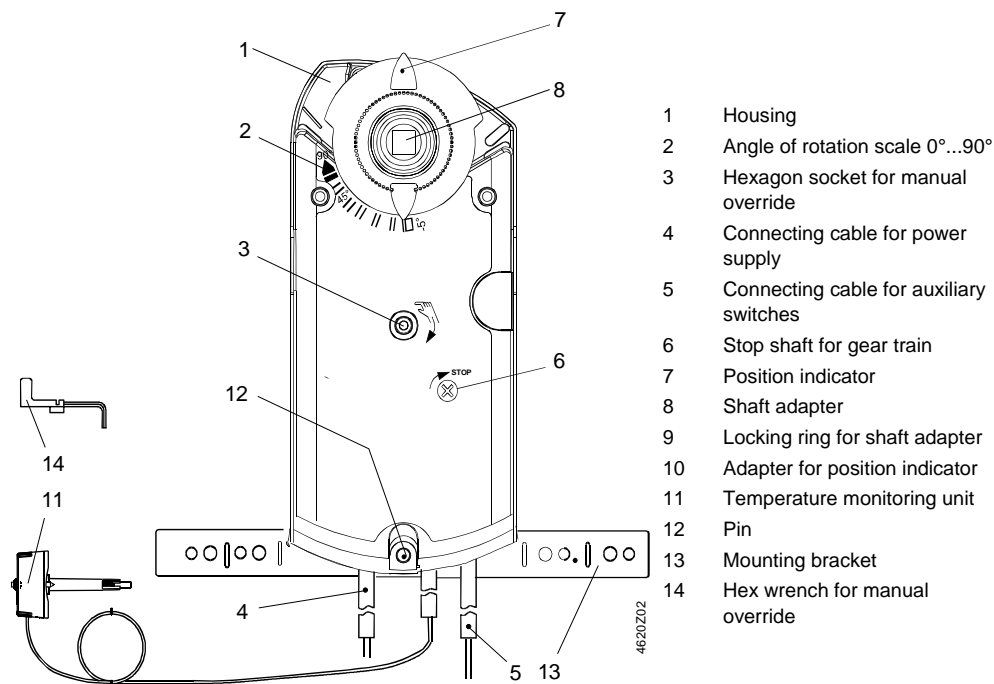
Temperature monitoring unit
The temperature monitoring unit is ready connected to the actuator and is used for forced control of motorized fire protection dampers should excessive temperatures occur.

Mode of operation

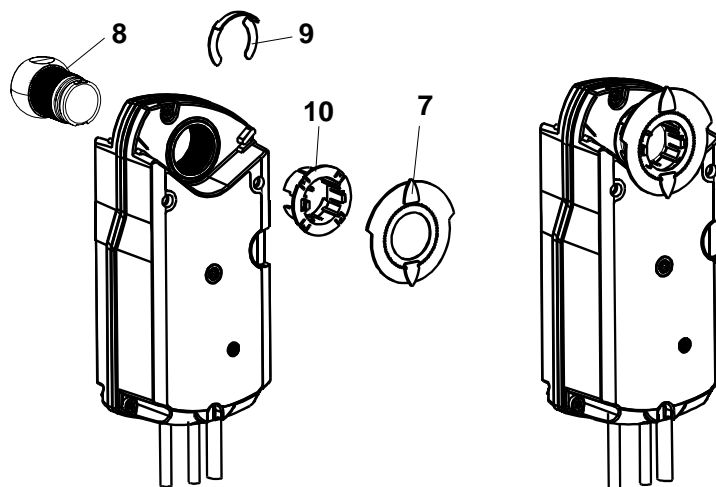
The temperature monitoring unit contains 2 thermal fuses, 1 for monitoring the duct temperature and 1 for the ambient temperature. If the temperature at any of these fuses exceeds the level of 72 °C, the power supply will be irreversibly cut. As a result, the return spring will drive the actuator to the failsafe position. A test button is integrated for making functional checks. When pressed, the current path will be cut.

Setting and operating elements

Refer to "Technical design" and "Commissioning notes" in this Data Sheet.



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.

 AC 24 V /
DC 24...48 V supply

 AC 230 V supply

 Auxiliary switches
"A", "B"



Warning,
maintenance

Parallel connection
of actuators

Sizing transformers
for AC 24 V

Wiring and
commissioning

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

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

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.

Do not open the actuator!

The actuator is maintenance-free. Maintenance work may only be carried out by the manufacturer.

• **Electrically:**

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

- 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

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 GNA126/326.1E/T... / M4620. The actuator must be fitted to the fire 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 IP 54 (temperature monitoring unit has IP 30), 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 $\pm 45^\circ$
- Use the ASK75.3 weather shield for mounting in any other position

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: <ul style="list-style-type: none"> • The present Data Sheet N4620 • Mounting Instructions M4620 • Plant diagram
Environmental conditions	<ul style="list-style-type: none"> • Check to ensure that all permissible values as specified in "Technical data" are observed
Mechanical check	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.

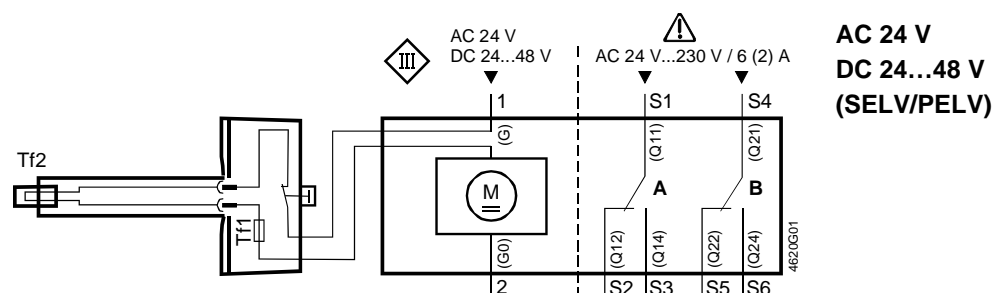
Technical data

 Power supply AC 24 V DC 24...48 V (SELV/PELV)	Operating voltage AC / frequency	AC 24 V \pm 20 % / 50/60 Hz
	Operating voltage (DC)	DC 24...48 V \pm 20 %
 Power supply AC 230	Power consumption GNA126.1: when running	AC: 5 VA / 3.5 W / DC: 3.5 W
	when holding	AC/DC: 2 W
	Safety class	III to EN 60 730
	Operating voltage / frequency	AC 230 V \pm 10 % / 50/60 Hz
	Power consumption GNA326.1: when running	7 VA / 4.5 W
	when holding	3.5 W
	Safety class	II to EN 60 730
Mechanical data	Nominal torque	7 Nm
	Maximum torque (blocked)	21 Nm
	Nominal angle of rotation / maximum angle of rotation	90° / 95° \pm 2°
	Running time for nominal angle of rotation 90° (motor operation)	90 s
	Closing with spring return (on power failure)	15 s
	Mechanical life	10 ⁵ cycles
 Auxiliary switches for GNA..6.1,	Contact rating	6 A res., 2 A ind.
	Life:	6 A res., 2 A ind.
		5 A res., 1 A ind.
		no load
	Voltage	AC 24...230 V
	Safety class	II to EN 60 730
Dielectric strength auxiliary switch to housing	AC 4 kV	
Switching hysteresis	2°	

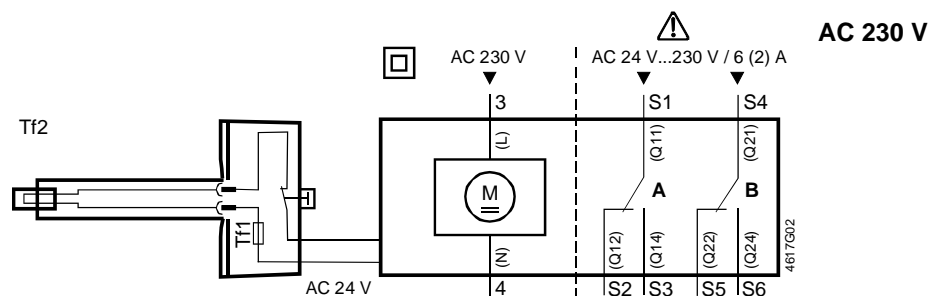
	Switching points of auxiliary switches (factory set)	
	Switch "A"	5°
	Switch "B"	80°
Connecting cables	Power supply line AC 24 V (wires 1-2)	2 x 0.75 mm ²
	AC 230 V (wires 3-4)	2 x 0.75 mm ²
	Auxiliary switch cable (wires S1...S6)	6 x 0.75 mm ²
	Standard length	0.9 m
Degree of protection	Housing (actuator only)	IP 54 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
	☑️ Conformity: electromagnetic compatibility	89/336/EEC
	Low-voltage directive	73/23/EEC
	☑️ Conformity: Australian EMC Framework	Radio Communication Act 1992
Radio Interference Emission Standard	AS/NZS 3548	
Dimensions	Actuator W x H x D (see "Dimensions")	81 x 178 x 63 mm
	Damper shaft: square	8x8, 10x10, 12x12, 15x15 mm
	min. shaft length	20 mm
Weight	Without packaging: GNA126.1E/T...	1.2 kg
	GNA326.1E/T...	1.3 kg
Temperature monitoring unit (ready connected to actuator GNA126/326)	Connecting cable	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
	Safety class	III (safety extra-low voltage)
	Degree of protection	IP30
	Ambient temperature / storage temperature	-20...+50 °C / -20...+50 °C
	Ambient humidity	KL D to DIN 40040
	Maintenance	maintenance-free
	Weight	80 g

Diagrams

Internal diagram GNA126.1E/T..



GNA326.1E/T..



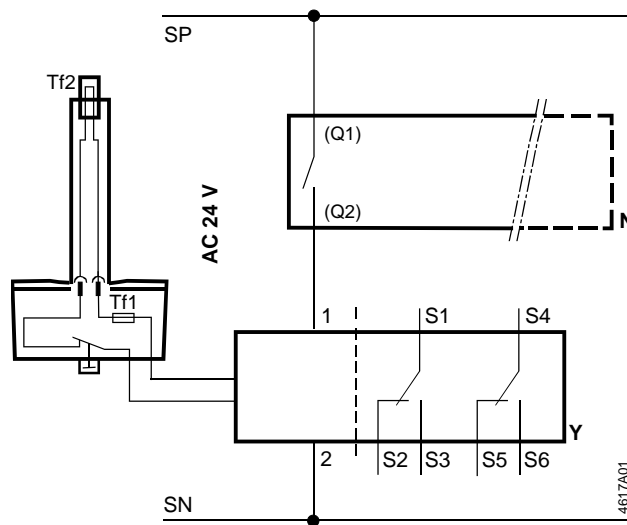
Cable labeling

All wires are color-coded and labeled

Actuator type	Wire no.	Meaning	Color	Code
Actuators AC 24 V / DC 24...48 V	1	System potential AC 24 V / DC 24...48 V	Red	G
	2	System neutral	Black	G0
Actuators AC 230 V	3	Phase AC 230 V	Brown	L
	4	Neutral conductor	Blue	N
Auxiliary switch	S1	Switch A input	Gray / red	Q11
	S2	Switch A NC contact	Gray / blue	Q12
	S3	Switch A NO contact	Gray / pink	Q14
	S4	Switch B Input	Black / red	Q21
	S5	Switch B NC contact	Black / blue	Q22
	S6	Switch B NO contact	Black / pink	Q24

Connection diagram

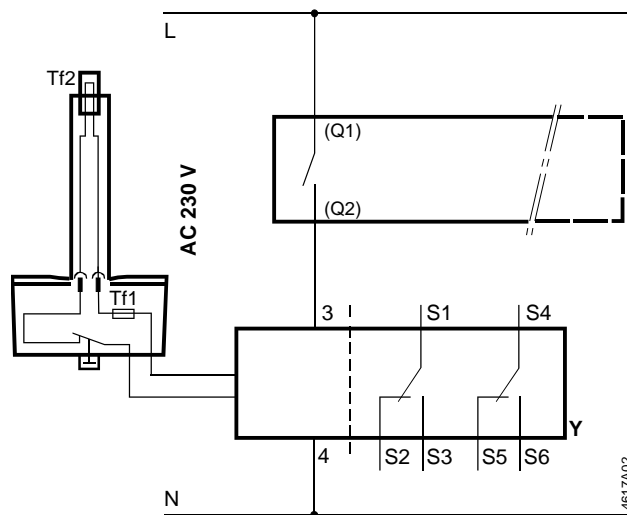
GNA126.1E/T..



**AC 24 V
DC 24...48 V
(SELV/PELV)**

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

GNA326.1E/T..

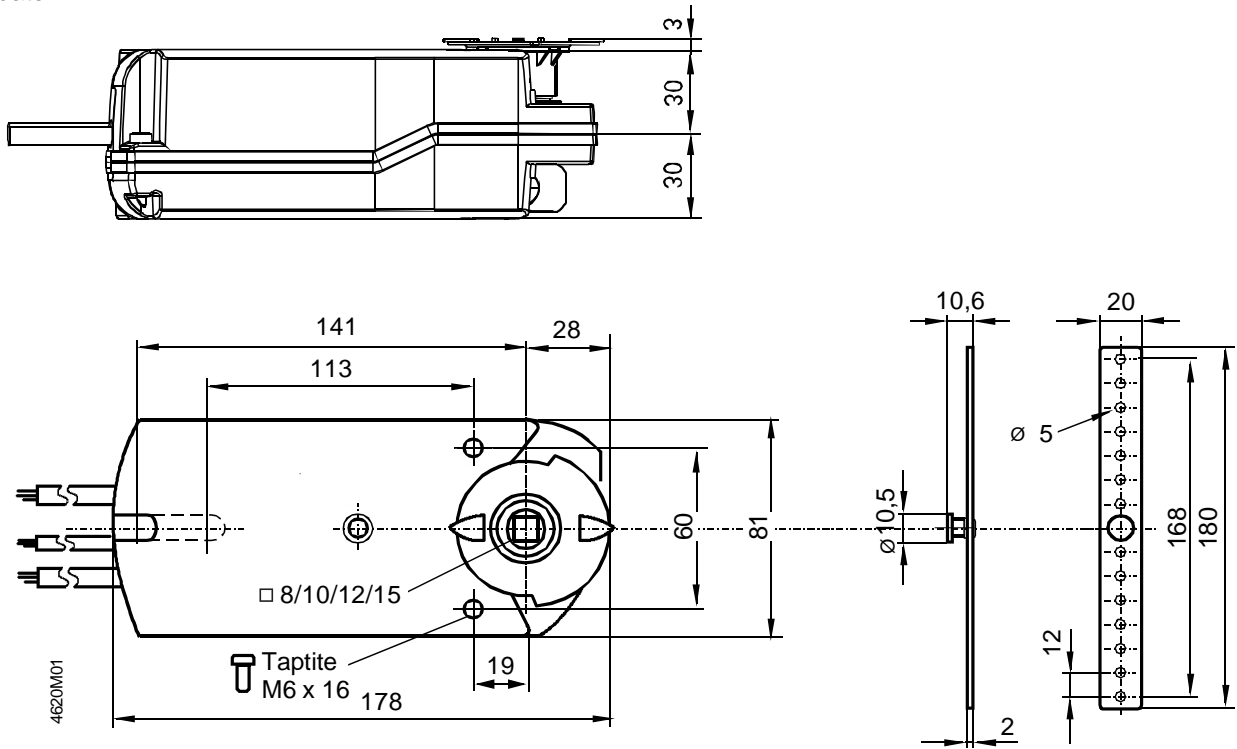


AC 230 V

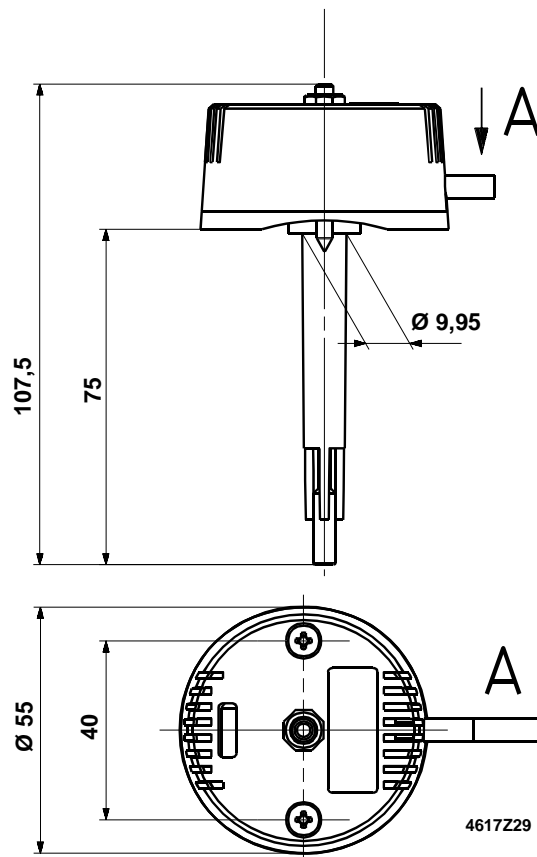
N Controller
Y 2-position actuator
L Live
N Neutral conductor

Dimensions

Actuator



Temperature monitoring unit



Dimensions in mm

