

## Data Sheet

# Thermal actuator ABN-FBH

## Application



The ABN-FHB actuator is a thermoelectric actuator for opening and closing valves on heating circuit manifolds in underfloor heating systems. The actuator has been specially developed for targeted use in the widest variety of systems. Its compact size, design, functionality and flexibility are the most impressive features. A valve adapter concept guarantees the perfect adjustment of the actuator to almost any valve bases and heating circuit manifolds on the market.

The ABN-FHB actuator serves to ensure the optimum control of valves on heating circuit manifolds. Control is performed via a 2-point room temperature regulator or by pulse width modulation.

### Performance features:

- Compact design, minimal dimensions
- 360° mounting position
- Patented protection for leaking valves
- Normally-closed (NC) and normally-open (NO) designs available
- All-round function display
- First-open function (only for normally-closed)
- Maintenance-free
- Noiseless
- High functional safety and service life
- Low power consumption
- Plug-in assembly
- Valve adapter concept
- Adjustment control on valve

## Functions

### General

The actuator mechanism of the ABN-FBH actuator uses a positive temperature coefficient (PTC) resistor heated element and a compression spring. The expansion element is heated by creating the operating voltage, which moves the integrated piston. The force generated by the movement is transferred to the valve piston and thus opening or closing the valve.

### Normally closed (valve closed)

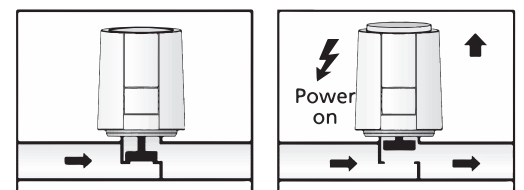
In case of the normally closed version, the valve is opened steadily by the piston's movement upon switching on the operating voltage and after expiry of the dead time. Switching off the operating voltage cools the expansion element. After expiry of the dwell time, the valve is closed evenly by the closing force of the compression spring. The closing force of the compression spring is matched to the closing force of the valves and keeps the valve closed when de-energized.

### Valve adapter concept

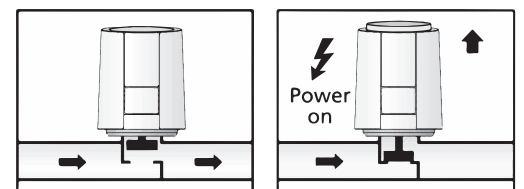
The valve adapter concept guarantees the perfect adjustment of the actuator to almost any valve bases and heating circuit manifolds on the market. The ABN-FBH actuator is simply fastened to the pre-installed valve adapter by plug-in assembly.

### Function display

The function display (all-round display) on the ABN-FBH actuator shows at a glance whether the valve is open or closed.



In the NC version (normally closed) the function display switches off when the valve opens.



In the NO version (normally open) the function display switches off when the valve closes.

**First-open function (only for NC)**

The ABN-FBH actuator is delivered with the first-open function normally open. This allows heating operation in the preliminary construction phase, even if the electrical wiring of the individual room controllers is not yet completed. During

the later start-up, the first open function is automatically unlocked by applying the operating voltage (for more than 6 minutes) and the ABN-FBH actuator is fully ready to function.

**Ordering**

Type	Design	Voltage	Part No.
ABN-FBH 230 NC	On/off control normally closed	230 V, 1 W	<b>193B2147</b>
ABN-FBH 230 NO	On/off control normally open	230 V, 1 W	<b>193B2149</b>
ABN-FBH 24 NC	On/off control normally closed	24 V, 1 W	<b>193B2148</b>
ABN-FBH 24 NO	On/off control normally open	24 V, 1 W	<b>193B2150</b>

**Technical Specifications**

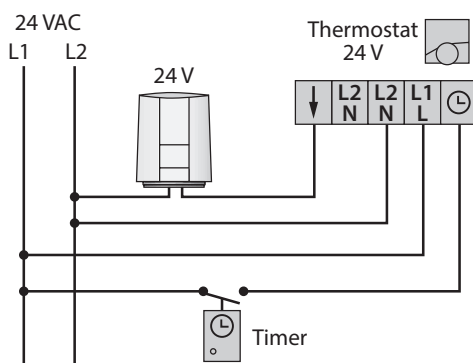
Type	24 V	230V
Design	Normally closed/normally open	Normally closed/normally open
Voltage	24 V AC/DC, +20%...-10%	230 V AC, +10%...-10%, 50/60 Hz
Inrush current, max.	< 300 mA for max. 2 min.	< 550 mA for max. 100 ms
Operating power	1 W <sup>1)</sup>	1 W <sup>1)</sup>
Actuator travel	3.5 / 4.0 / 5.0 mm	3.5 / 4.0 / 5.0 mm
Actuating force	100 N ± 5%	100 N ± 5%
Fluid temperature	0 to +100° C <sup>2)</sup>	0 to +100° C <sup>2)</sup>
Storage temperature	-25° C to +60° C	-25° C to +60° C
Ambient temperature	0 to +60° C	0 to +60° C
Degree of protection/protection class	IP 54 <sup>3)</sup>	IP 54 <sup>3)</sup> / II
CE conformity according to	EN 60730	EN 60730
Housing material/colour	Polyamide/light grey (RAL 7035)	Polyamide/light grey (RAL 7035)
Connection cable/colour	2 x 0.75 mm <sup>2</sup> PVC /light grey (RAL 7035)	2 x 0.75 mm <sup>2</sup> PVC /light grey (RAL 7035)
Cable length	1 m	1 m
Weight with connection cable	100 g	100 g
Overvoltage protection according to EN 60730-1	min 2.5 kV	min 2.5 kV

<sup>1)</sup> Measured with precision power meter LMG95.

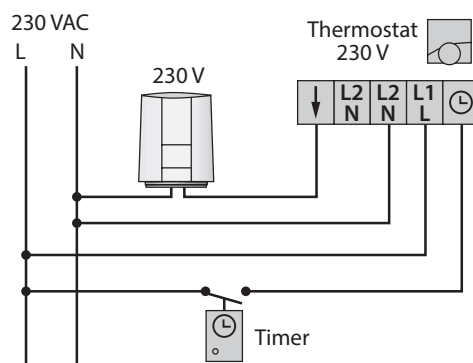
<sup>2)</sup> Depending on the adapter also higher.

<sup>3)</sup> In all mounting positions.

Connection overview



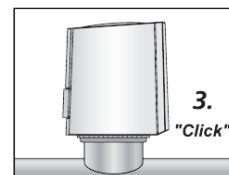
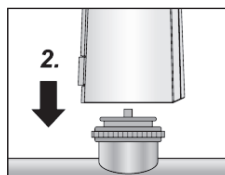
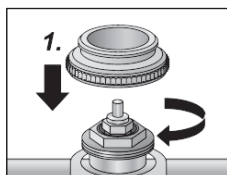
Connection overview, 24 VAC



Connection overview, 230 VAC

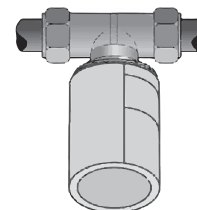
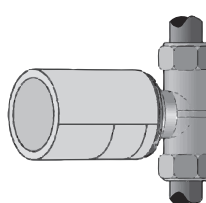
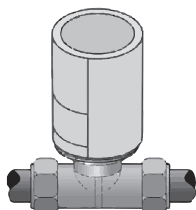
Mounting

Assembly with valve adapter



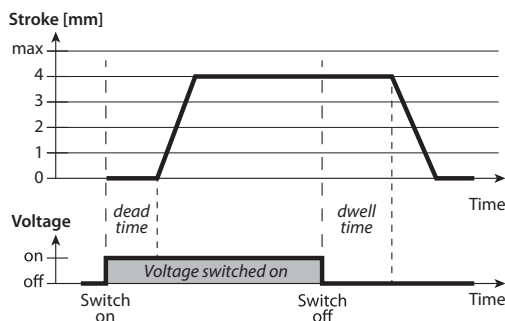
The valve is adjusted via a valve adapter, which is available in various versions for the most common valve bases and heating circuit manifolds (take into account when ordering).

Mounting positions

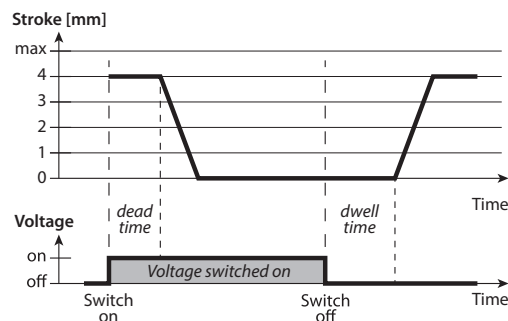


The actuator should preferably be mounted in a vertical and horizontal mounting position. In an "overhead" mounting position, special circumstances (e.g. waste water) can reduce the service life.

ON/OFF switching

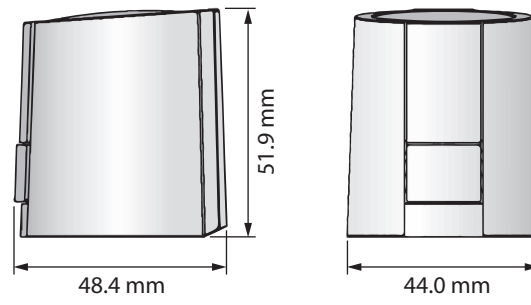


NC version: normally closed



NO version: normally open

## Dimensions



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