



Thermal actuators

ABN-FBH

Description

The ABN-FBH actuator is a thermal wax actuator (TWA) 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-FBH actuator serves to ensure the optimum control of valves on heating circuit manifolds. Control can be implemented using ON/OFF switching or by applying pulse-width modulation (PWM).

The ABN-FBH range includes actuators for 24 V (SELV*) (*SELV = Safety Extra Low Voltage) or 230 V supply.

Features & benefits

- Available in Normally Closed (NC) and Normally Open (NO) versions
- First-open function (actuator fully open during installation) for easy installation of the NC actuator; automatically unlocked by applying the operating voltage for more than 6 minutes
- Visual position indicator
- Compatible with a wide range of valves and manifolds using adapters
- Energy-efficient – only 1 W running power consumption
- 360° mounting position – IP 54
- The actuators plug into place once the adapter is mounted on the valve or manifold, enabling quick and tool-free assembly

Ordering

Product code numbers

Product Type	Supply voltage [V] AC	Code number
ABN Actuator	230	193B2147
ABN Actuator	24	193B2148
ABN Actuator	230	193B2149
ABN Actuator	24	193B2150

Product details

General data

Table: Technical specifications

Type	24 V	230 V
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 ¹⁾	1 W ¹⁾
Actuator travel	4.0 mm	4.0 mm
Actuating force	100 N ± 5%	100 N ± 5%
Fluid temperature	0 – 100 °C ²⁾	0 – 100 °C ²⁾
Storage temperature	-25 – 60 °C	-25 – 60 °C
Ambient temperature	0 – 60 °C	0 – 60 °C
Degree of protection/protection class	IP 54 ³⁾	IP 54 ³⁾ / 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 ² PVC /light grey (RAL 7035)	2 x 0.75 mm ² PVC /light grey (RAL 7035)
Cable length	1 m	1 m
Weight with connection cable	100 g	100 g

¹⁾ Measured with precision power meter LMG95.

²⁾ Depending on if the adapter can also resist the high temperature.

³⁾ In all mounting positions.

Main functionalities

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 pin/stem and thus opening or closing the valve.

Normally closed (valve closed)

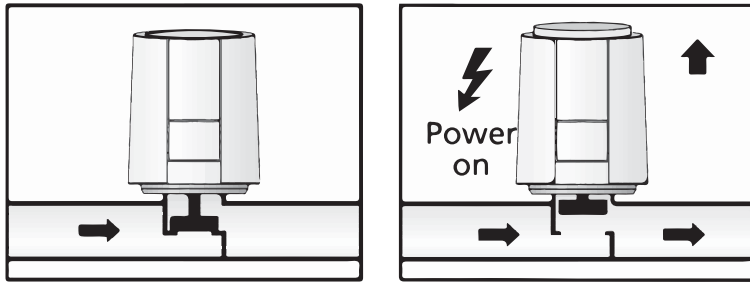
In case of the normally closed version, the valve is opened steadily by the piston's movement upon switching on the operating voltage and after expiry of the dead time. Switching off the operating voltage cools the expansion element. After expiry of the dwell time, the valve is closed evenly by the closing 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.

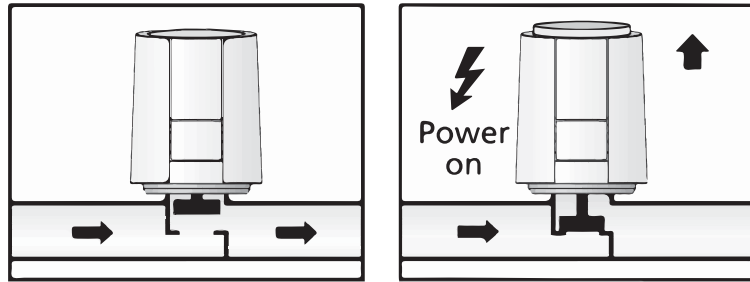
Position indicator

Visual position indicator on the ABN-FBH actuator shows at a glance whether the valve is open or closed.



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In the NC version (normally closed) the position indicator is extended to show the valve is open.



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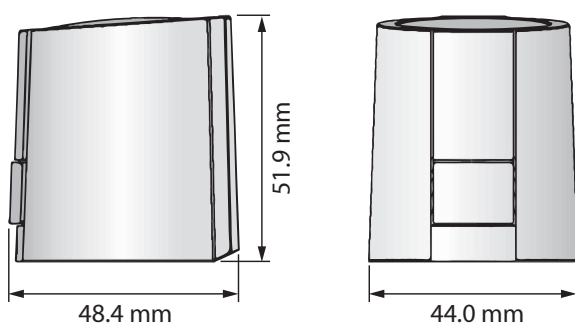
In the NO version (normally open) the position indicator is extended to show that the valve is closed.

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.

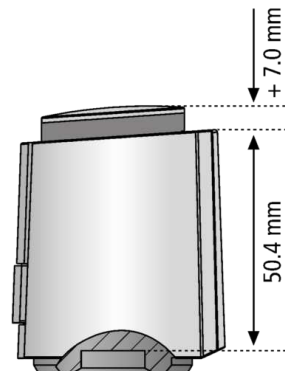
Dimensions

Figure: ABN-FBH dimensions



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Figure: Installation height



Connections

Figure: Connection overview, 24 V AC

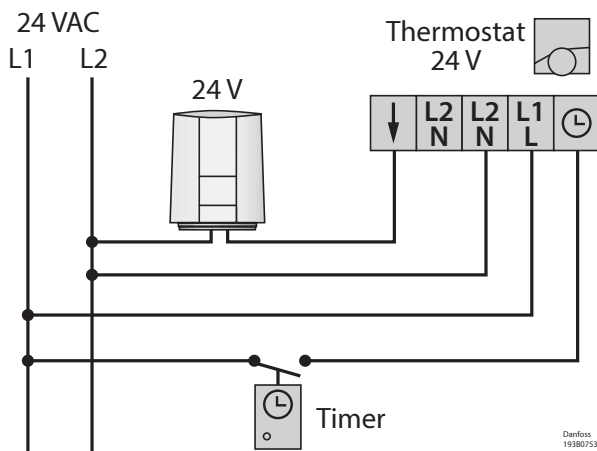
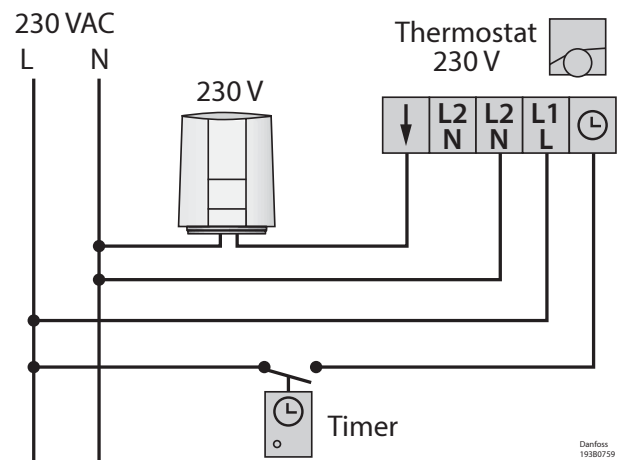
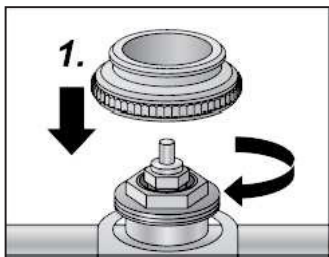


Figure: Connection overview, 230 V AC

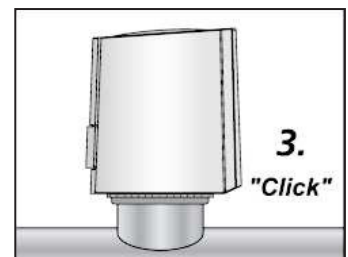
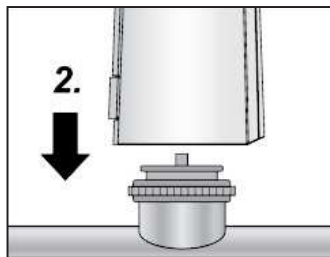


Installation

Assembly with valve adapter

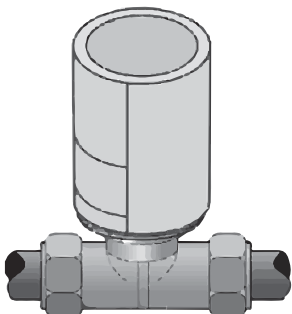


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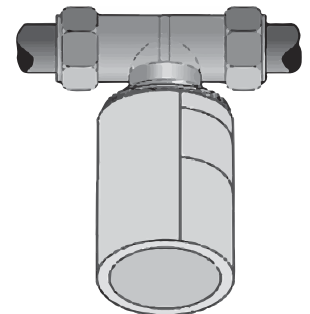
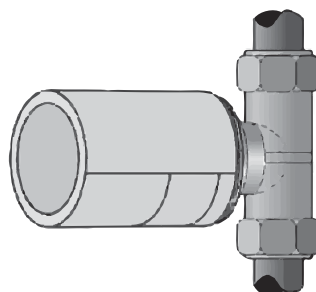


The valve is adjusted via a valve adapter, which is available in various versions for the most common valve bases and heating circuit manifolds (take into account when ordering).

Mounting positions



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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

Figure: NC version - normally closed

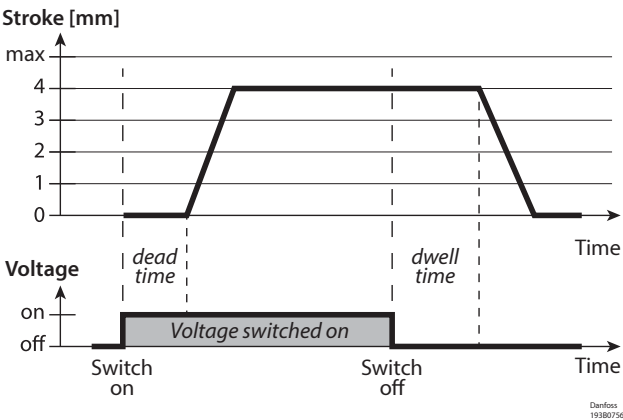
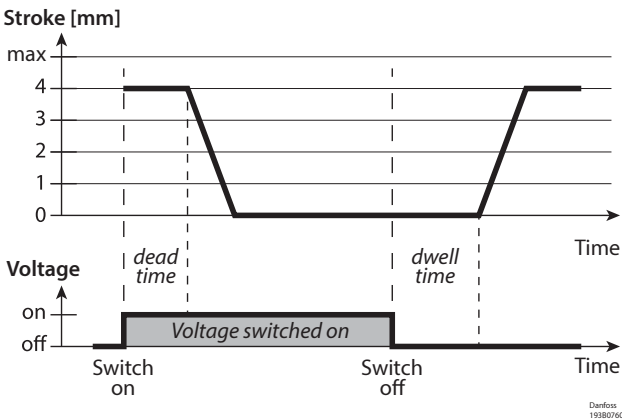


Figure: NO version - normally open



Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Export Control Declaration	ABN-FBH	Danfoss	

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