

Data sheet

ABN A5 Actuator for AB-QM, ON/OFF

Application



The ABN A5 on/off thermal actuator has been specifically designed for use with AB-QM valves DN10-32/½-1¼ inch in heating and cooling applications.

Actuator convincing features are:

- Stroke 5.0 mm
- Available as normally closed (NC) or normally open (NO)
- Power consumption 1W
- Plug-in cable
- Simple snap-on installation
- IP54 in any installation position
- First-Open function
- Compact size, small dimensions
- All round function indicator
- Noiseless and maintenance-free
- Certified by TÜV

The actuator can be controlled with an on/off or PWM controller which is provided either by a room thermostat or by a central direct digital control (DDC) system.

Function

The actuator mechanism of the ABN A5 actuator uses a positive temperature coefficient (PTC) resistor heated wax element and a compression spring. The wax element is heated by applying the operating voltage and moves the integrated piston. The force generated by this movement is transferred to the piston, thus opening or closing the valve.


First open function (for NC versions only)

In its delivery condition, the ABN A5 is kept open when de-energized due to the first open function (filling). This enables heating/cooling operation during the carcass construction phase even when the electric wiring is not yet complete. During the later electrical start-up, the first open function is unlocked by applying the operating voltage for more than 6 minutes and the ABN A5 will then be completely operable.

Version NC "normally closed" (valve closed)

In case of the normally closed version, the valve is opened steadily by the ram motion upon switching on the operating voltage and after expiry of the dead time. After the operating voltage is cut and after expiry of the hold time, the valve is closed evenly by the closing force of the compression spring. The closing force of the actuator is matched to AB-QM DN10-32 valves and keeps the valve closed when de-energised.

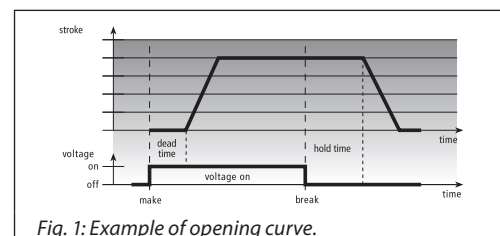


Fig. 1: Example of opening curve.

Version NC with end switch (082F1154)

The integrated micro switch is switched at a travel path of approx. 2 mm. After the operating voltage is cut and after expiry of the hold time the valve is closed evenly by the closing force of the compression spring. The integrated switch is closed after an actuator travel of approx. 2 mm. The closing force of the compression spring is matched to the closing force of commercially available valves and keeps the valve closed when de-energised.

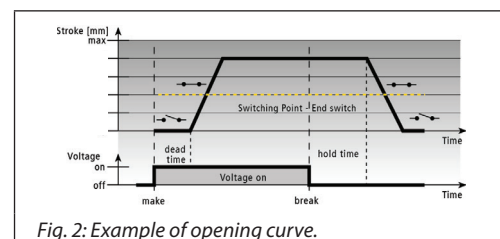


Fig. 2: Example of opening curve.

Function (continuous)

Version NO "normally open"

In case of the normally open version, the valve is closed steadily by the ram motion upon switching on the operating voltage and after expiry of the dead time.

After the operating voltage is cut and after expiry of the hold time, the valve is opened evenly by the compressive force of the valve spring.

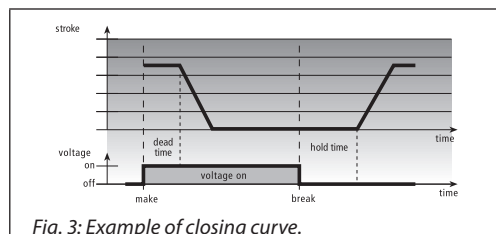


Fig. 3: Example of closing curve.

Function display

The function display of the ABN A5 (all-round display) allows identifying the operating condition (valve open or closed) at a glance.

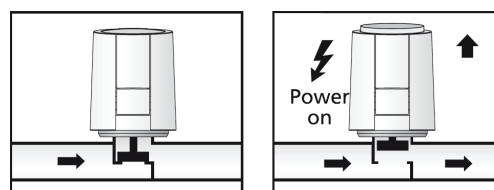


Fig. 4: Function display for NC versions extends proportionally with actuator opening from 0 mm to 5-6 mm.

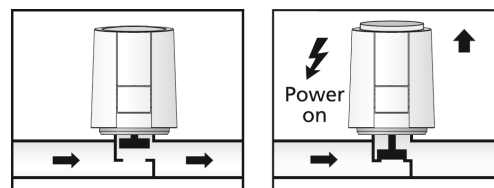


Fig. 5: Function display for NO versions extends only when valve is fully closed by approx. 0.5 mm.

Ordering

Type	Supply voltage	Normally Open/ Normally Closed	Cable	End Switch	Code No.
ABN A5, with VA 41 adapter, without cable	24 VAC/DC	NC	Plug-in, not included	No	082F1150
	24 VAC/DC	NO	Plug-in, not included	No	082F1151
	230 VAC	NC	Plug-in, not included	No	082F1152
	230 VAC	NO	Plug-in, not included	No	082F1153
	24 VAC/DC	NC	Fixed, 1 m	Yes	082F1154
	120 VAC	NC	Plug-in, not included	No	082F1156
	120 VAC	NO	Plug-in, not included	No	082F1157

Cables

Cables are not included and should be ordered separately (not valid version with end switch). It is possible to select between different lengths and standard or halogen free material.

Cables	Material	Code No.
1 meter	Standard (PVC)	082F1144
5 metres	Standard (PVC)	082F1145
10 metres	Standard (PVC)	082F1146
1 meter	Halogen free	082F1147
5 metres	Halogen free	082F1148
10 metres	Halogen free	082F1149

Data

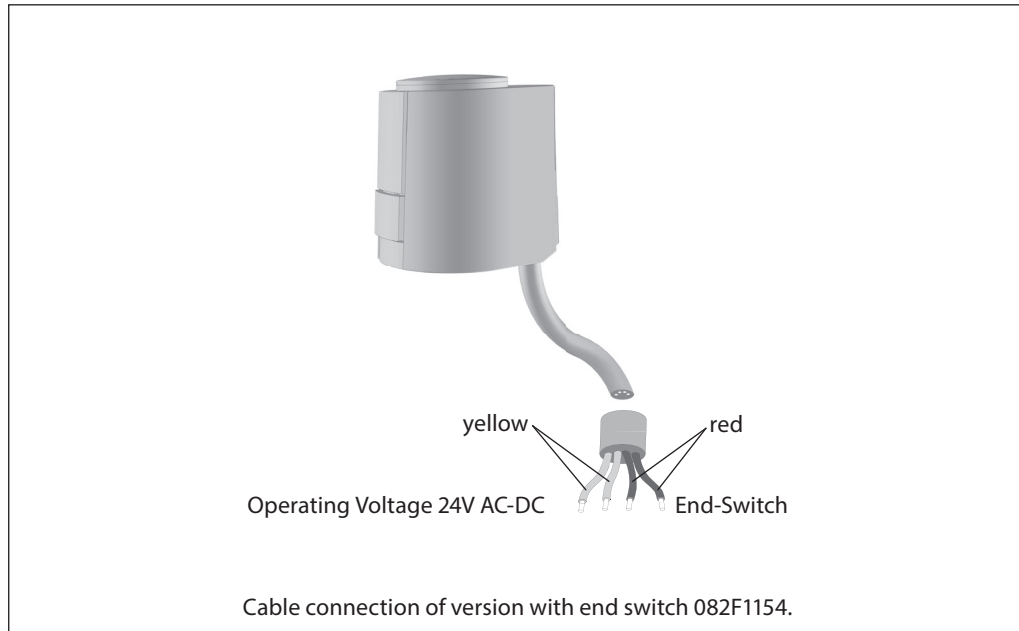
ABN A5 type	24 V	230 V
Version	NC/NO	NC/NO
Voltage	24 V AC/DC, +20 %...-10 %, 0-60 Hz	230 V AC, +10 %...-10 %, 50/60 Hz
Max. inrush current	< 300 mA during max. 2 min.	< 550 mA during max. 200 ms
Operating power	1 W ¹⁾	1 W ¹⁾
Control voltage	On/Off	On/Off
Actuator travel	5 mm	5 mm
Actuating force	100 N	100 N
Closing and opening time	~4 min.	~4 min.
Fluid temperature	0 - 100 °C	0 - 100 °C
Storage temperature	-25 to 65 °C	-25 to 65 °C
Ambient temperature	0 to 60 °C	0 to 60 °C
Ambient humidity	95% r.h., non-condensing	
Degree/class of protection	IP54 ²⁾ /III safety extra-low voltage	IP54 ²⁾ /II
CE conformity according to	EN60730, UL60730	EN60730, UL60730
Housing/housing colour	Polyamid/White RAL9003	Polyamid/White RAL9003
Connecting cable	2 x 0.75 mm ² PVC, or halogen free	2 x 0.75 mm ² PVC, or halogen free
Adapter (included)	VA 41	VA 41
Overvoltage resistance EN60730-1	min. 2.5 kV	min. 2.5 kV
Weight	0.1 kg	0.1 kg

¹⁾ Measured with precision reference instrument LMG95.

²⁾ In all installation positions.

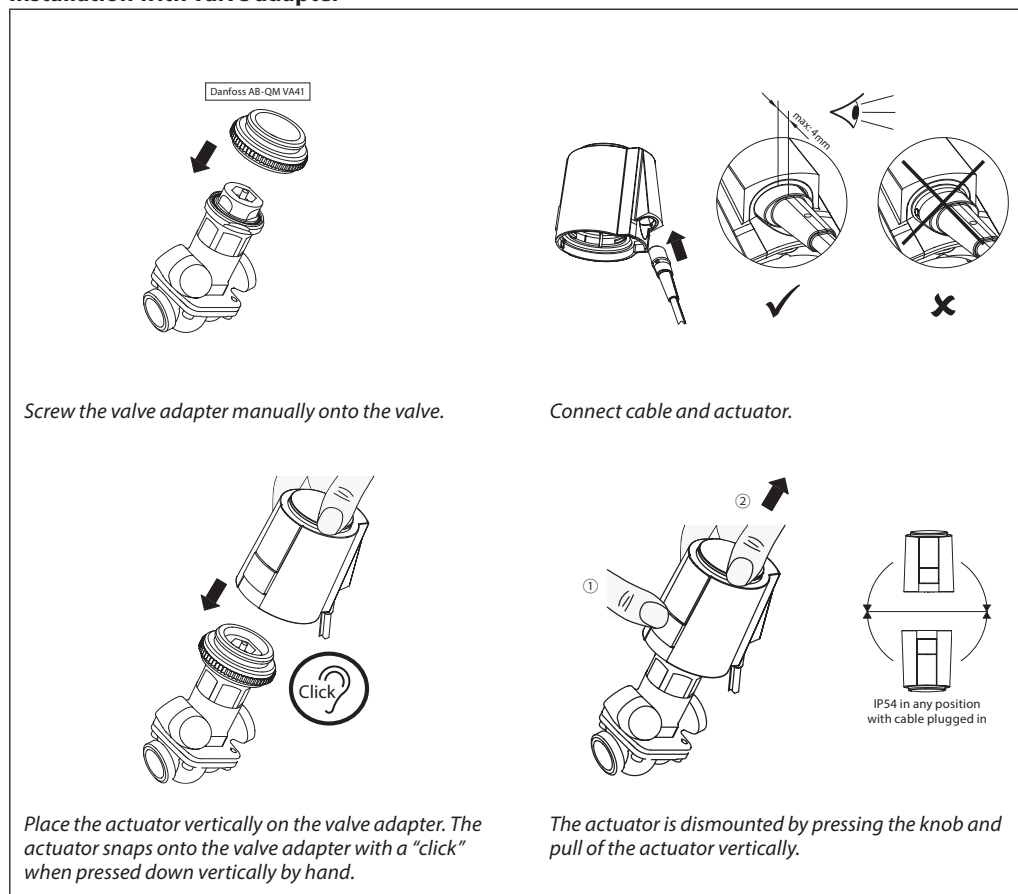
End switch version. Switching current for micro switch :24V, 3A resistive load, 1A inductive load.

Connections

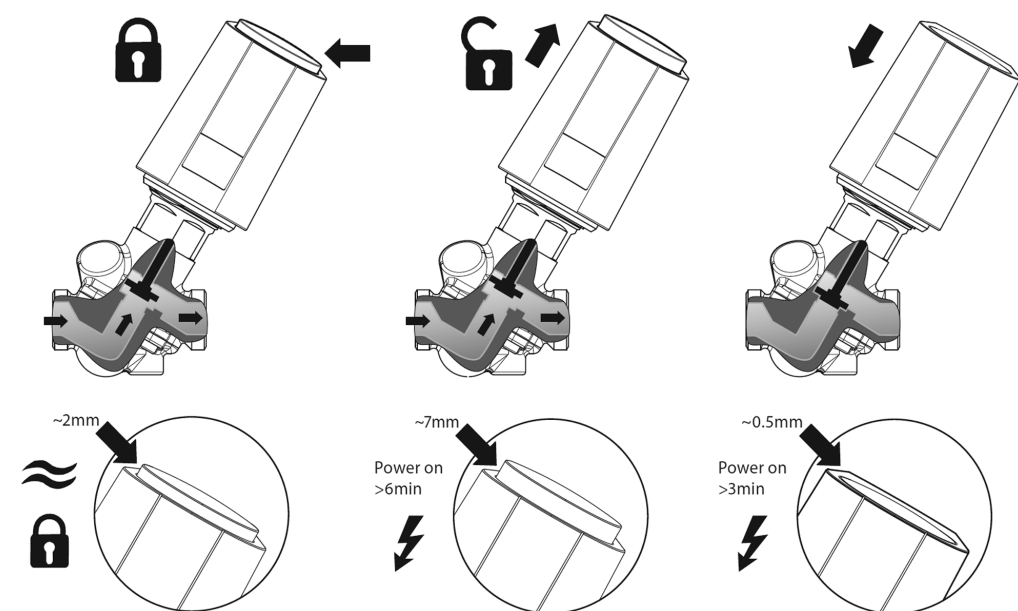


Installation

Installation with valve adapter



First Open Function



Dimensions

