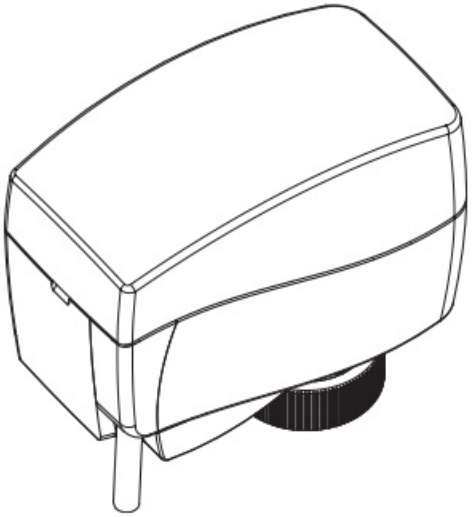
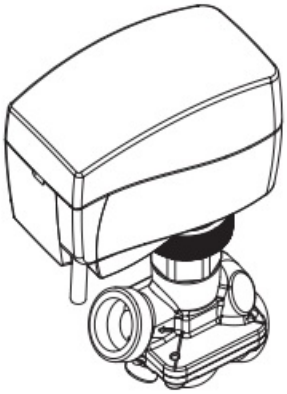
Danfoss AME 110 NL Actuators For Modulating Control User Guide

Contents

AME 110 NL Actuators For Modulating Control

Operating Guide
AME 110 NL,AME 120 NL / 73697010
AME 110 NL, AME 120 NL



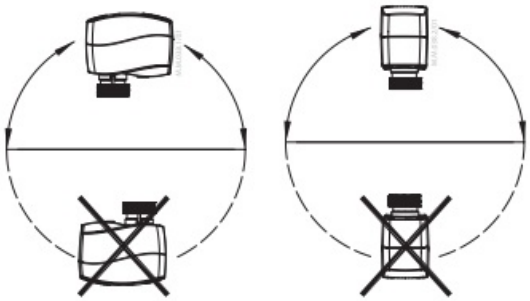


AME 110 NL, AME 120 NL + AB-QM

Actuators for modulating control AME 110 NL, AME 120 NL
www.danfoss.com

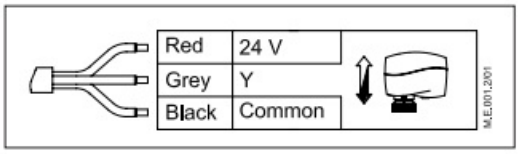
AME 110 NL, AME 120 NL

❶

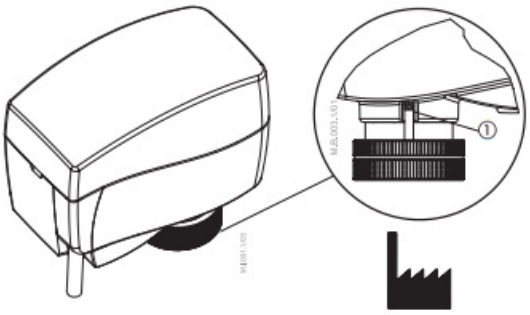


❷

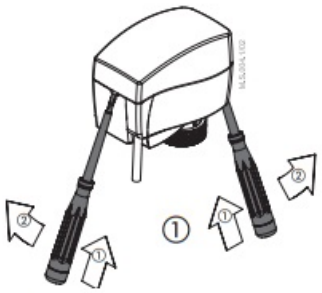
AC 24 V
Connect via safety isolating transformer.

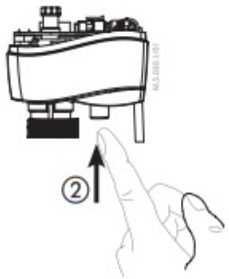


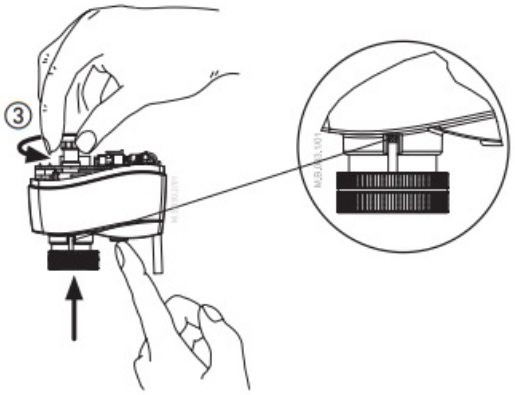
❸

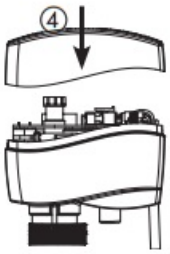


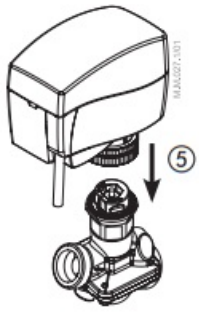
❺



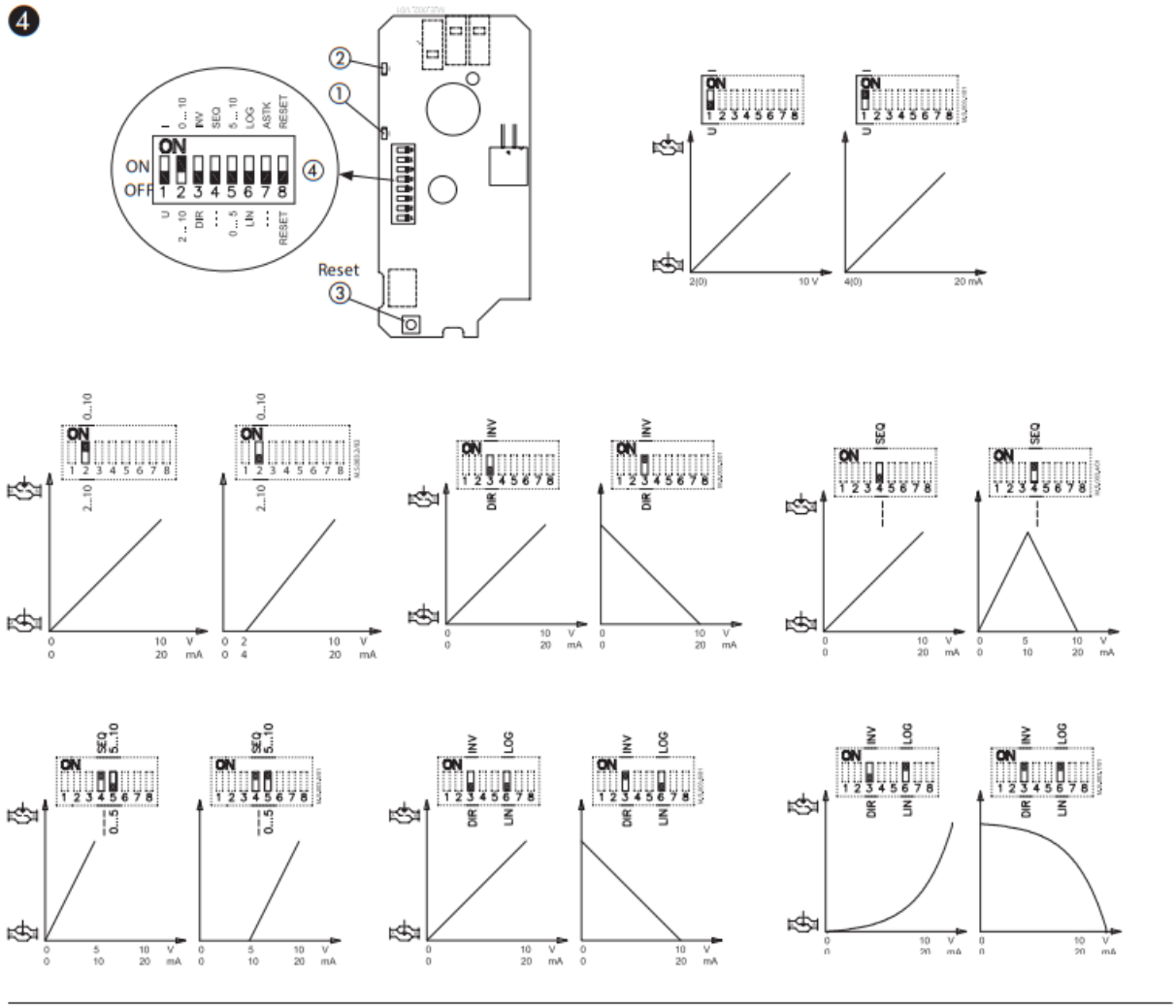


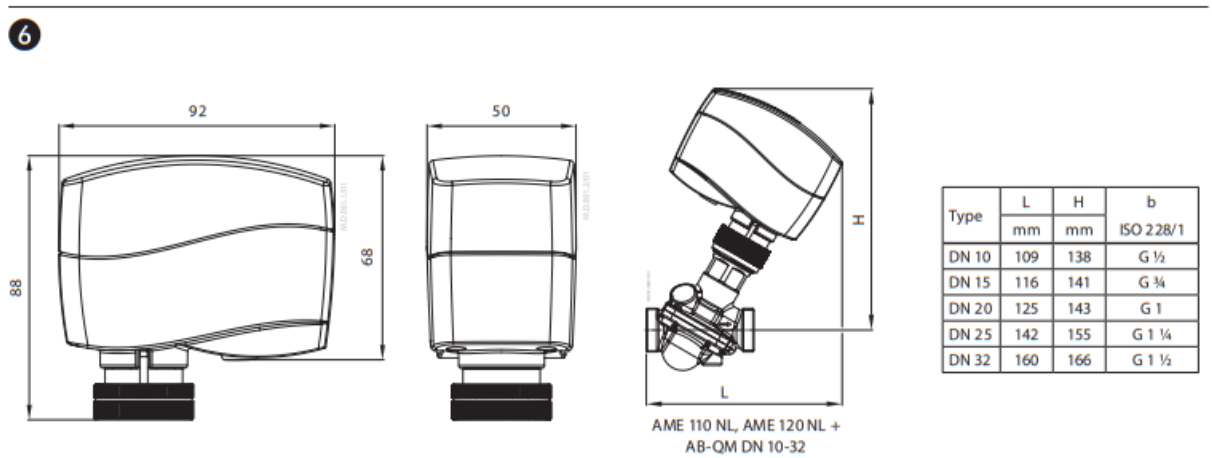






AME 110 NL, AME 120 NL + AB-QM





Type	L	H	b
	mm	mm	ISO 228/1
DN 10	109	138	G ½
DN 15	116	141	G ¾
DN 20	125	143	G 1
DN 25	142	155	G 1 ¼
DN 32	160	166	G 1 ½

Safety Note

⚠ To avoid injury of persons and damages to the device, it is absolutely necessary to read and observe these instructions carefully.
Necessary assembly, start-up, and maintenance work must be performed by qualified and authorized personnel only.
Please comply with the instructions of the system manufacturer or system operator.

⚠ Do not remove the cover before the power supply is fully switched off.

Mounting

The actuator should be mounted with the valve stem in either horizontal position or pointing upwards.

The actuator is fixed to the valve body by means of a ribbed nut which requires no tools for mounting. The ribbed nut should be tightened by hand.

Wiring

⚠ Do not touch anything on the PCB!
Switch off the power line before wiring the actuator! Lethal voltage!
Wire the actuator according to the wiring diagram.
Auto sleep mode

1. If actuator AME 110 NL is charged by 24 V supply voltage and if it is not installed on AB-QM valve, it will stop in lower position and switch off all LED indicators after 5 minutes
2. It is mandatory to drive the spindle of the actuator to upper position before it will be installed on AB-QM valve (please refer to manual override drawings)!
3. Auto sleep mode switches back to learning mode by pressing RESET button or by cycling power supply.

Installation

1. Check the valve neck. The actuator should be in stem up position (factory setting). Ensure that the actuator is mounted securely on the valve body
2. Wire the actuator according to the wiring diagram.
3. The direction of stem movement can be observed on the position indicator ❸①.

DIP switch settings and reset button ❹
1) DIP switches ❹④

Factory settings: ALL switches (except SW 2 which is in ON position) are in OFF position!

NOTE: All combinations of DIP switches are allowed. All functions that are selected are added consecutively.

SW 1: U/I – Input signal type selector
If set to OFF position, voltage input is selected. If set to ON position, current input is selected.
SW 2: 0/2 – Input signal range selector
If set to OFF position, the input signal is in the range from 2-10 V (voltage input) or from 4-20 mA (current input). If set to ON position, the input signal is in the range from 0-10 V (voltage input) or from 0-20 mA (current input).
SW 3 : D/I – Direct or inverse acting selector
If set to OFF position, the actuator is direct acting (stem contracts as voltage increases). If the actuator is set to ON position, the actuator is inverse acting (stem extracts as voltage increases).
SW 4: —/Seq – Normal or sequential mode selector
If set to OFF position, the actuator is working in range 0(2)-10 V or 0(4)-20 mA. If set to ON position, the actuator is working in sequential range:
0(2) … 5 (6) V or
(0(4) … 10 (12) mA) or
(5(6) … 10 V) or
(10(12) … 20 mA).
SW 5: 0 … 5 V/5 … 10 V – Input signal range in sequential mode
If set to OFF position, the actuator is working in sequential range 0(2)-5 (6) V or 0(4)-10 (12) mA. If set to ON position, the actuator is working in sequential range; 5(6)-10 V or 10(12)-20 mA.
SW 6: LIN/LOG – Linear or equal percentage flow through valve selector
If set to ON position, the flow through the valve is equal percentage to the control signal.
If set to OFF position, the valve position is linear acc. to the control signal.
SW 7: —/ASTK – Anti-blocking function

Exercises the valve to avoid blocking in periods when the heating/cooling is off.
If set to ON position (ASTK), the valve motion is switched on. The actuator opens and closes the valve every 7 days.
If set to OFF position (—), function is disabled.

SW 8: Reset

Changing this switch position will cause the actuator to go through a self stroking cycle.

NOTE: The reset switch must be in OFF position to make reset button function active (press it for 2 sec.) see ❹③.

2) Reset button ❹③

The reset button on PCB has the same function as the reset switch SW 8.

Manual override ❺

(for service purposes only)
Do not manually operate the drive if power is connected!
– Remove cover ❺①
– Press and hold the button (on the bottom side of the actuator) ❺② during manual override ❺③
– Replace cover ❺④
– Install actuator on valve ❺⑤
Remark: A ‘click’ sound after energising the actuator indicates that the gear wheel has jumped into normal position.

Function test

The light emitting diodes (LEDs)
❹① (green – direction indicator),
❹② (red – reset and normal mode indicator) indicate whether the actuator is in operation or not, the operating status, and failures, if any.

Red LED:

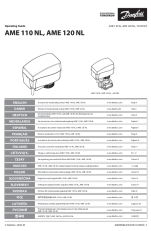
- No light
  – no operation or no power supply
- Constant light
  – normal operation
- Flashing light (1 Hz)
  – self-adjusting mode
- Flashing light (~ 3 Hz):
  – power supply too low
  – initial self-adjusting time too short due to too short valve strokes
  – failure during self calibration Green LED:
- Spindle extracts (green led diode blinking once per sec.)
- Spindle retracting (green LED on)
- Actuator reached set-point acc. to Y signal (LED off).

Dimensions

Part Name	Hazardous Substances Table					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Connecting nut	X	0	0	0	0	0
0: Indicates that this hazardous substance contained in all of the homogeneous material for this part is below the limit requirement in GB/T 26572;						
X: Indicates that this hazardous substance contained in at least one of the homogeneous material for this part is above the limit requirement in GB/T 26572;						

Danfoss A/S
Climate Solutions +» danfoss.com + +45 7488 2222

Documents / Resources

	Danfoss AME 110 NL Actuators For Modulating Control [pdf] User Guide AME 110 NL Actuators For Modulating Control, AME 110 NL, Actuators For Modulating Control, Modulating Control, Control

References

- Engineering Tomorrow | Danfoss
- Danfoss Salg Danmark | Danfoss
- User Manual