



Electrical actuators

AME 85 / AME 86

Description

The actuators AME 85 and AME 86 are used with VFM 2 (DN 150-250), VFS 2 (DN 65-100), VF2/3 (DN 125, 150) and AFQM (DN150-250) valves.

Features & benefits

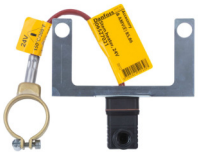
- "Self stroking" function
- Load related "Switch off" function that prevents overloading
- Manual operation
- Diagnostic LED

Ordering

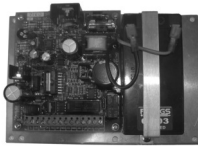
Product code numbers

Type	Supply voltage [V] AC	Actuator speed [s/mm]	Code number	VVS DK
AME 85	24	8	082G1452	461072552
AME 86	24	3	082G1462	461072562

Accessories code numbers



065Z7021
STEAM HEATER
STEAM HEATER



082H7090
AM-PBU 25, Supply voltage [V] AC: 24
AM-PBU 25

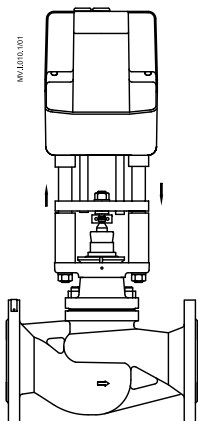
Accessory code numbers only for Danish market:

Code number	VVS-nr.
065Z7021	46 0946.905

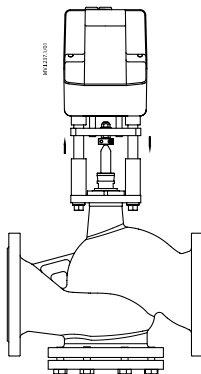
Overview

Product portfolio

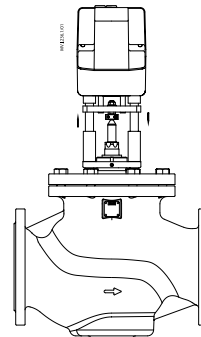
Actuator - valve combination



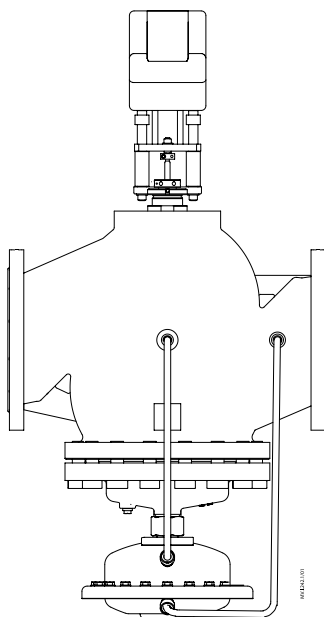
AME 85/86 + VFS 2 (DN 65 - 100)



AME 85/86 + VF 2 (DN 125 - 150)
AME 85/86 + VF 3 (DN 125 - 150)



AME 85/86 + VFM 2 (DN 150-25)



AME 85/86 + AFQM (DN 150 - 250)

Functions

Operation

Commissioning

Complete the mechanical and electrical installation and perform the necessary checks and tests:

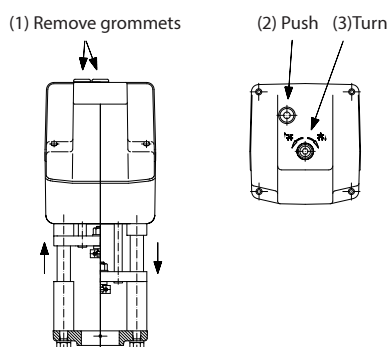
- Isolate control medium. (e.g. self stroking in a steam application without suitable mechanical isolation could cause a hazard).
- Apply the power. Note that the actuator will now perform the self stroking function.
- Apply the appropriate control signal and check the valve stem direction is correct for the application.
- Ensure that the actuator drives the valve over its full stroke, by applying the appropriate control signal. This action will set the valve stroke length.

The unit is now fully commissioned.

Commissioning / testing feature

The actuator can be driven to the fully open or closed positions (depending on valve type) by connecting SN to terminals 1 or 3.

Manual override



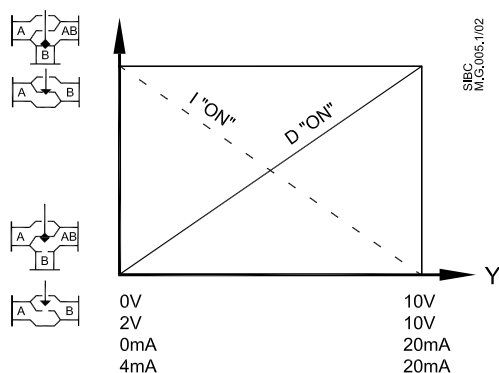
The manual override is applied by rotating the 8 mm Allen key (not supplied) to the required position. Observe the direction of rotation symbol.

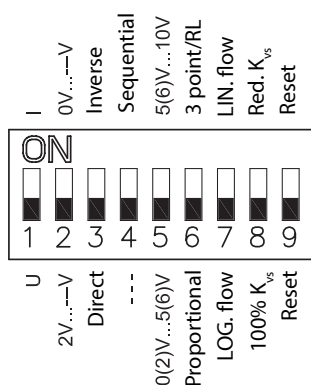
- Disconnect power
- Remove grommets and push the button
- Adjust valve position using an 8 mm Allen key
- Set valve to closed position
- Restore power

Note: Actuator will restore position required by Y signal.

Settings

DIP switch setting





The actuator has a function selection DIP switch under the removable cover. In particular, if SW6 is set to ON, the actuator will perform as 3-point actuator.

The switch provides the following functions:

• **SW1: U/I - Input signal type selector:**

- If set to OFF position, voltage input is selected.
- If set to ON position, current input is selected.

• **SW2: 0/2 - Input signal range selector:**

- If set to OFF position, the input signal is in the range from 2 V to 10 V (voltage input) or from 4 mA to 20 mA (current input).
- If set to ON position, the input signal is in the range from 0 V to 10 V (voltage input) or from 0 mA to 20 mA (current input).

• **SW3: D/I - Direct or inverse acting selector:**

- If set to OFF position, the actuator is direct acting (stem lowers as voltage increases).
- If actuator is set to ON position the actuator is inverse acting (stem raises as voltage increases).

• **SW4: —/Seq - Normal or sequential mode selector:**

- If set to OFF position, the actuator is working in range 0(2)..10V or 0(4)..20mA.
- 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)..10V) or (10(12)..20mA).

• **SW5: 0..5V/5...10V - 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)..10V or 10(12)..20mA.

• **SW6: Prop./3-pnt - Modulating or 3-point mode selector:**

- If set to OFF position, the actuator is working normally according to control signal.
- If set to ON position, the actuator is working as 3-point actuator.

• **SW7: LOG/LIN - Equal percentage or linear flow through valve selector¹:**

- If set to OFF position, the flow through valve is equal percentage.
- If set to ON position, the flow through valve is linear according to control signal.

• **SW8: 100% K_{vs} /Reduced K_{vs} - Flow reduction through valve selector¹:**

- If set to OFF position, the flow through valve is not reduced.
- If set to ON position, the flow through valve reduced by half of increment standard K_{vs} values (example: valve with K_{vs} 16 and SW8 set to ON – maximum flow through the valve is K_{vs} 13 (middle between standard K_{vs} 16 and K_{vs} 10).

¹ **Note:** To be used only in combination with valves with equal percentage characteristic.

• **SW9: Reset:** Changing this switch position will cause the actuator to go through a self stroking cycle.



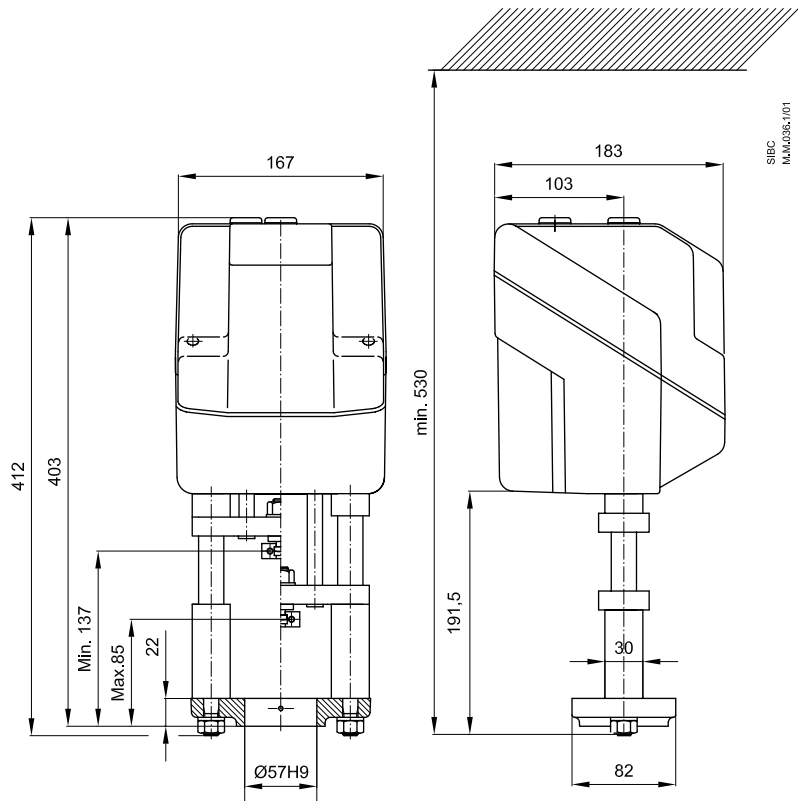
Product details

General data

Technical data

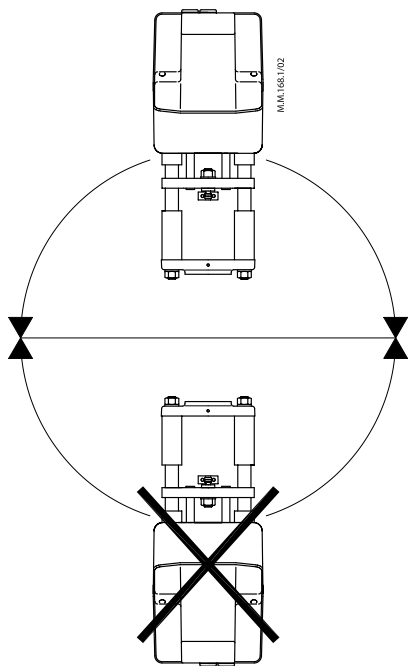
Type	AME 85	AME 86
Power supply (V)	24 AC +10 to -15%	24 AC +10 to -15%
Power consumption (VA)	12.5	25
Frequency (Hz)	50 / 60 Hz	50 / 60 Hz
Control input Y (V)	0 to 10 (2 to 10) Ri = 50 Ω	0 to 10 (2 to 10) Ri = 50 Ω
Control input Y (mA)	0 to 20 (4 to 20) Ri = 500 Ω	0 to 20 (4 to 20) Ri = 500 Ω
Output signal X (V)	0 to 10 (2 to 10)	0 to 10 (2 to 10)
EMC	IEC 801/2 - 5	IEC 801/2 - 5
Closing force (N)	5000	5000
Max. stroke (mm)	40	40
Speed (s/mm)	8	3
Max. medium temperature (°C)	200	200
Ambient temperature (°C)	0 to 55 °C	0 to 55 °C
Storage and transport temperature (°C)	-40 to +70 °C	-40 to +70 °C
Protection Class	III (24 V)	III (24 V)
Grade of enclosure	IP 54	IP 54
Weight (kg)	9.8 kg	10.0 kg

Dimensions





Installation



Mechanical

The actuator should be mounted with the valve stem in either horizontal position or pointing upwards. Use the 57 mm castellated nut (supplied) to fit the actuator to the valve body. While the actuator is being fitted, a 8 mm Allen key can be used to tighten the pinch screw in the valve body ring to stop the valve turning. Allow for necessary clearance for maintenance purposes.

Electrical

Electrical connections can be accessed by removing the cover. Two M16 x 1.5 cable entries are provided. Both entries are provided with a rubber grommet for use with flexible cable. Note that in order to maintain the enclosure IP rating, appropriate cable glands must be used.

Wiring



24 Vac only.

Wiring Length	Recommended Square of the Wiring
0 - 50 m	0.75 mm ²
> 50 m	1.5 mm ²

Automatic self stroking feature

When power is first applied, the actuator will automatically adjust to the length of the valve stroke. Subsequently, the self stroking feature can be re-initialised by changing position of SW9.

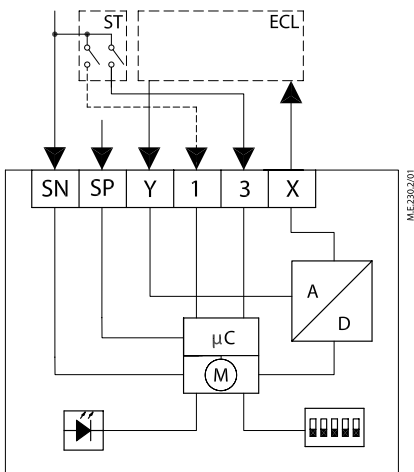
Diagnostic LED

The red diagnostic LED is located on the pcb under the cover. It provides indication of three operational states:

- Actuator Healthy (Permanently ON),
- Self Stroking (Flashes once per second),
- Error (Flashes 3 times per second - seek technical assistance).\

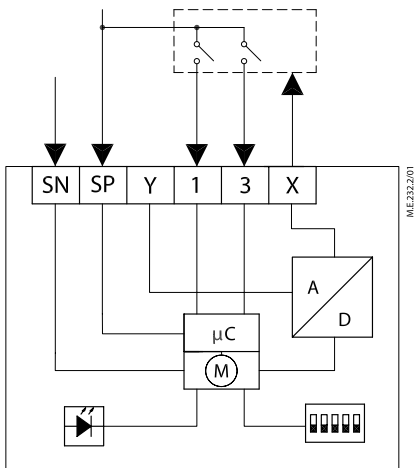


DIP 6 = OFF



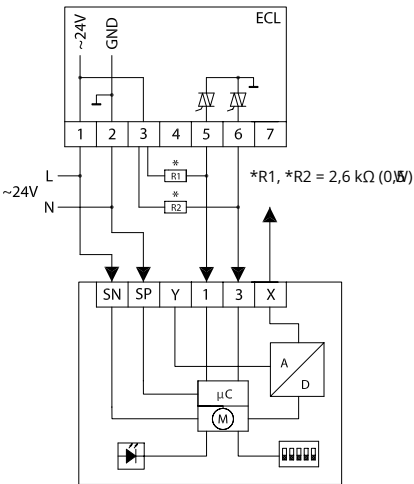
Controller with relay output

DIP 6 = ON



Controller with triacs output

DIP 6 = ON



SN	0 V	Neutral
SP	24 VAC	Power supply
Y	0(2)-10 V	Input
	0(4)-20 mA	Input
1	24 VAC	Input
3		
X	0(2)-10 V	Output

SN	0 V	Neutral
SP	24 VAC	Power supply
1	24 VAC	Input
3		
X	0(2)-10 VDC	Output

SN	0 V	Neutral
SP	24 VAC	Power supply
1	24 VAC	Input
3		

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	Electrical actuators	Danfoss	
Export Control Declaration	Actuators pressure flow and temperature	Danfoss	
EU Declaration	Danfoss EU 221011EN0815101	Danfoss	LVD

Contact details

Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



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