Data sheet

Actuator for modulating control AME 435

Description

AME 435 actuator is used with two and three-way valves type VRB, VRG, VF and VL up to DN 80 diameter.

The actuator automatically adapts its stroke to the valve end positions which reduces commissioning time (self stroking).
The advanced design incorporates load related 'switch-off' to ensure that actuators and valves are not exposed to overload.

Main data:

- Nominal voltage:
  - 24 V, 50 Hz/60 Hz
- Control input signal:
  - 0(4)...20 mA
  - 0(2) ... 10 V
- Force: 400 N
- Stroke: 20 mm
- Speed (selectable):
  - 7.5 s/mm
  - 15 s/mm
- Max. medium temperature: 130 °C
- LED signalistion
- Self stroking
- External RESET button
- Manual operation

Ordering

Type	Supply voltage	Code No.
AME 435	24 VAC/VDC	**082H0161**

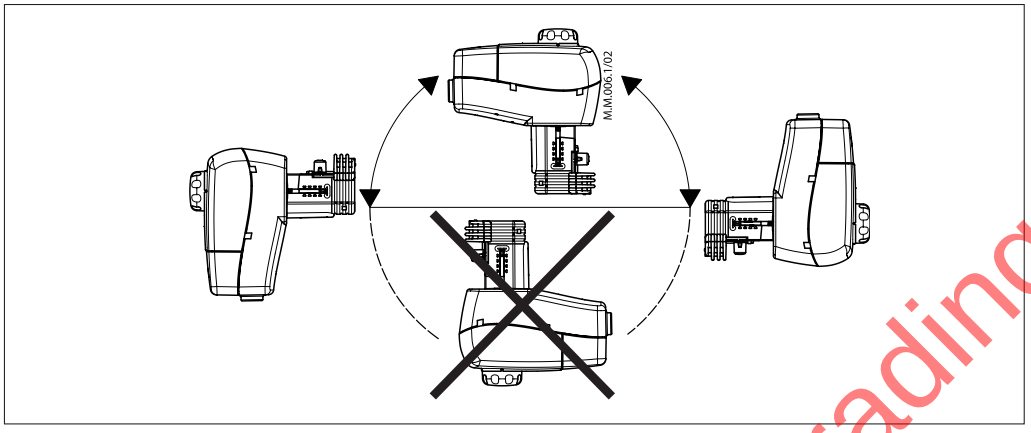
Accessories

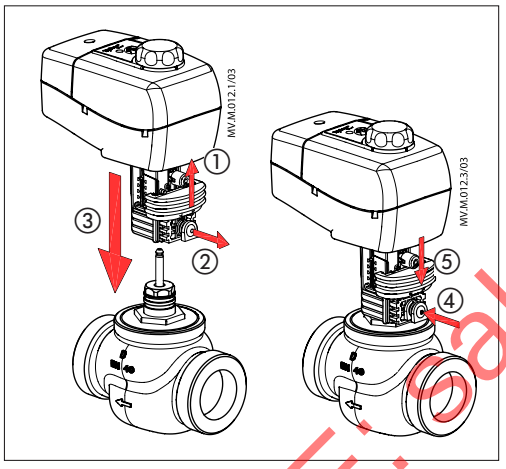
Type	Code No.
Adapter for old valves VRB, VRG, VF, VL	**065Z0313**

Technical data

Power supply	24 VAC/VDC; ±10%
Power consumption	4.5 VA
Frequency	50 Hz/60 Hz
Control input Y	0 … 10 V (2 … 10 V) Ri = 95 kΩ 0 … 20 mA (4 … 20 mA) Ri = 500 Ω
Output signal X	0 to 10V (2 to 10V) RL = 650 Ω (maximal load)
Close of force	400 N
Max. stroke	20 mm
Speed	7.5 s/mm or 15 s/mm
Max. medium temperature	130 °C
Ambient temperature	0 … 55 °C
Storage and transport temperature	–40 … +70 °C
Protection class	II
Degree of protection	IP 54
Weight	0.45 kg
CE - marking in accordance with standards	Low Voltage Directive (LVD) 2006/95/EC: EN 60730-1, EN 60730-2-14 EMC Directive 2004/108/EC: EN 60730-1, EN 60730-2-14

Installation





Mechanical

The actuator should be mounted to valve stem in either horizontal position or pointing upwards. Connecting the actuator to the valve body does not require a tool. Allow necessary clearance for maintenance purposes.

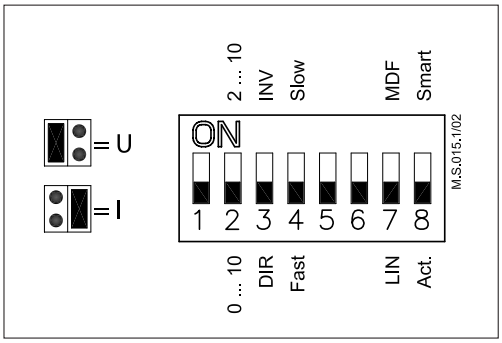
Electrical

Electrical connections can be accessed by removing the cover. Two holes for M16 × 1.5 cable gland can be made. A rubber cable gland is provided. Note that any cable gland that is used must not compromise the appliance's IP rating and the cable should have a minimum diameter of 6.2 mm.

DIP-switch setting

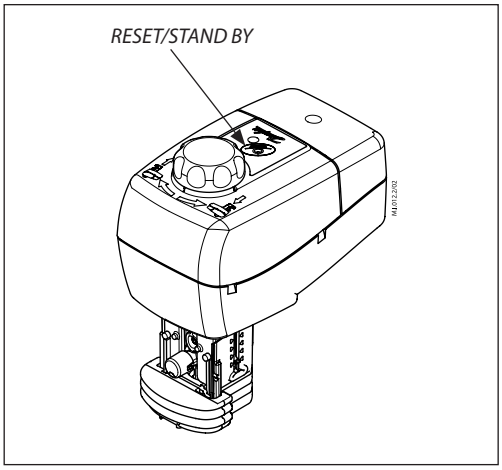
Jumper

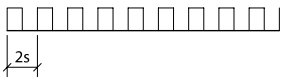
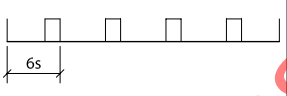
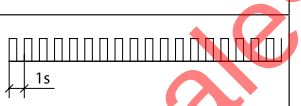
- **U/I** - Input signal type selector
  If set to U position, voltage input is selected. If set to I position, current input is selected
- **SW 1**: Not used
- **SW 2:** Input signal range selector
  If set to OFF position, the input signal is in the range from 0 V - 10 V (voltage input) or from 0 mA - 20 mA (current input). If set to ON position, the input signal is in the range from 2 V - 10 V (voltage input) or from 4 mA - 20 mA (current input)
- **SW 3**: Direct or Inverse acting selector
  If set to OFF position, the actuator is direct acting (stem extracts as voltage increases). If the actuator is set to ON position, the actuator is inverse acting (stem retracts as voltage increases)
- **SW 4**: Fast/Slow - Speed selector
  If set to OFF position, the actuating speed is 7.5 s/mm. If set to ON position, the actuating speed is 15 s/mm
- **SW 5**: Not used



- **SW 6:** Not used
- **SW 7**: LIN/MDF - Linear or equal percentage flow through valve selector
  If set to OFF position, the valve position is linear acc. to the control signal.
  If set to ON position, the valve position is percentage according to the control signal
- **SW 8**: Smart function selector
  If set to OFF position the actuator does not try to detect oscillations in the system. If set to ON position actuator enables special anti oscillations algorithm

Function accesible from cover



Flashing red LED: STAND BY (period is every two seconds)	
Flashing green LED: Setpoint position reached (period is every 6 seconds)	
Flashing green LED: self stroking (period is every second)	

RESET
Pressing the STAND BY/RESET button for 5 sec., causes the actuator to start self stroking procedure.

The bi-colour LED flashes green at 1 sec. intervals during calibration procedure, which begins by extracting the stem. When the maximum force is detected, the actuator then retracts the stem, until the maximum force is once again detected. The actuator will then enter normal mode and respond to the Y signal.

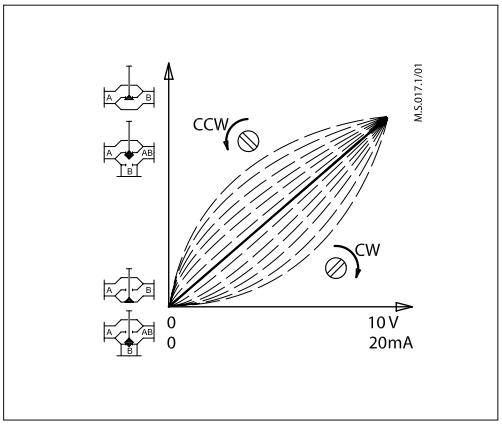
The bi-colour LED is green and stays on during set point positioning. When the set point is reached the LED flashes green every 6 seconds.

STAND BY
Pressing the STAND BY/RESET button switches the actuator to STAND BY mode. The actuator keeps its last position in this mode and does not react to any control signal. This mode can be used for manual operation during the commissioning of other equipment, or for service purposes.

LED function indicator
The LED is located on the cover. It indicates the operating modes.

Electronic adjustment of valve flow characteristic

The actuator has a special valve-flow adjustment feature. Flow can be variably-adjusted from linear to logarithmic or vice vera, by turning the potentiometer.

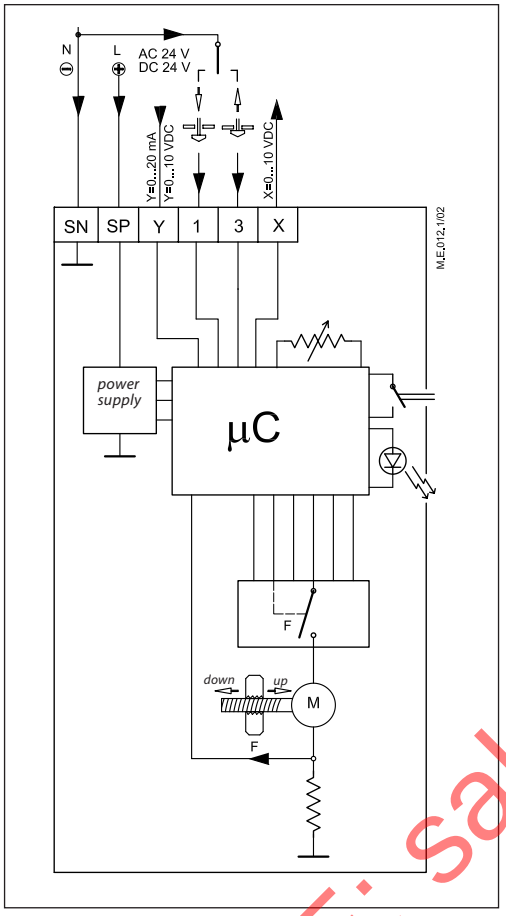


Disposal

The actuator must be dismantled and the elements sorted into various material groups before disposal.

Wiring

24 V AC/DC only



Automatic self stroking feature

When power is applied for the first time, the actuator will automatically calibrates the valve stroke. Thereafter, the self stroking feature can be activated by pressing the STAND BY/RESET button.

Wiring length	Recommended cross-sectional area of the wiring
0-50 m	0.75 mm²
> 50 m	1.5 mm²

SP 24 V AC/DC ..... Power supply

SN 0 V ..... Common

Y 0 to 10 V ..... Input signal
(2 to 10 V)
0 to 20 mA
(4 to 20 mA)

X 0 to 10 V ..... Output signal
(2 to 10 V)

1, 3 Override input signal

Commissioning

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

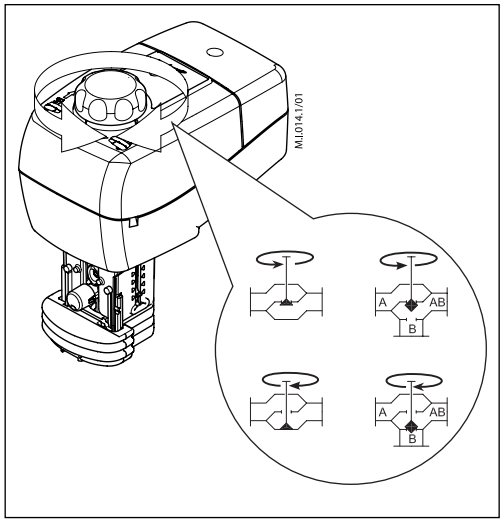
- Apply power
  Note that the actuator will now perform the self stroking function
- Apply the appropriate control signal and check the valve stem direction is correct for the application
- Apply the appropriate control signal and check the actuator drives the valve over the entire stroke length

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

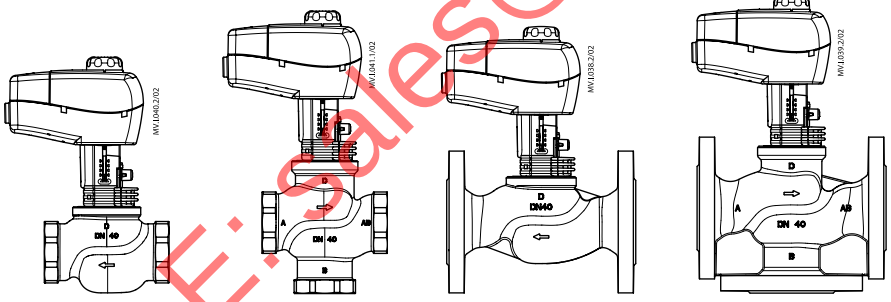


Turn the control knob to the required position for manual override. Observe the rotation of direction symbol. When the manual override has been used, the return signal is not correct until the actuator reaches its end position.

STAND BY function
AME 435 has an external STAND BY button, which when pressed forces the actuator to ignore the control signal and stay at its current position.

Procedure:
- Press STAND BY again or reconnect power supply in order to release Stand by function
- Adjust valve position using the control knob
- Set valve to required position
- Press STAND BY again or reconnect power supply

Actuator - valve combinations



AME 435 + VRB 2, VRG 2 | AME 435 + VRB 3, VRG 3 | AME 435 + VF 2, VL 2 | AME 435 + VF 3, VL 3

Dimensions