Data sheet

Actuators for modulating control
AME 15(ES), AME 16, AME 25, AME 35

Description

AME 15(ES), AME 16

AME 25, AME 35

AME electric actuators are used with VRB, VRG, VF, VL, VFS and VEFS valves up to DN 50 diameter.

Note: *AME 15 ES has built in an external switch (ES).*

The actuator automatically adapts its stroke to valve end positions which reduces commissioning time.

Main data

- The advanced design incorporates load related 'switch-off' to ensure that actuators and valves are not exposed to overload.
- The advanced design incorporates a diagnostic LED, operational data capture and self stroking feature.
- Hand operation.
- Low weight and robust.

Ordering

Type	Supply voltage	Code No.
AME 15	24 V~	**082G3028**
AME 16		**082G3031**
AME 15 ES		**082H3065**

Type	Supply voltage	Code No.
AME 25	24 V~	**082G3025**
AME 35		**082G3022**

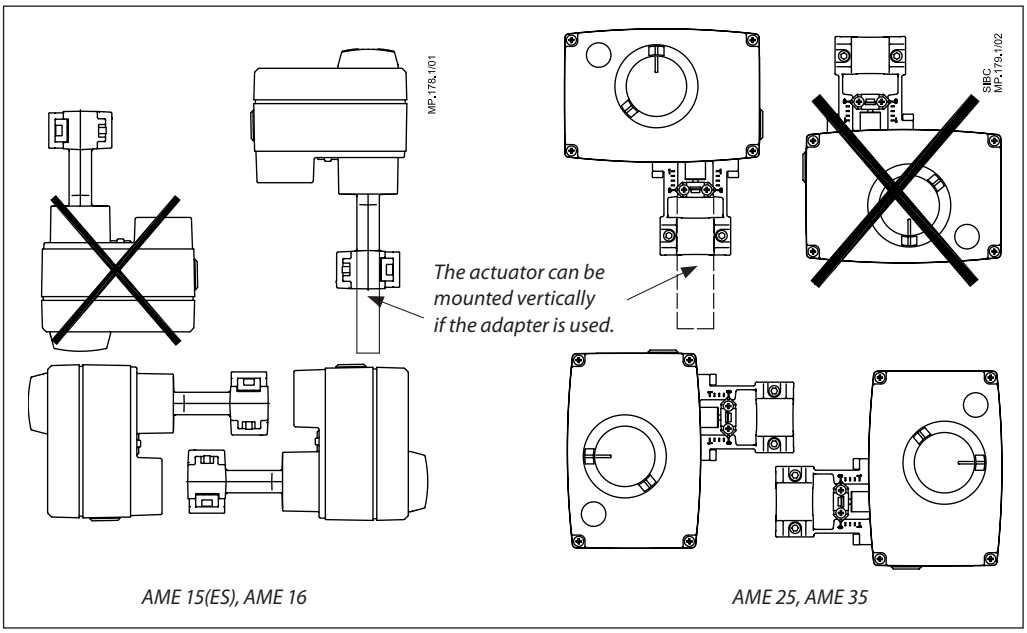
Accessories

Type	Code No.
Active return signal kit for AME 15, AME 16	**082H3068**
Active return signal kit for AME 25, AME 35	**082H3069**
Adapter for VFS 2 valves DN 15 - 50 (for media temp. over 150 °C)	**065Z7548**
Adapter for VEFS 2 valves DN 25 - 50 (for media temp. over 150 °C)	**065Z7549**
Stem heater (for valves DN 15 - 50)	**065B2171**

Technical data

Type	AME 15(ES)	AME 16	AME 25	AME 35
Power supply	24 V~; +10 to –15%			
Power consumption	4 VA	4 VA	4 VA	9 VA
Frequency	50 Hz/60 Hz			
Control input Y	0 to 10 V (2 to 10 V) Ri = 24 kΩ 0 to 20 mA (4 to 20 mA) Ri = 500 Ω			
Output signal X	0 to 10V (2 to 10V)			
Close of force	500 N	300 N	1000 N	600 N
Max. stroke	15 mm			
Speed by 50 Hz (60 Hz)	11 (8.8) s/mm	7 (5.6) s/mm	11 (8.8) s/mm	3 (2.4) s/mm
Max. medium temperature	150 °C (200 °C - with adapter or mounted horizontally)			
Ambient temperature	0 to 55 °C			
Storage and transport temp.	–40 to +70 °C			
Protection code	IP 54			
Weight	0.80 kg		1.70 kg	
CE - marking in accordance with standards	Low Voltage Directive 73/23/EEC, EMC-Directive 2006/95/EEC: - EN 60730-1, EN 60730-2-14			

Installation



AME 15(ES), AME 16 *AME 25, AME 35*

Note that the actuator without adapter should be mounted horizontally at media temperatures over 150 °C.

Mechanical

The actuator should be mounted with the valve stem in either horizontal position or pointing upwards. Use a 4 mm Allen key (not supplied) to fit the actuator to the valve body.
Allow for necessary clearance for maintenance purposes.

During commissioning, fit the valve position indicator scale with the red and blue pins (supplied with the product) to mark the fully open and the fully closed position.

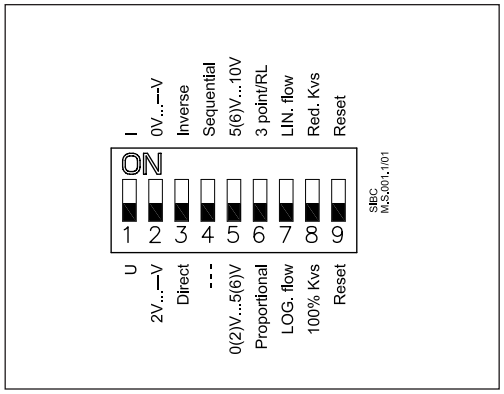
Electrical

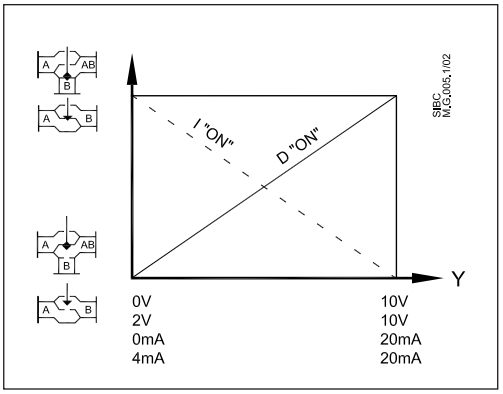
Electrical connections can be accessed by removing the cover. Two M16 x 1.5 cable entries are provided. However, in order to maintain the enclosure IP rating an appropriate cable gland must be used.

Disposal

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

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: 0..5V/5...10V - 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: —/Seq - 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.

For this operation please refer to page 4 (wiring 3-point control).

When DIP switch SW6 is set to ON than all functions from other DIP switch become inactive.

• SW7: LOG/LIN - Equal percentage or linear flow through valve selector[1]:
If set to OFF position, the flow through valve is equal percentage. If set to ON position, the he flow through valve is linear according to control signal.

• SW8: 100% K_{VS}/Reduced K_{VS} - Flow reduction through valve selector[1]:
If set to OFF position, the flow through valve is not reduced. If set to ON position, the he 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).

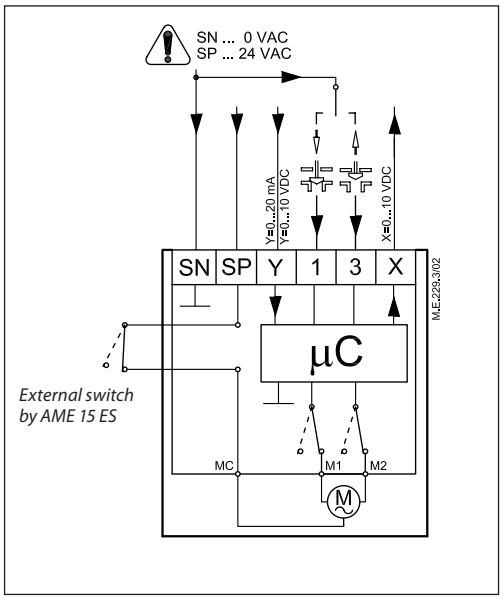
[1] NOTE: *To be used only in combination with valves with equal percentage characteristic.*

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

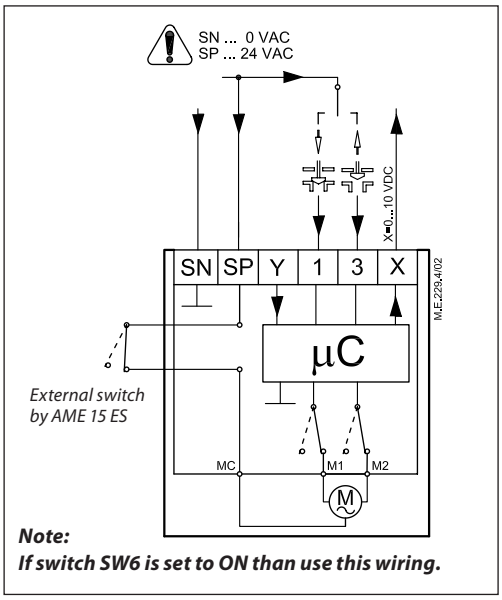
Wiring

24 Vac only.

Wiring for modulating control



Wiring for 3-point control



Note:
If switch SW6 is set to ON than use this wiring.

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).

Wiring length	Recommended square of the wiring
0 - 50 m	0.75 mm^2
> 50 m	1.5 mm^2

SP 24 V~ .....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)

Commissioning

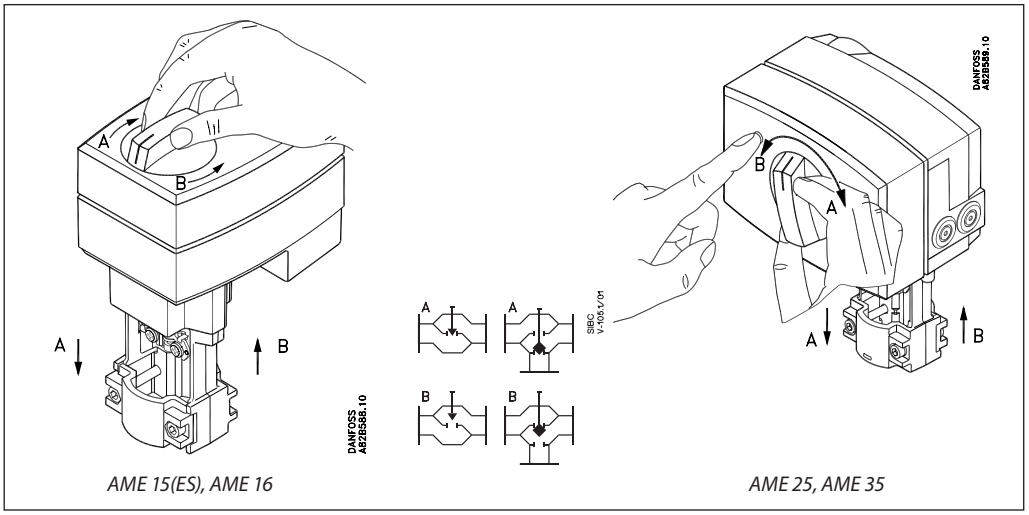
Complete the mechanical and electrical installation and perform the necessary checks and tests:

- Isolate control medium. (E.g. self stroking in a steam application without suitable mechanical isolation could cause a hazard).
- Apply the power.
  If AME 15 ES is used than external switch must be now switched to ON for applying 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



AME 15(ES), AME 16 *AME 25, AME 35*

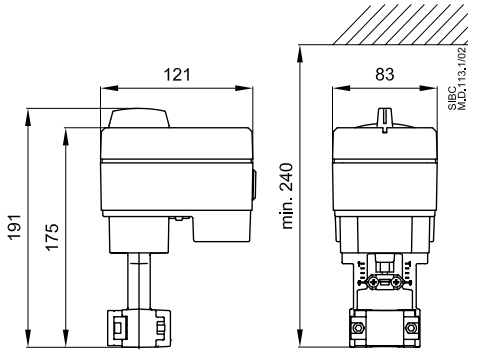
The manual override is achieved by turning the manual knob to the required position.
Observe the direction of rotation symbol.
If manual override has been used then X and Y signal are not correct until the actuator reaches its end position. If this is not accepted, mount accessory active return signal kit.

External switch function
AME 15 ES has external ON/OFF switch which can be used for disconnecting the actuator from power supply.
By using the switch the actuator is disconnected from power supply (SP is disconnected).

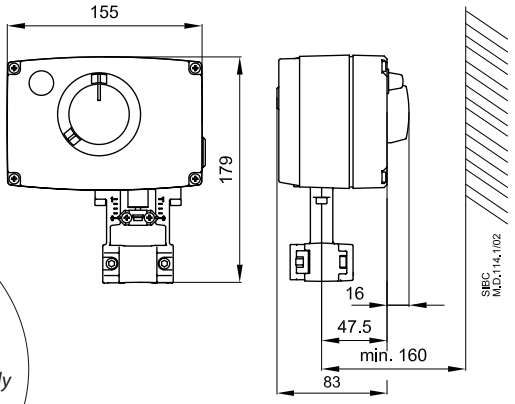
Procedure
- Disconnect power supply (for AME 15 ES - use ON/OFF switch)
- Press rubber button (AME 25, 35 only)
- Adjust valve position using control knob
- Set valve to closed position
- Restore power supply

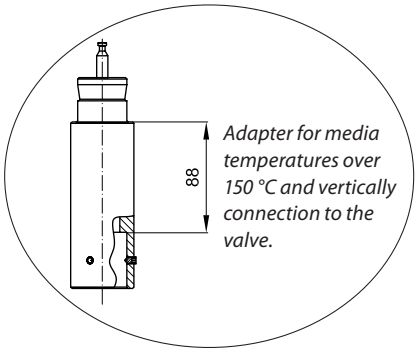
Dimensions

AME 15(ES), AME 16

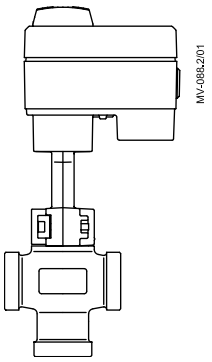


AME 25, AME 35

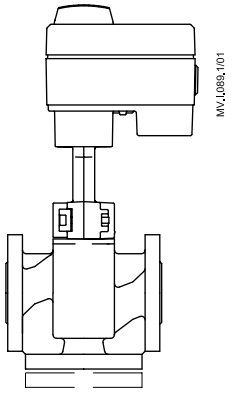




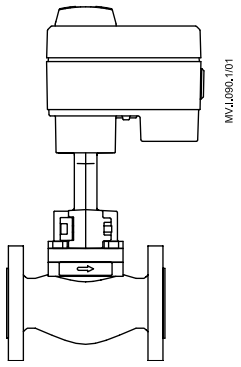
Actuator - valve combinations



AME 15(ES) / AME 16 +*
VRB 3, VRG 3 (DN 15 - 50)

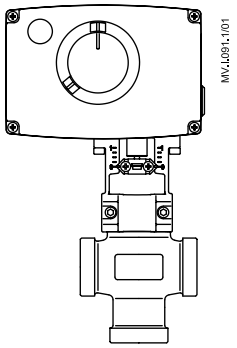


AME 15(ES) / AME 16 +*
VF 2, VF 3 / VL 2, VL 3 (DN 15 - 50)

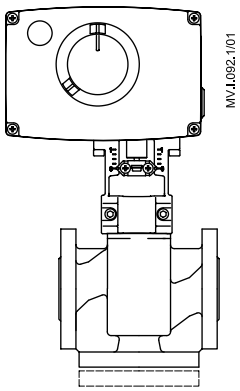


AME 15(ES) / AME 16 +*
VFS 2 (DN 15 - 50)

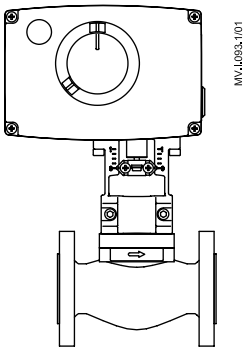
AME 16 - suitable to operate with max. DN 32*



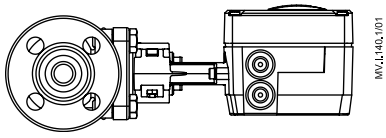
AME 25, AME 35 +
VRB 3, VRG 3 (DN 15 - 50)



AME 25, AME 35 +
VF 2, VF 3 (DN 15 - 50)
VL 2, VL 3 (DN 15 - 50)



AME 25, AME 35 +
VFS 2 (DN 15 - 50)
VEFS 2 (DN 25 - 50)



AME 25, AME 35 +
VFS 2 (DN 15 - 50) - 200 °C
VEFS 2 (DN 25 - 50) - 200 °C