Data sheet

Gear actuators

AME 13 SU/SD-1

Description

The AME 13 SU/SD-1 is a compact gear motor actuator that is assembled to ½" to 1-¼" AB-QM valves sizes.

Safety version is activated automatically in case of power failure or if the power supply is switched off by the safety thermostat.

Features & benefits

- 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
- Low weight and robust
- Safety function (spring up / spring down)

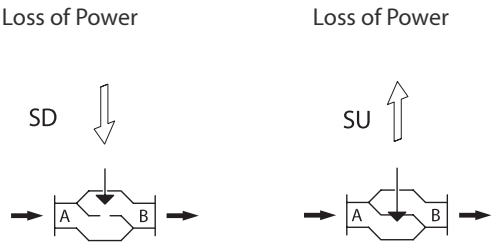
Ordering

Product code numbers

Type	Supply voltage [V]	Code number
AME 13 SU-1	24 V AC	082H5006
AME 13 SD-1	24 V AC	082H5007

Functions

Safety function



The safety function will fully open or close the valve when the power is removed, depending upon the spring action selected. Valve selection will also affect the spring action. The safety function unit is factory fitted to the rear of the actuator.

Operation

Commissioning

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

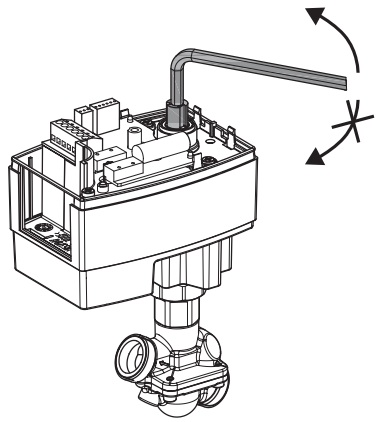
- Isolate control medium. (e.g. calibrate in a steam application without suitable mechanical isolation could cause a hazard).
- Apply the power. Note that the actuator will now perform the self stroking function.
- Apply the appropriate control signal and check the valve stem direction is correct for 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



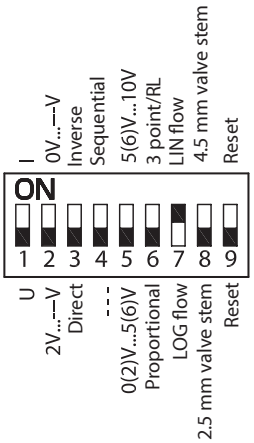
AME 13 SU/SD-1

On spring versions manual override is achieved by disconnecting the power supply, removing the cover and inserting a 6 mm Allen key (not supplied) for AME 13 SU/SD-1, into the top of the positioning spindle and turning the key against the spring. Observe the direction of rotation symbol. To hold a manual override position, the key must be wedged.

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 reset the actuator.

Settings

DIP switch setting



The actuator has a function selection DIP switch under the removable cover. 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 2-10 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).

• **SW3: D/I** - Direct or inverse acting selector:
If set to OFF position, the actuator is direct acting (stem retracts as voltage increases).
If the actuator is set to ON position, the actuator is inverse acting (stem extends as voltage increases).

• **SW4: —/Seq** - Normal or sequential mode selector:
If set to OFF position, the actuator is working normally in 0(2)-10V or 0(4)-20mA range.
If set to ON position, the actuator is working in a sequential mode with its range dependent on the position of SW 4.

• **SW5: 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

• **SW6: Proportional/Floating point** - Modulating or 3-point mode selector:
If set to ON position, the actuator can operate as Floating point actuator. Power supply should be connected on SN and SP ports. On port 1 or 3 24 VAC signal is connected for rising or lowering of actuator. Return signal X indicates the correct position.
If set to OFF position, the actuator operates on modulating input signal.

• **SW7: LOG/LIN**- Linear or equal percentage flow through valve selector:
If set to ON position, the flow through the valve is linear to the control signal. If set to OFF position, the valve position is equal percentage acc. to the control signal.
Note: It is generally recommended to configure the AME 13 actuator for operation in linear mode (SW7 set to ON).

• **SW8:**
Set ON that actuator will modulate on max stem travel of 4.5mm (1/2˝to 1-1/4˝HF AB-QMs previous geneations and AB-QM 4.0 valve versions).
Set to OFF for valve body 1/2" Low flow. The actuator will modulate on max stem travel of 2.5mm.

• **SW9: Reset:**
Toggling the switch will cause the actuator to go through an auto-calibration cycle.

Function test
The indicator light shows whether the positioner is in operation or not. Moreover, the indicator shows the control status and faults.

Constant light: normal operation
No light: no operation or no power supply
Intermittent light (1 Hz): self adjusting-mode
Intermittent light (3 Hz):
- power supply too low
- insufficient valve stroke (<20 s)
- end-position cannot be reached.

Product details

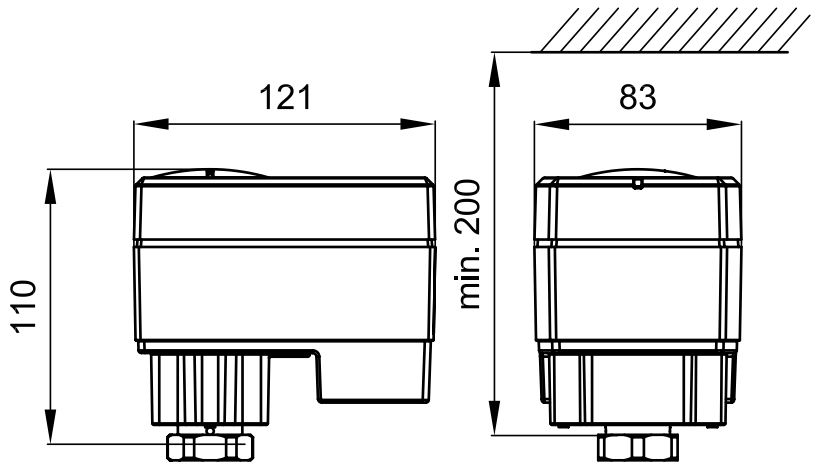
General data

Technical data

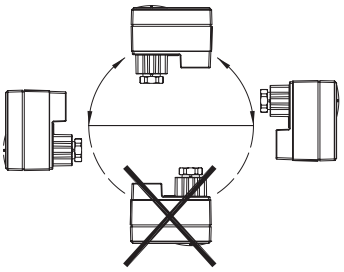
Type		AME 13 SU/SD-1
Power supply	V	24; +10 to –15 %; AC
Power consumption	VA	9
Frequency	Hz	50/60
Control input Y	V	0-10 (2-10)
	mA	0-20 (4-20)
Output signal X	V	0-10 (2-10)
Closing force	lbf (N)	67.4 (300)
Max. stroke	mm	5.5
Speed	s/mm	11.75 (50 Hz) / 14 (60 Hz)
Max. medium temperature	°F (°C)	248 (120)
Ambient temperature		32… + 131 (0… + 55)
Storage and transport temp.		-40…+158 (-40…+70)
Grade of enclosure		IP 54
Ambient humidity		95% r.h., non-condensing
Protection class		Class 2 (North America) or Safety Extra-Low Voltage (SELV) (Europe)
Weight	lbs (kg)	1.76 (0.8)

Dimensions

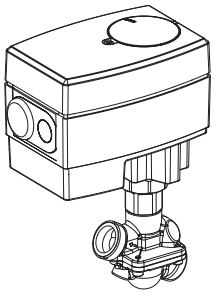
AME 13 SU/SD-1



Installation



AME 13SU



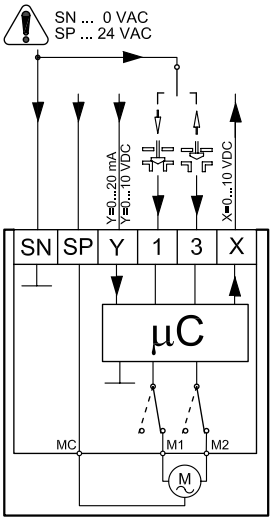
AME 13SU

Mechanical
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 mounting nut which requires 32 mm screw key. The nut should be tightened with a torque of max. Max. 6 Nm/53 in-lb, when used with AB-QM.

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

Wiring

24 VAC



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

SP	24 Vac	Power supply
SN	0 V	Common
Y	0-10 V (2-10 V)	Input signal
	0-20 mA (4-20 mA)	
X	0-10 V (2-10 V)	Output signal

Automatic calibrate 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 DIP 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).

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	Gear and Thermal actuators	Danfoss	

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