

Data sheet

Actuators for modulating control

AME 55, AME 56

Description

**Features:**

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

Main data:

- Nominal voltage: 24 VAC, 50/60 Hz
- Control input signal:
0(4)-20 mA,
0(2)-10 V
- Force:
2000 N (AME 55),
1500 N (AME 56)
- Stroke: 40 mm
- Speed:
8 s/mm (AME 55),
4 s/mm (AME 56)
- Max. medium temperature: 200 °C
- Manual operation

The actuators are used with valves:

- VFM 2 (DN 65-150) only in combination with AME 55,
- VFS 2 (DN 15-50) only in combination with AME 56 and clutch **065Z7551**,
- VFS 2 (DN 65-100),
- VL 2/3 (DN 100),
- VF 2/3 (DN 100-150),
- VL 2/3 & VF 2/3 (DN 65, 80) only in combination with AME 56 and adapter **065Z0312**,
- AFQM (DN 65-125) and AFQM 6 (DN 40-50).

Ordering

Actuators

Type	Power supply	Code No.
AME 55	24 VAC	082H3022
AME 56		082H3025

Accessories

Type	Code No.
Stem heater 24 V AC/DC (VF, VL valves DN 65-80)	065Z0315
Stem heater 24 V AC/DC (VF, VL valves DN 100 and VFS2 valves DN 15-50)	065Z7020
Stem heater 24 V AC/DC (VF valves DN 125, 150 and VFS valves DN 65-100)	065Z7022
Adapter (VF, VL valves DN 65-80)	065Z0312
AME 56 clutch (VFS 2 DN 15-50)	065Z7551

Technical data

Type		AME 55	AME 56
Power supply	V	24; ± 10 %	
Power consumption	VA	9	19.5
Frequency	Hz	50/60	
Control input Y	V	0-10 (2-10) Ri = 24 kΩ	
	mA	0-20 (4-20) Ri = 500 Ω	
Output signal X	V	0-10 (2-10)	
Closing force	N	2000	1500
Max. stroke	mm	40	
Speed	s/mm	8	4
Max. medium temperature	°C	200	
Ambient temperature		0 ... 55	
Storage and transport temperature		-40 ... 70	
Ambient humidity		95 % r.h., non-condensing	
Protection class		III	
Grade of enclosure		IP 54	
Weight	kg	3.8	
- marking in accordance with standards		Low Voltage Directive (LVD) 2014/35/EU: EN 60730-1, EN 60730-2-14 Electromagnetic Compatibility Directive (EMC) 2014/30/EU: EN 61000-6-2, EN 61000-6-3	

Installation

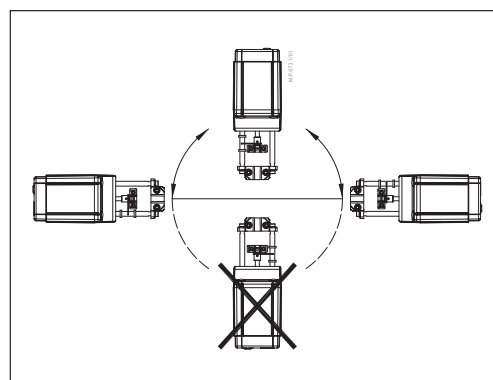
Mechanical

The actuator should be mounted with the valve stem (use a 4 mm Allen key -not supplied) in either horizontal position or pointing upwards. Use a M8/SW13 key (not supplied) to fit the actuator to the valve body. Allow for necessary clearance for maintenance purposes.

The valve has position indication rings which should be pushed together before commissioning; after stroking they indicate the ends of the stroke.

Electrical

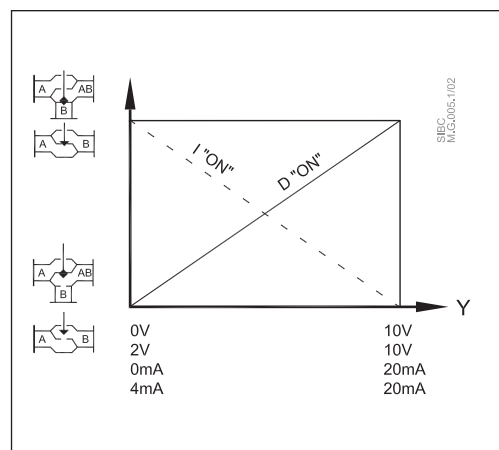
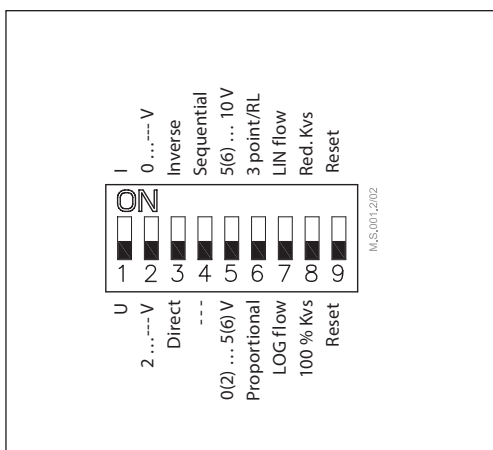
Electrical connections can be accessed by removing the cover. Two M16 × 1,5 cable entries are provided. Both entries are provided with a rubber grommet for use with flexible cable. Note that in order to maintain the enclosure IP rating, appropriate cable glands must be used.



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: —/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).

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

- Actuator can operate in modulating (DIP 6 to OFF) or in "simple" 3-point mode, if the 3-point function is selected (DIP 6 to ON).
- Connect power supply on terminals SN and SP terminals.
- DIP 6 factory setting is OFF for modulating operation.
- Actuator's stem will run to its totally extended or retracted position by bridging SN signal to terminals 1 or 3 and will remain in this position as long as potential is present.
- Set DIP 6 to ON for operating actuator in 3 point mode.
- Look carefully wiring diagram as wiring is different for controllers with triac output (ECL) in comparison to controllers with relay output.
- Return signal X indicates the correct position.

SW7: LOG/LIN - Equal percentage or linear flow through valve selector:

- 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 selector ¹⁾:

- 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.

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 Wiring for modulating mode

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

Actuator needs to perform Self stroking prior changing DIP 6 to ON. Output signal depends on DIP 2, 3&5 setting.

DIP 6 = ON Wiring for 3-point floating mode / Controller with relay output

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

Actuator needs to perform Self stroking prior changing DIP 6 to ON. Output signal depends on DIP 2, 3&5 setting.

DIP 6 = ON Wiring for 3-point floating mode / Controller with triacs output ECL

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

Commissioning

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

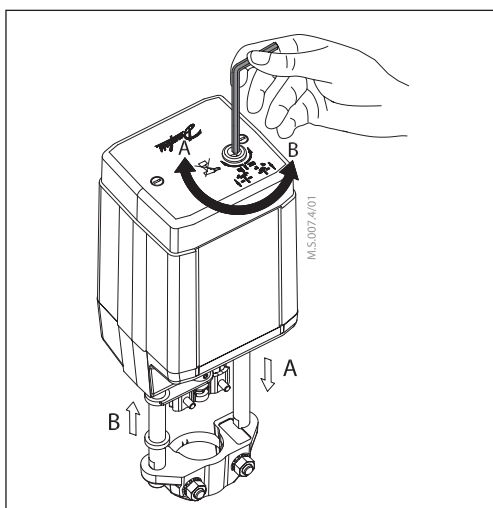
- Isolate control medium. (e.g. self stroking in a steam application without suitable mechanical isolation could cause a hazard).
- Apply the power. Note that the actuator will now perform the self stroking function.
- Apply the appropriate control signal and check the valve stem direction is correct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

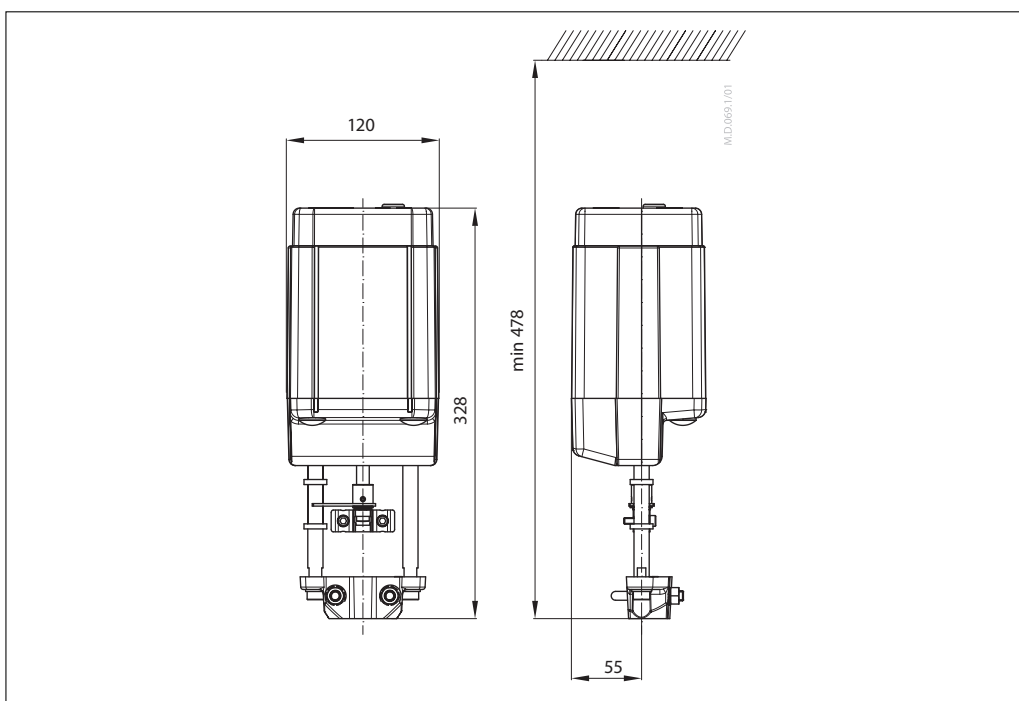


The manual override is applied by rotating the 4 mm Allen key (not supplied) to the required position. Observe the direction of the rotation symbol.

- Disconnect power supply
- Adjust valve position using an Allen key
- Set valve to closed position
- Restore power supply

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, or apply accessory active return signal kit.

Dimensions



Actuator - valve combinations

