

LINEAR ELECTRIC ACTUATORS Type AVF234S and AVM234S

DESCRIPTION

The AVM234S/AVF234S valve actuators offer automatic adaptation to the stroke of the valve, precision activation and high energy efficiency with minimal operating noise.

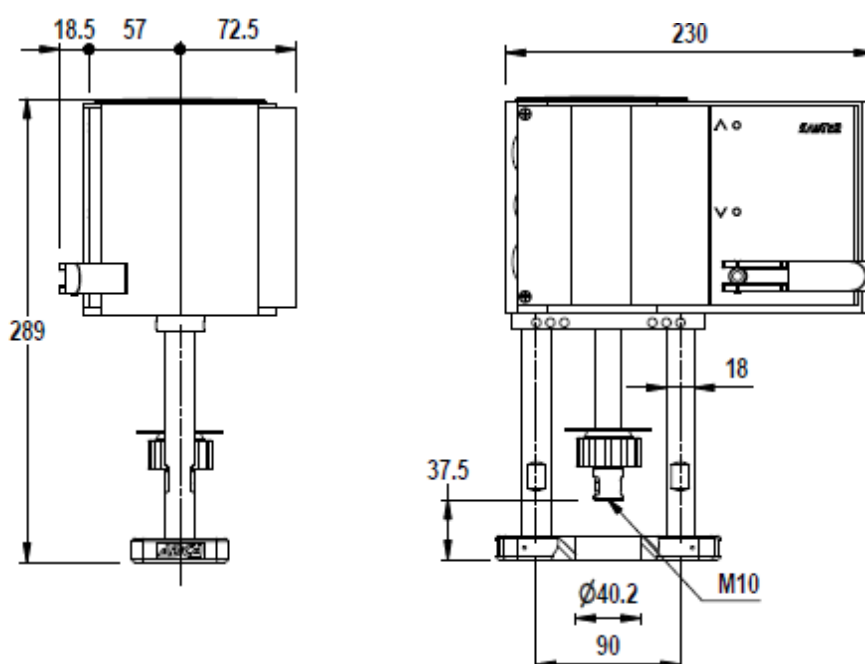
Ideal for use with any DSH series direct steam injection humidifier and in TDS (Total Dissolved Solids) control systems VCP blowdown valves.

In case of power failure/interruption, the AVF234S actuator runs, spring driven, into its respective fail-safe position (thrust rod extended). In modulating duty, the end position seating is made via limit switches.

MAIN FEATURES

- Switching input (2-point or 3-point-step control) or analog input (0...10 V or 4...20 mA).
- Automatic detection of control signal with LED indications.
- Adjustable characteristic curve (linear, quadratic and equal-percentage) and running time via coding switch.
- Automatic adaptation to valve stroke.
- Enclosed with IP 66 protection level.
- Spring-return feature (in case of AVF234S actuator).

DIMENSIONS (mm)





| TECHNICAL DATA | | |
|-----------------------------------------|---------------------------------------------------------------------------|-----------|
| Type | AVM234S | AVF234S |
| Power supply | 230 V 50/60Hz / 110 V 50/60Hz / 24 V 50/60Hz / 24 V DC | |
| Power consumption ¹⁾ | 10 W (20 VA) for 24 V 50/60Hz and 24 V DC; 13 W (28 VA) for 230 V 50/60Hz | |
| Running time of motor mm/min (mm/s) | 10 (0,17), 15 (0,25), 30 (0,50) | |
| Running time of spring ²⁾ | - | 15...30 s |
| Actuating power | 2.5 kN | 2 kN |
| Response time for 3-point-step | 200 ms | |
| Number of spring returns | - | >40,000 |
| Actuator stroke | 0...49 mm | 0...40 mm |
| POSITIONER | | |
| Control signal 1 | 0...10 V, R _i =100kΩ | |
| Control signal 2 | 4...20 mA, R _i =50Ω | |
| Positional feedback 0-10V | 0...10 V; load > 2,5kΩ | |
| Starting point U ₀ | 0 V or 10 V | |
| Control span ΔU | 10 V | |
| Switching range X _{sh} | 300 mV | |
| AMBIENT CONDITIONS | | |
| Admissible ambient temperature | -10...55 °C | |
| Admissible ambient humidity | < 95% rh, no condensation | |
| Temperature of medium ³⁾ | Max. 130 °C (180 °C or 200 °C with accessories) | |
| CONSTRUCTION | | |
| Weight | 4.1 kg | |
| Housing material | Fire-retardant plastic | |
| STANDARDS AND DIRECTIVES | | |
| Type of protection | IP66 (EN 60529) | |
| Protection class | III (IEC 60730) | |
| EMC Directive 2004/108/EC ⁴⁾ | EN 61000-6-2, EN 61000-6-4 | |
| Low-voltage directive 2006/95/EC | EN 60730-1, EN 60730-2-14 | |
| Over-voltage categories | III | |
| Degree of contamination | III | |

1) Choose transformer for this value, otherwise malfunctions may occur.

2) Return time equates to stroke of 14...40mm and does not depend on set running time.

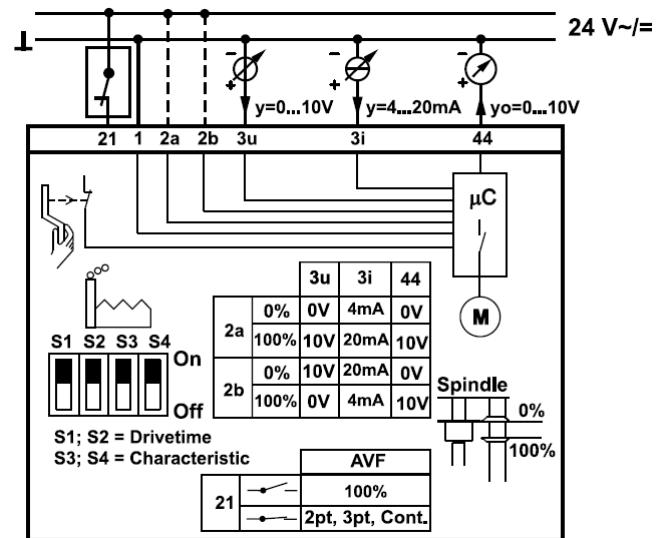
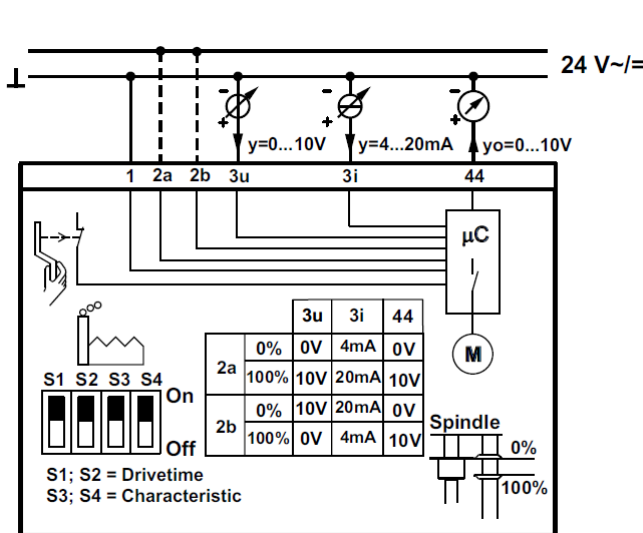
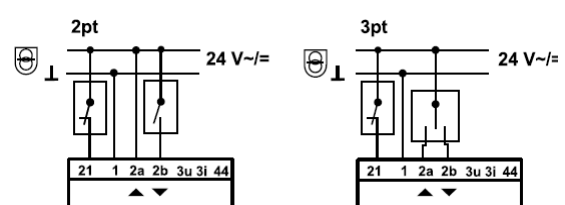
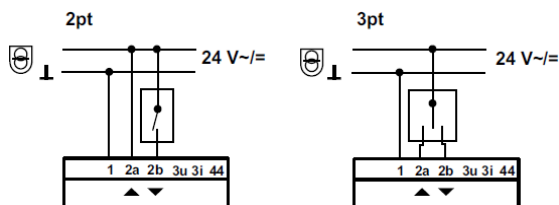
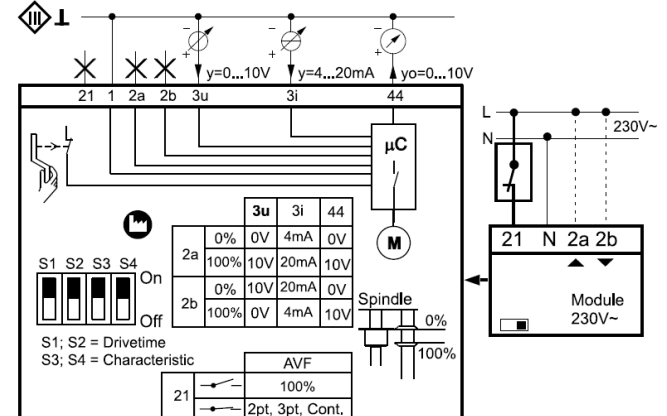
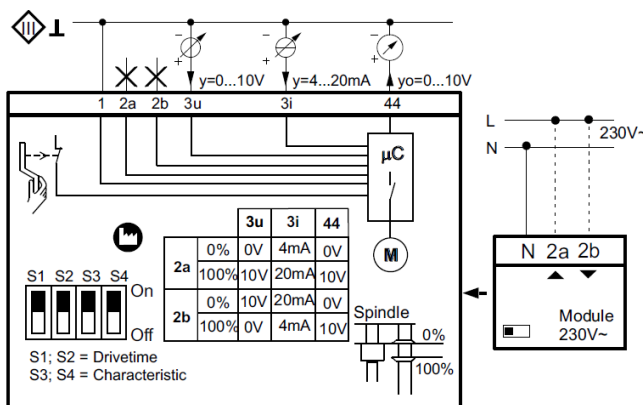
3) Adaptor needed for higher temperatures (180 °C or 200 °C) (see accessories and options).

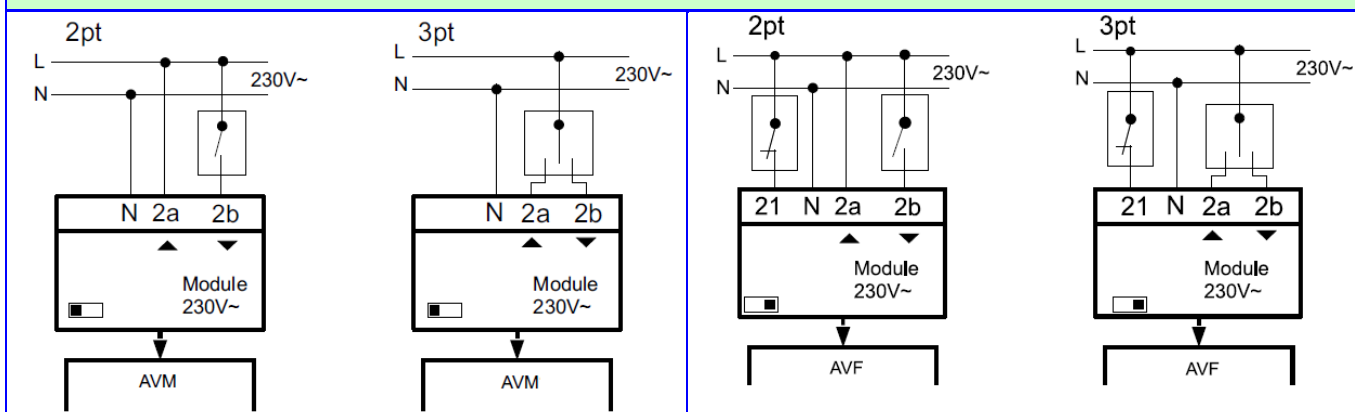
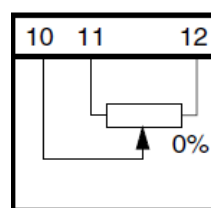
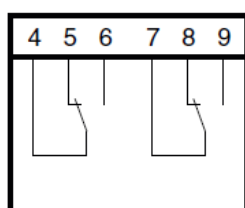
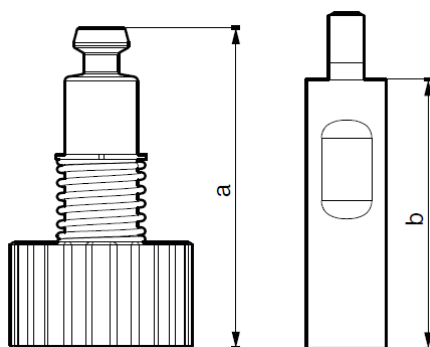
4) EN 61000-6-2: HF immunity. Limitation of feedback signal between 80 MHz and 1000MHz criterion B, otherwise criterion A.

| ACCESSORIES AND OPTIONS | |
|-------------------------|------------------------------------------------------------------------------------------------------------|
| TYPE | DESCRIPTION |
| 313529 001 | Split-range unit for adjusting sequences, fitted in separate junction box |
| 372332 001 | Module for 2-point/3-point and analogue activation; additional power 2 VA; 230 V ac ± 15% supply voltage |
| 372332 002 | Module for 2-point/3-point and analogue activation; additional power 2 VA; 100 V ac ± 15% supply voltage |
| 372333 001 | Aux. change-over contacts 12...250 V ac; Infinitely variable, min. 100 mA and 12 V permissible load 6(2) A |
| 372333 002 | Aux. change-over contacts 12...250 V ac; Gold plated, from 1 mA, to max. 30 V, wider range 3(1) A |
| 372334 001 | Potentiometer 2 kΩ 1 W 24 V |
| 372334 002 | Potentiometer 130 Ω 1 W 24 V |
| 372334 006 | Potentiometer 1 kΩ 1 W 24 V |

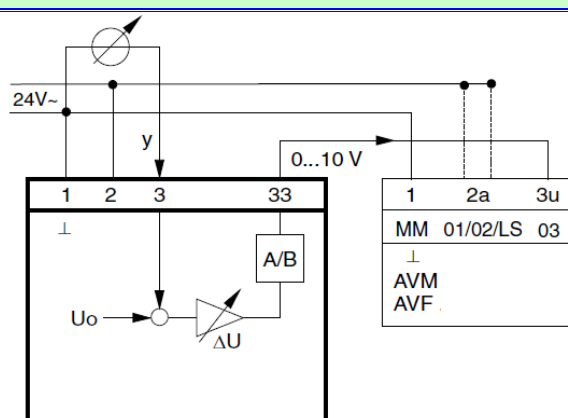
| | |
|------------|---------------------------------------------------------------------|
| 372336 180 | Adapter required when the temperature of the medium is 130...180 °C |
| 372336 240 | Adapter required when the temperature of the medium is 180...200 °C |

5) Two contacts each.

WIRING DIAGRAMS
AVM234S
AVF234S
ANALOG 0...10 V / 4...20 mA INPUT

2-POINT / 3-POINT STEP SWITCHING INPUT

ACCESSORIES AND OPTIONS WIRING DIAGRAMS
AVM234S
AVF234S
ANALOG 0...10 V / 4...20 INPUT WITH 230 V AC POWER SUPPLY⁶⁾


2-POINT / 3-POINT STEP SWITCHING INPUT WITH 230 V AC POWER SUPPLY ⁶⁾

AUXILIARY CONTACTS AND POTENTIOMETERS ⁷⁾

HIGH TEMPERATURE ADAPTERS ⁸⁾


| Type | T (°C) | a (mm) | b (mm) |
|------------|--------|--------|--------|
| 372336 180 | 180 | 69.4 | 60 |
| 372336 240 | 200 | 109.4 | 100 |

SPLIT RANGE UNIT ⁹⁾


6) Using accessory type 372332 001. Same connections apply for the 100 VAC modules (type 372332 002).

7) Accessories type 372333 001, 372333 002, 372334 001, 372334 002 and 372334 006.

8) Accessories type 372336 180 and 372336 240.

9) Accessory type 313529 001.

TYPE OF CHARACTERISTIC CURVES

| Desired character. curve | Switch coding | Characteristic curve for valve | Characteristic curve for drive | Effective on valve |
|--------------------------|---------------|--------------------------------|--------------------------------|--------------------|
| Equal percentage | | | | |
| Quadratic | | | | |
| Linear | | | | |
| Equal percentage | | | | |
| Linear | | | | |

= factory setting

MOTOR RUNNING TIME SELECTION GUIDE

| Run time per mm | Switch coding | Run time for 14 mm stroke | Run time for 20 mm stroke | Run time for 40 mm stroke |
|-----------------|---------------|---------------------------|---------------------------|---------------------------|
| 2s | | 28s ± 1 | 40s ± 1 | 80s ± 4 |
| 4s | | 56s ± 2 | 80s ± 4 | 160s ± 4 |
| 6s | | 84s ± 4 | 120s ± 4 | 240s ± 8 |
| | | | | |

= factory setting