

**LINEAR ELECTRIC ACTUATORS  
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.

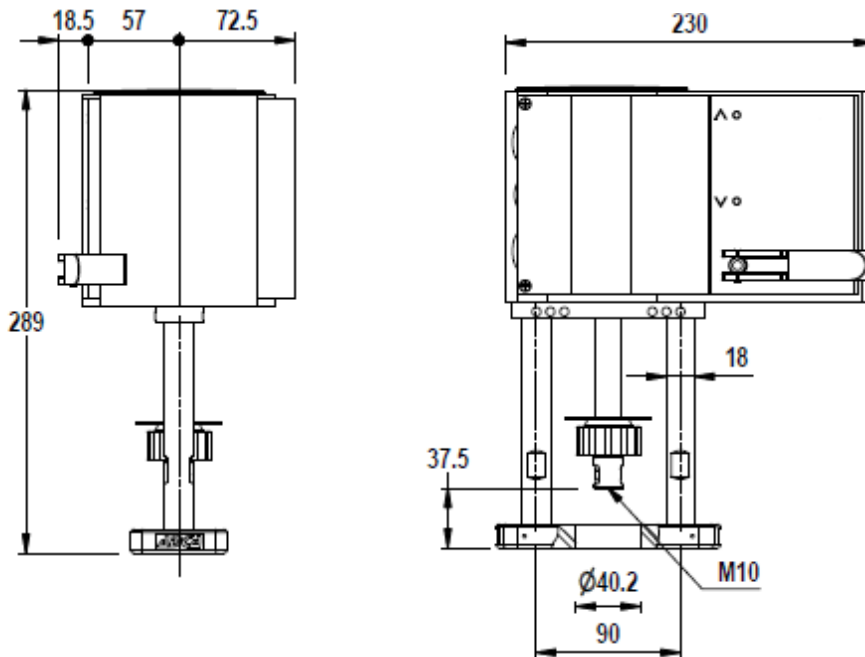
Ideal for use with any DSH series direct steam injection humidifier and in TDS (Total Dissolved Solids) control systems VCP blowdown valves.

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 <sup>a)</sup>	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 <sup>b)</sup>	-	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 <sub>i</sub> =100kΩ	
Control signal 2	4...20 mA, R <sub>i</sub> =50Ω	
Positional feedback 0-10V	0...10 V; load > 2,5kΩ	
Starting point U <sub>0</sub>	0 V or 10 V	
Control span ΔU	10 V	
Switching range X <sub>sh</sub>	300 mV	
AMBIENT CONDITIONS		
Admissible ambient temperature	-10...55 °C	
Admissible ambient humidity	< 95% rh, no condensation	
Temperature of medium <sup>c)</sup>	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 2014/30/EU <sup>d)</sup>	EN 61000-6-2, EN 61000-6-4	
Low-voltage directive 2014/35/EU	EN 60730-1, EN 60730-2-14	
Over-voltage categories	III	
Degree of contamination	III	

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

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

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

d) 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

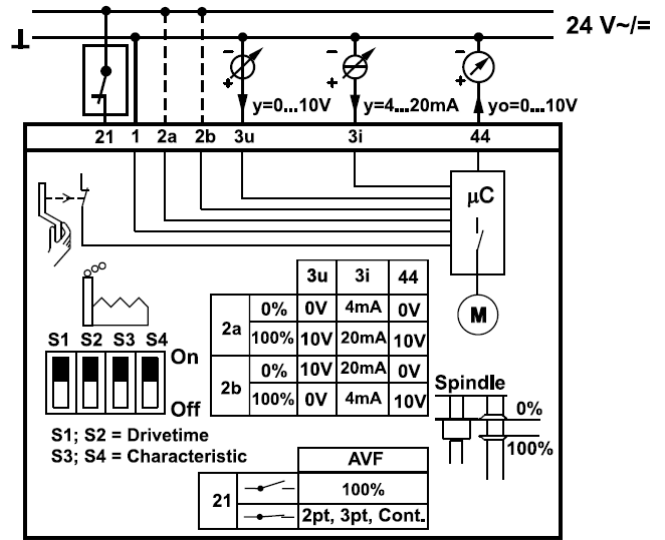
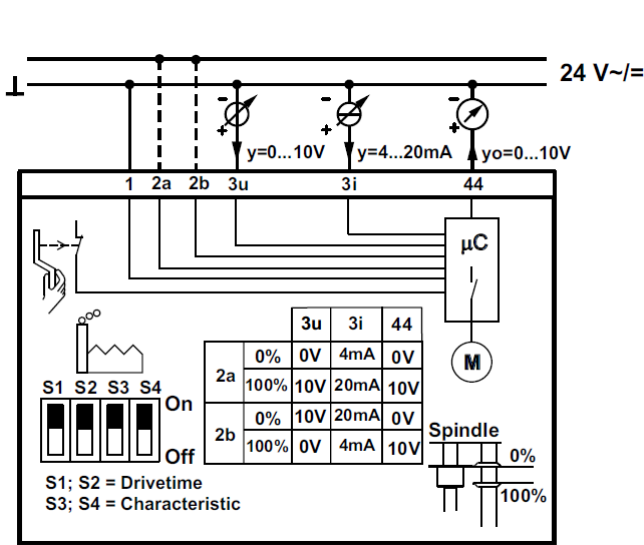
e) Two contacts each.

WIRING DIAGRAMS

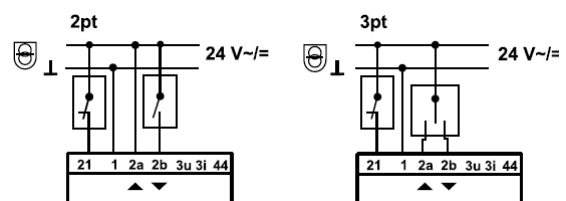
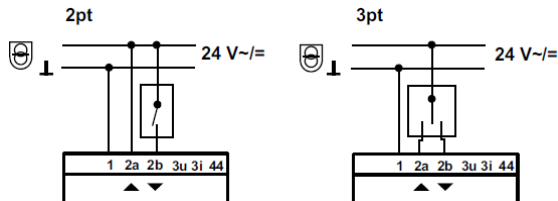
AVM234S

AVF234S

ANALOG 0...10 V / 4...20 mA INPUT



2-POINT / 3-POINT STEP SWITCHING INPUT

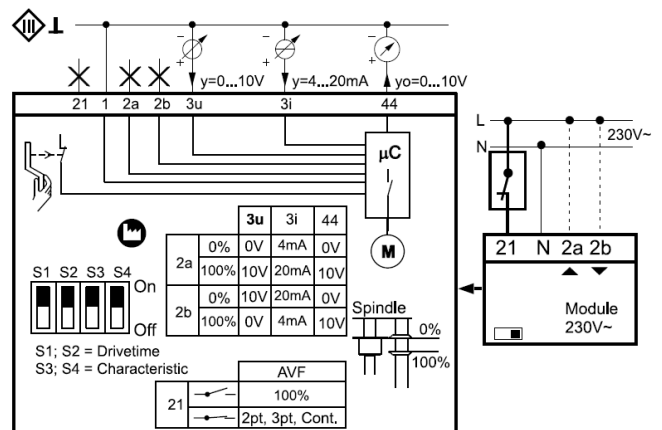
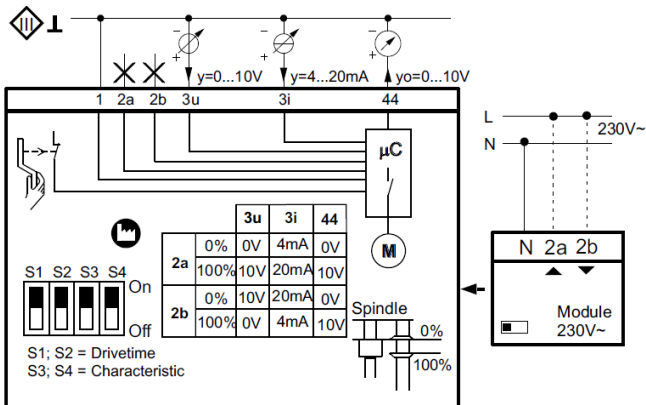


ACCESSORIES AND OPTIONS WIRING DIAGRAMS

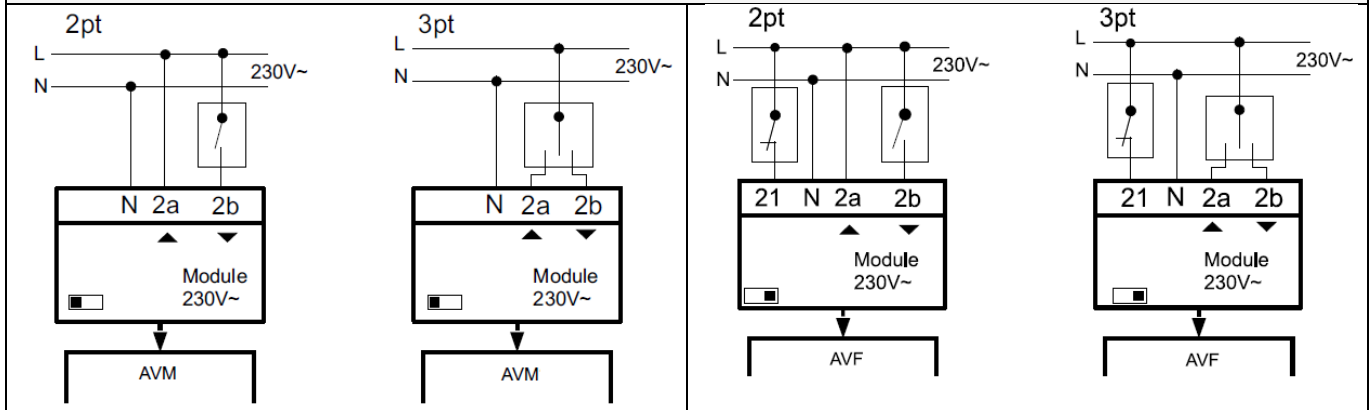
AVM234S

AVF234S

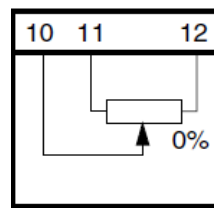
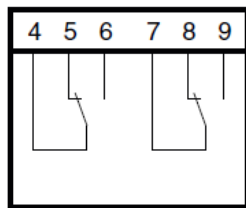
ANALOG 0...10 V / 4...20 mA INPUT WITH 230 V AC POWER SUPPLY <sup>6)</sup>



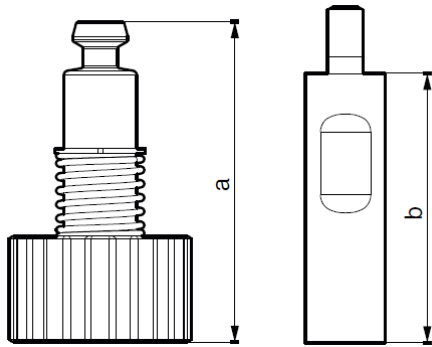
**2-POINT / 3-POINT STEP SWITCHING INPUT WITH 230 V AC POWER SUPPLY <sup>f)</sup>**



**AUXILIARY CONTACTS AND POTENTIOMETERS <sup>g)</sup>**

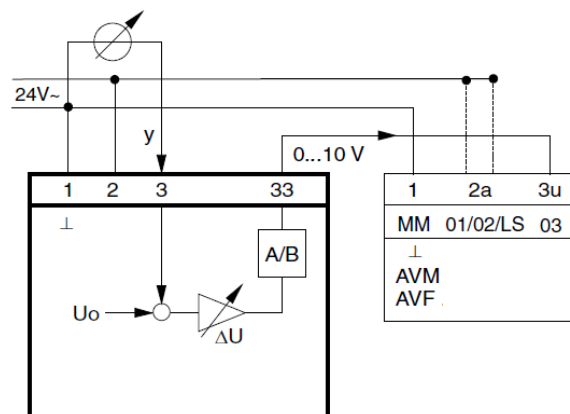


**HIGH TEMPERATURE ADAPTERS <sup>h)</sup>**



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

**SPLIT RANGE UNIT <sup>i)</sup>**



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

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

h) Accessories type 372336 180 and 372336 240.

i) 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