

## 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).



### OPTIONS AND

- ACCESSORIES:
- Split-range unit for adjusting sequences.
  - 230 V AC and 100 V AC power supply modules.
  - Auxiliary change over contacts.
  - Potentiometers.
  - Adapters for high temperature conditions.

USE: Actuation of V series ADCATrol control valves, or others on request.

### AVAILABLE

MODELS: AVF234S and AVM234S.

## TECHNICAL DATA

| ACTUATOR MODEL                      | AVM234S   | AVF234S   |
|-------------------------------------|---|-----------|
| Power supply                        | 230 V 50/60 Hz / 110 V 50/60 Hz / 24 V 50/60 Hz / 24 V DC                   |           |
| Power consumption a)                | 10 W (20 VA) for 24 V 50/60 Hz and 24 V DC; 13 W (28 VA) for 230 V 50/60 Hz |           |
| Running time of motor mm/min (mm/s) | 10 (0,17), 15 (0,25), 30 (0,50)   |           |
| Running time of spring b)           | -   | 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 |
| Housing material                    | Fire-retardant plastic  |           |

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

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

| POSITIONER                |                         |
|---------------------------|-------------------------|
| Control signal 1          | 0...10 V, Ri=100 kΩ     |
| Control signal 2          | 4...20 mA, Ri=50 Ω      |
| Positional feedback 0-10V | 0...10 V; load > 2,5 kΩ |
| Starting point U0         | 0 V or 10 V             |
| Control span ΔU           | 10 V                    |
| Switching range Xsh       | 300 mV                  |

| AMBIENT CONDITIONS             |   |
|--------------------------------|---|
| Admissible ambient temperature | -10...55 °C                                     |
| Admissible ambient humidity    | < 95% rh, no condensation                       |
| Temperature of medium c)       | Max. 130 °C (180 °C or 200 °C with accessories) |

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

| STANDARDS AND DIRECTIVES         |                            |
|----------------------------------|----------------------------|
| Type of protection               | IP66 (EN 60529)            |
| Protection class                 | III (IEC 60730)            |
| EMC Directive 2014/30/EU d)      | 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                        |

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

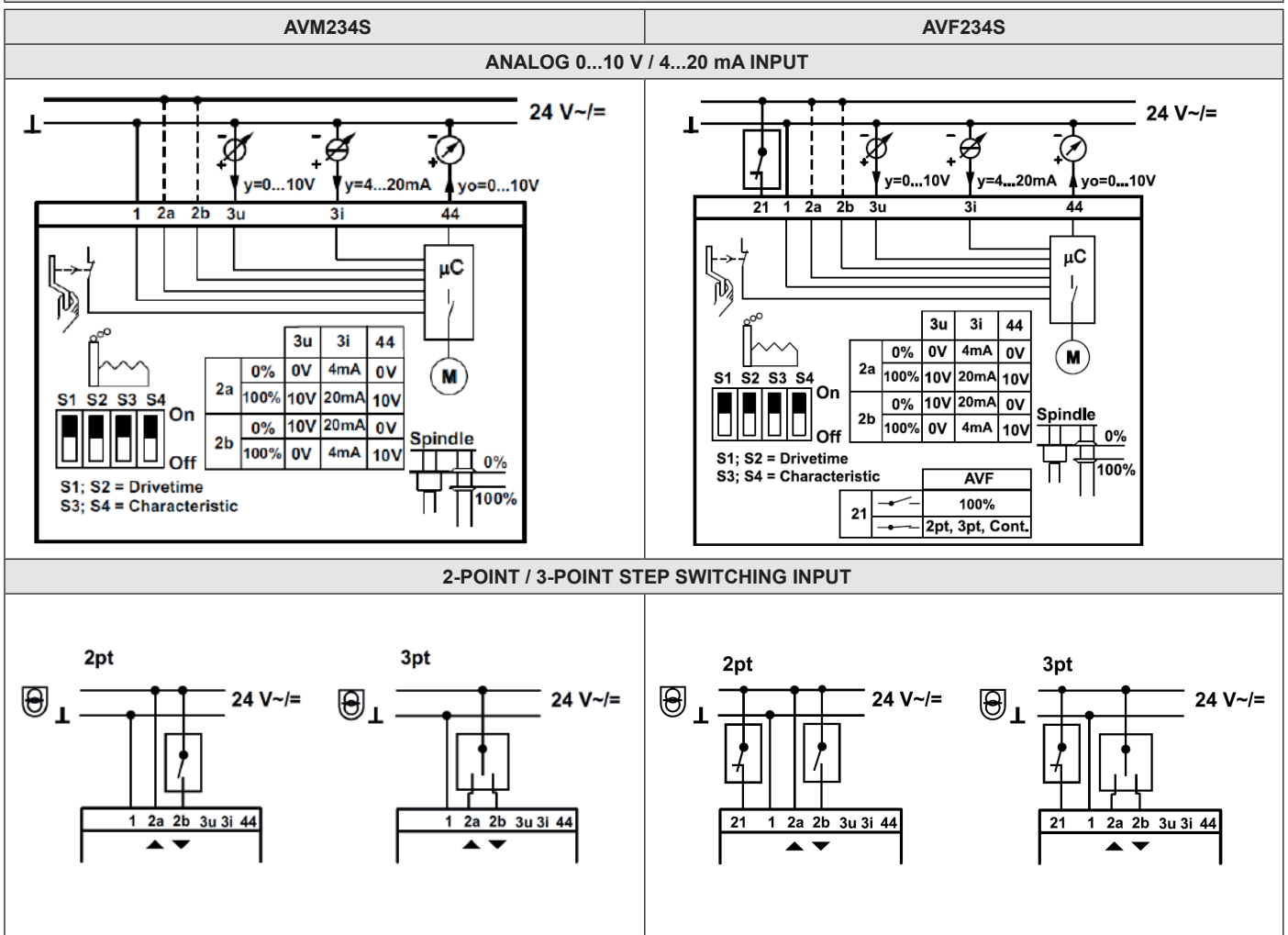
### OPTIONS AND ACCESSORIES

| OPTIONS AND ACCESSORIES  | TYPE       |
|--|------------|
| Split-range unit for adjusting sequences, fitted in separate junction box                                    | 313529 001 |
| Module for 2-point/3-point and analogue activation; additional power 2 VA; 230 V AC $\pm$ 15% supply voltage | 372332 001 |
| Module for 2-point/3-point and analogue activation; additional power 2 VA; 100 V AC $\pm$ 15% supply voltage | 372332 002 |
| Aux. change-over contacts 12...250 V ac; Infinitely variable, min. 100 mA and 12 V permissible load 6(2) A   | 372333 001 |
| Aux. change-over contacts 12...250 V ac; Gold plated, from 1 mA, to max. 30 V, wider range 3(1) A            | 372333 002 |
| Potentiometer 2 k $\Omega$ 1 W 24 V  | 372334 001 |
| Potentiometer 130 $\Omega$ 1 W 24 V  | 372334 002 |
| Potentiometer 1 k $\Omega$ 1 W 24 V  | 372334 006 |
| Adapter required when the temperature of the medium is 130...180 °C  | 372336 180 |
| Adapter required when the temperature of the medium is 180...200 °C  | 372336 240 |

e) Two contacts each.

### ELECTRICAL CONNECTIONS

#### BASIC WIRING DIAGRAMS

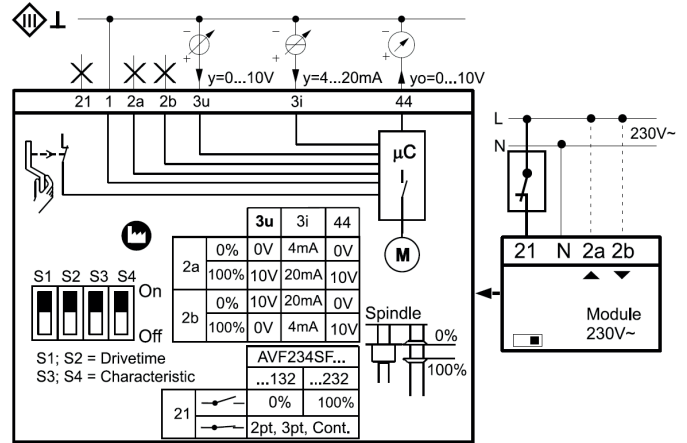
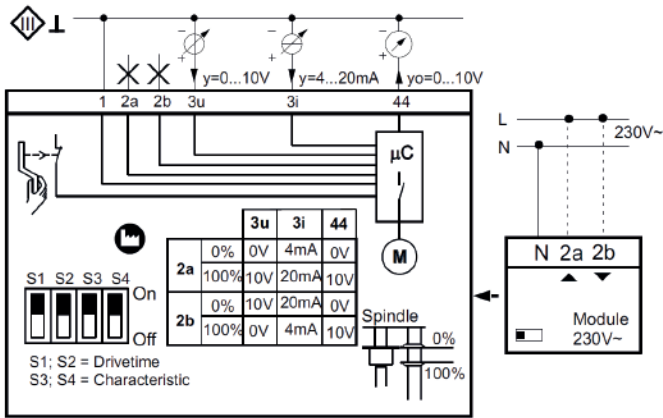


OPTIONS AND ACCESSORIES WIRING DIAGRAMS

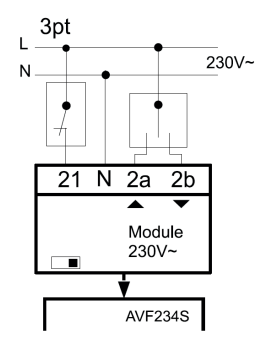
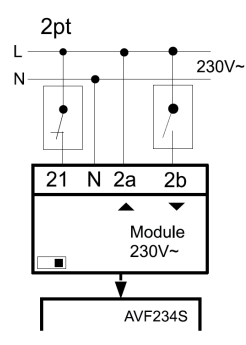
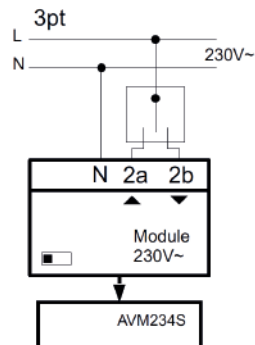
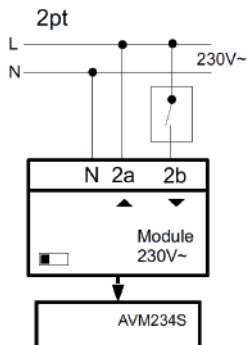
AVM234S

AVF234S

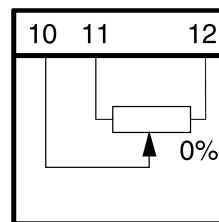
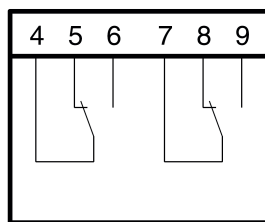
ANALOG 0...10 V / 4...20 mA INPUT a)



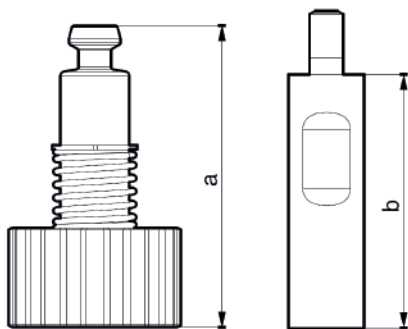
2-POINT / 3-POINT STEP SWITCHING INPUT WITH 230 V AC POWER SUPPLY a)



AUXILIARY CONTACTS AND POTENTIOMETERS b)



HIGH TEMPERATURE ADAPTERS c)



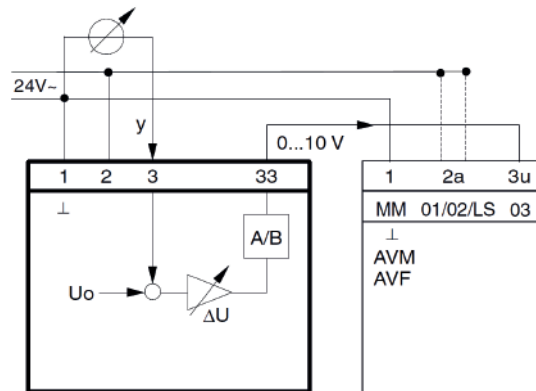
| TYPE       | T (°C) | a (mm) | b (mm) |
|------------|--------|--------|--------|
| 372336 180 | 180    | 69.4   | 60     |
| 372336 240 | 200    | 109.4  | 100    |

OPTIONS AND ACCESSORIES WIRING DIAGRAMS

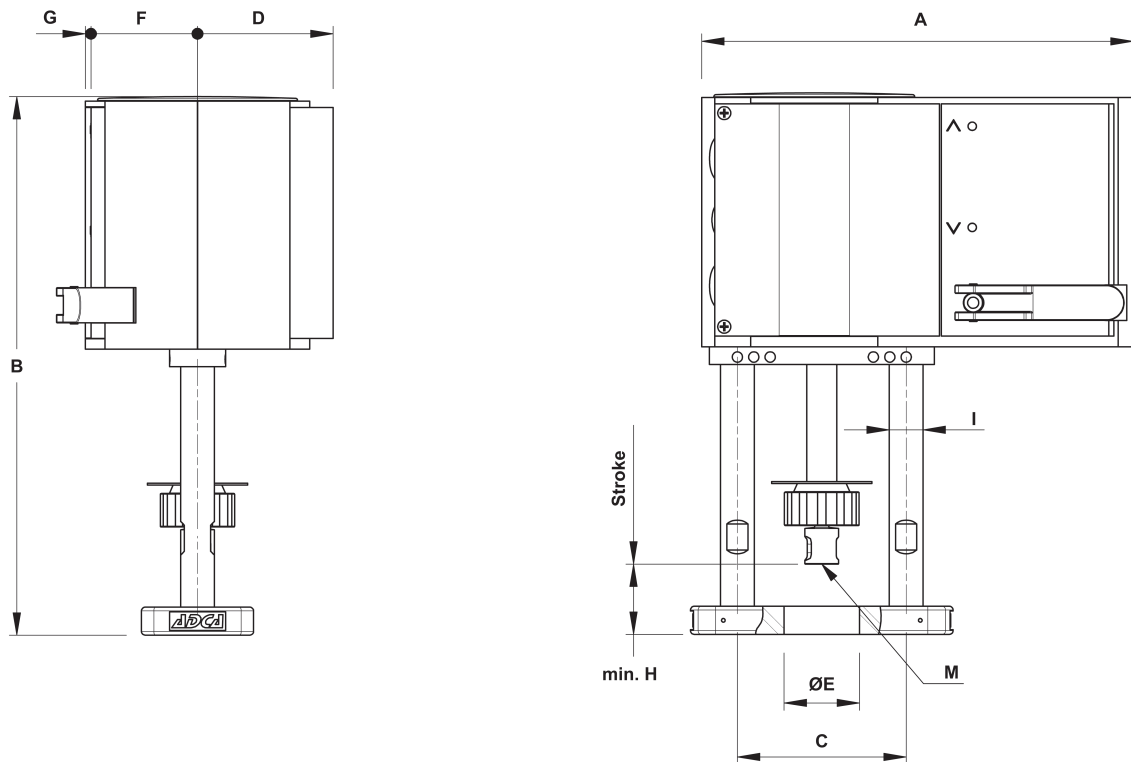
AVM234S

AVF234S

SPLIT RANGE UNIT d)



- a) Using accessory type 372332 001. Same connections apply for the 100 V AC modules (type 372332 002).
- b) Accessories type 372333 001, 372333 002, 372334 001, 372334 002 and 372334 006.
- c) Accessories type 372336 180 and 372336 240.
- d) Accessory type 313529 001.



DIMENSIONS (mm)

| MODEL              | A   | B   | C  | D  | Ø E | F  | G  | H  | I  | M   | WEIGHT (kg) |
|--------------------|-----|-----|----|----|-----|----|----|----|----|-----|-------------|
| AVM234S<br>AVF234S | 230 | 289 | 90 | 72 | 40  | 57 | 18 | 37 | 18 | M10 | 4,1         |

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