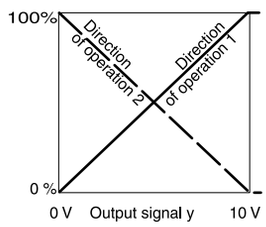
AVM 215S: Valve actuator with SAUTER Universal Technology (SUT)

AVM215SF132



How energy efficiency is improved

Semi-automatic adaptation to valve, automatic stroke path detection, precision activation and high energy efficiency

Features

- Actuation of 2- and 3-way valves
- For controllers with a switching (2- and 3-point) or continuous (0...10 V) output
- Stepping motor with SAUTER Universal Technology (SUT) electronic control unit and electronic, force-dependent cut-off
- Automatic recognition of applied control signal (continuous or switched)
- Coding switches for selecting characteristic and running time
- Type of characteristic (linear/equal-percentage) can be set on the actuator
- Automatic adaptation to valve stroke
- Direction of operation can be selected directly on the cable
- Maintenance-free gear unit
- Gear unit can be disengaged in order to position the valve by hand with the hexagon key provided (load-free)
- Connection with valve spindle performed semi-automatically after control voltage is applied
- Fitting vertically upright to horizontal, not suspended

Technical data

Power supply		
	Power supply 24 V~	±20%, 50...60 Hz
	Power supply 24 V=	-10%...+20%
Parameters		
	Actuator stroke	8...20 mm
	Response time	200 ms
Positioner	Control signal	0...10 V, Ri > 100 kΩ
	Positional feedback signal	0...10 V, load > 10 kΩ
	Starting point U_0	0 or 10 V
	Control span ΔU	10 V
	Switching range X_{sh}	200 mV
Ambient conditions		
	Ambient temperature	-10...55 °C
	Ambient humidity	5...85% rh, no condensation
	Media temperature	Max. 100 °C
Construction		
	Weight	1 kg
	Housing	Lower section black, upper section yellow
	Housing material	Flame-retardant plastic
	Power cable	1.2 m, 5 × 0.5 mm^2
Standards and directives		
	Type of protection	IP54 (EN 60529) horizontal
	Protection class	III (IEC 60730)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3, EN 61000-6-4

Overview of types				
Type	Actuating power	Voltage	Running time	Power consumption
AVM215SF132R	500 N	24 V~/=	7.5 s/mm 15 s/mm	3.5 W, 6.6 VA 2.7 W, 5.3 VA
AVM215SF132-7	500 N	24 V~/=	7.5 s/mm 15 s/mm	3.5 W, 6.6 VA 2.7 W, 5.3 VA

AVM215SF132-7 including adapter set for VDL flanged valves DN 50, DN 65 and DN 80

Accessories	
Type	Description
0510390030	Mounting kit for 8 mm stroke
0510390031	Mounting kit for 20 mm stroke
0510480003	Dual auxiliary switch for 8 mm stroke
0510480004	Dual auxiliary switch for 20 mm stroke
0372320001	Hexagon key as visualisation for position indicator
0510390032	Adapter set for V6R/B6R
0510390033	Adapter set for non-SAUTER valve IMI Hydronics TA-Fusion DN 32...50
0510390034	Adapter set for non-SAUTER valve IMI Hydronics TA-Fusion DN 65...80
0510390035	Adapter set for non-SAUTER valve IMI Hydronics CV DN 15...50
0510390036	Adapter set for non-SAUTER valve IMI Hydronics KTM512 DN 15...50
0510390037	Adapter set for non-SAUTER valve IMI Hydronics KTM512 DN 65...100
0510390038	Adapter set for non-SAUTER valve Frese, stroke 20 mm DN 50…80
0510390039	Adapter set for non-SAUTER valve Danfoss VFS VEFS VL VF
0510390040	Adapter set for non-SAUTER valve Danfoss VRB VRG
0510390029	Adapter set for AVM215F***R, stroke 15 mm
0510390060	Adapter set for AVM 2*5 for Schneider V241/V341

Auxiliary change-over contacts: infinitely variable 0...100%, admissible load 3(1.5) A, 24...230 V

Accessory 0510390029 can also be used for SAUTER Valveco compact DN 40 and DN 50

Description of operation

The SUT valve actuator is used to control valves and may only be used for this purpose.
Depending on the type of connection (see connection diagram), the device can be used as a continuous 0...10 V actuator, a 2-point (Open/Close) or 3-point actuator (Open/Stop/Close) with an intermediate position. Two running times are available for selection.
Switch S3 can be used to select the linear or equal-percentage characteristic.
The manual adjustment is performed in the load-free state by releasing the gear unit (slide switch beside the connection cable) and simultaneously turning it with the hex key on the top part of the actuator. 20 mm stroke is achieved with four turns.

CAUTION!
Damage to device
►After manual adjustment, move the slide switch back to its original position so that the gear unit engages again.

Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the “Description of operation” section.
All related product regulations must also be adhered to. Changing or converting the product is not admissible.

Connection as 2-point valve actuator

The 2-point actuation is performed via two cables and it controls the valve actuator to both end positions. The actuator is connected to the voltage via the blue cable [MM] and the brown cable [01].
The actuator spindle extends when the voltage is connected to the black cable [02].
When the voltage on the black cable is switched off, the actuator moves to the opposite end position.

In the end positions (limit stop in valve or maximum stroke reached) or in the case of an overload, the electronic motor cut-off is activated (no limit switches).
The unused red and grey cables must not be connected or come into contact with other cables. SAUTER recommends that you insulate these.

Connection as 3-point valve actuator

The 3-point actuation is performed via three cables and controls the valve actuator to any selected position. The actuator is connected to the voltage via the blue cable [MM] and the brown cable [01] or via the black cable [02].
The actuator spindle retracts when the voltage is connected to the brown cable.
When the voltage on the brown cable is switched off, the actuator spindle remains in the current position.
The actuator spindle extends when the voltage is connected to the black cable.
When the voltage on the black cable is switched off, the actuator spindle remains in the current position.
The direction of operation is changed by swapping the brown and black cables.
In the end positions (limit stop in valve or maximum stroke reached) or in the case of an overload, the electronic motor cut-off is activated (no limit switches).
The unused red and grey cables must not be connected or come into contact with other cables. SAUTER recommends that you insulate these.

Connection as continuous 0...10 V valve actuator

The built-in positioner controls the actuator depending on controller's output signal y.
Direction of operation 1 (mains power supply on brown cable [01]): When the positioning signal is increasing, the actuator spindle extends.
Direction of operation 2 (mains power supply on black cable [02]): When the positioning signal is increasing, the actuator spindle retracts.
The starting point and control span are fixed.
After a manual adjustment or a power failure of more than at least five minutes, the actuator automatically readjusts itself.
After the power supply is connected, the stepping motor moves to the lower limit stop, sets up the connection with the valve spindle, moves to the upper limit stop and thus defines the closing position. After this, every stroke between 0 and 20 mm can be achieved, depending on the control voltage. Thanks to the electronics, no steps can be lost, and the actuator does not require periodic re-adjustment. It is possible to operate multiple actuators of the same type in parallel. The feedback signal y0 = 0...10 V corresponds to the effective stroke.
When control signal 0…10 V is interrupted and direction of operation 1 (brown cable [01]) is connected, the actuator spindle is retracted.
When control signal 0…10 V is interrupted and direction of operation 2 (black cable [02]) is connected, the actuator spindle is extended.
The coding switch can be used to select the characteristic of the valve. Characteristics can only be generated when the actuator is used as a continuous actuator. The running times can be selected with additional switches. These can be used for 2-point, 3-point or continuous function.

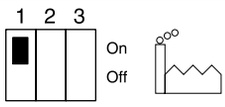
Additional technical data

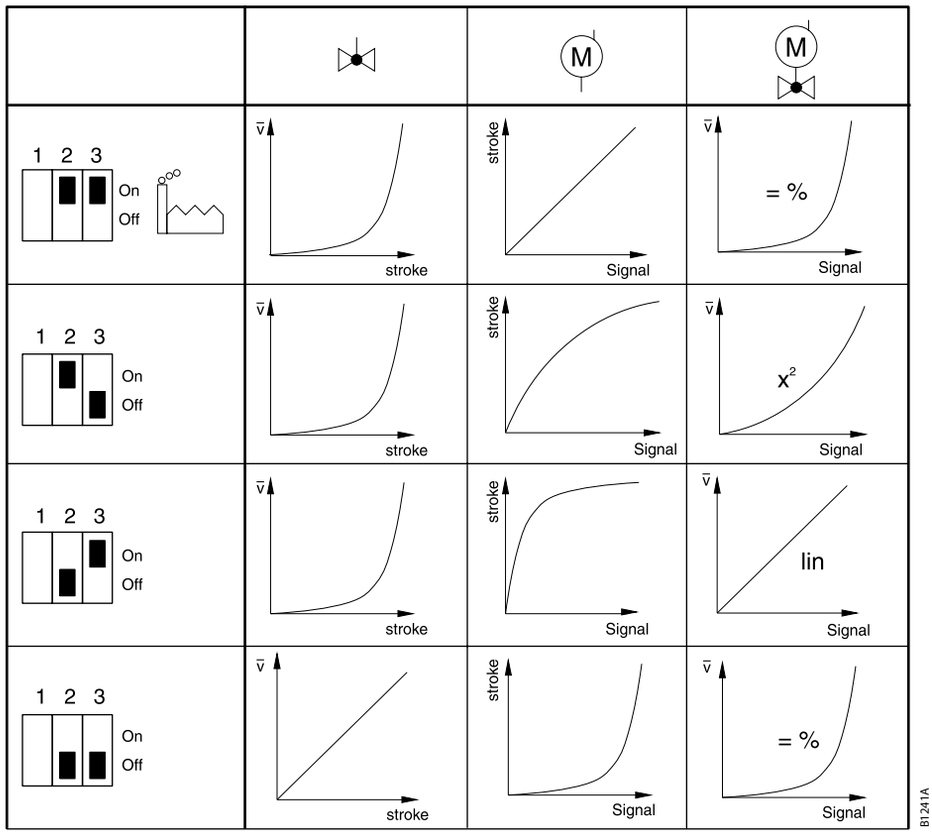
The upper section of the housing with the cover, indicator knob and cover knob contains the stepping motor and the SUT electronics. The lower section of the housing contains the maintenance-free gear unit.

Power consumption

Type	Running time [s/mm]	State	Active power P [W]	Apparent power S [VA]
AVM215SF132R	7.5 / 15	Operation	3.5 / 2.7	6.6 / 5.3
		Standstill	0.35	0.75
AVM215SF132-7	7.5	Operation	3.5	6.6
		Standstill	0.35	0.75

Coding switch for selecting characteristic

Laufzeit pro mm Temps de marche par mm Running time per mm	Schalterkodierung Codage de commutation Swith coding	Laufzeit für 8 mm Hub Temps de marche pour une course de 8 mm Running time for 8 mm of stroke	Laufzeit für 20 mm Hub Temps de marche pour une course de 20 mm Running time for 20 mm of stroke
7,5 s		60 s ± 2	150 s ± 5
15 s		120 s ± 4	300 s ± 10



Engineering and fitting notes

Condensate, dripping water, etc. must be prevented from entering the actuator along the valve spindle. A hanging position (fitting upside down) is not admissible.

When connecting the electricity supply, ensure that the cross-section of the power cable is adapted to the power output and to the cable length. SAUTER recommends a supply cable cross-section of at least 0.75 mm^2.

The coupling of the valve spindle with the actuator spindle is performed semi-automatically using the manual adjuster. When dismantling, first the actuator and valve spindles are unlocked, then they are unscrewed. On delivery, the spindles are in the middle position.

The concept of stepping motor and electronics ensures parallel operation of multiple actuators of the same SUT type.

The coding switches are accessible via an opening with a black cover in the housing lid.

The dual auxiliary switch (accessory) is screwed onto the side of the device.

WARNING!

When the housing is opened there is a risk of serious injury through electric shock.

▶Do not open the housing!

CAUTION!
Opening the housing can damage the device.
►Do not open the housing!

Disposal

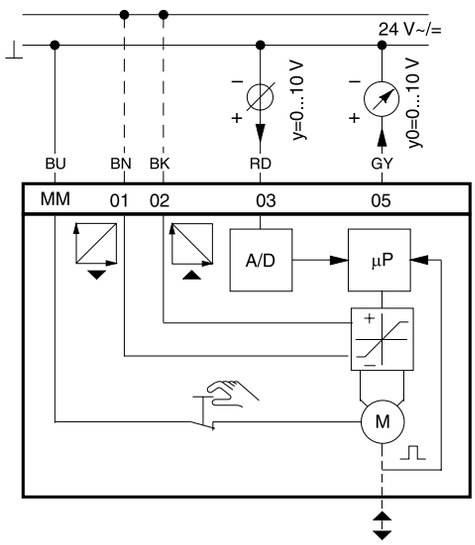
When disposing of the product, observe the currently applicable local laws.
More information on materials can be found in the Declaration on materials and the environment for this product.

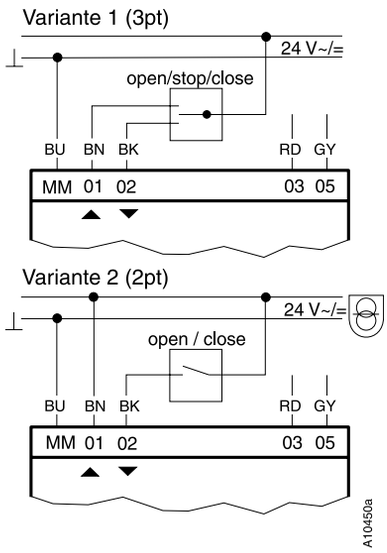
Connection diagram

Software A EN60730

IP54 EN60529

BU	BN	BK	RD	GY
blau	braun	schwarz	rot	grau
bleu	brun	noir	rouge	gris
blue	brown	black	red	grey
azzuro	marrone	nero	rosso	grigio
azul	marrón	negro	rojo	gris
blå	brun	svart	röd	grå
blauw	bruin	zwart	rood	grijs

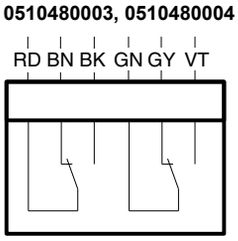




Accessories

Dual auxiliary switch

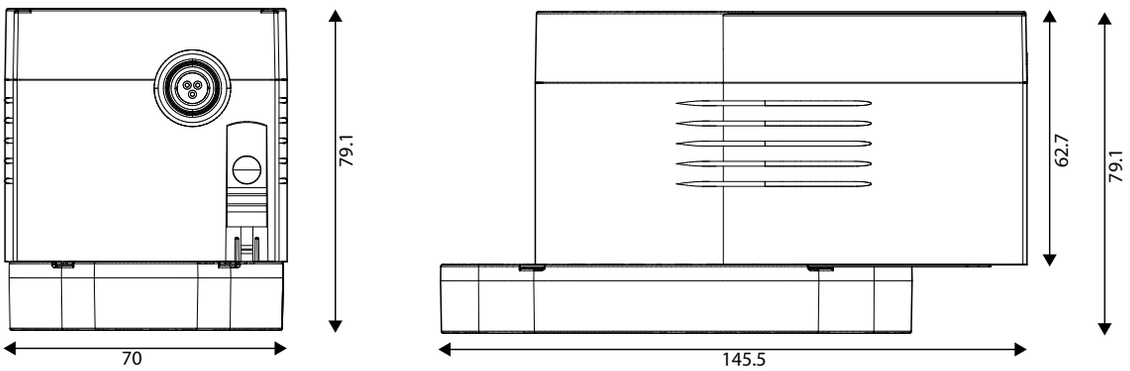
0510480003, 0510480004



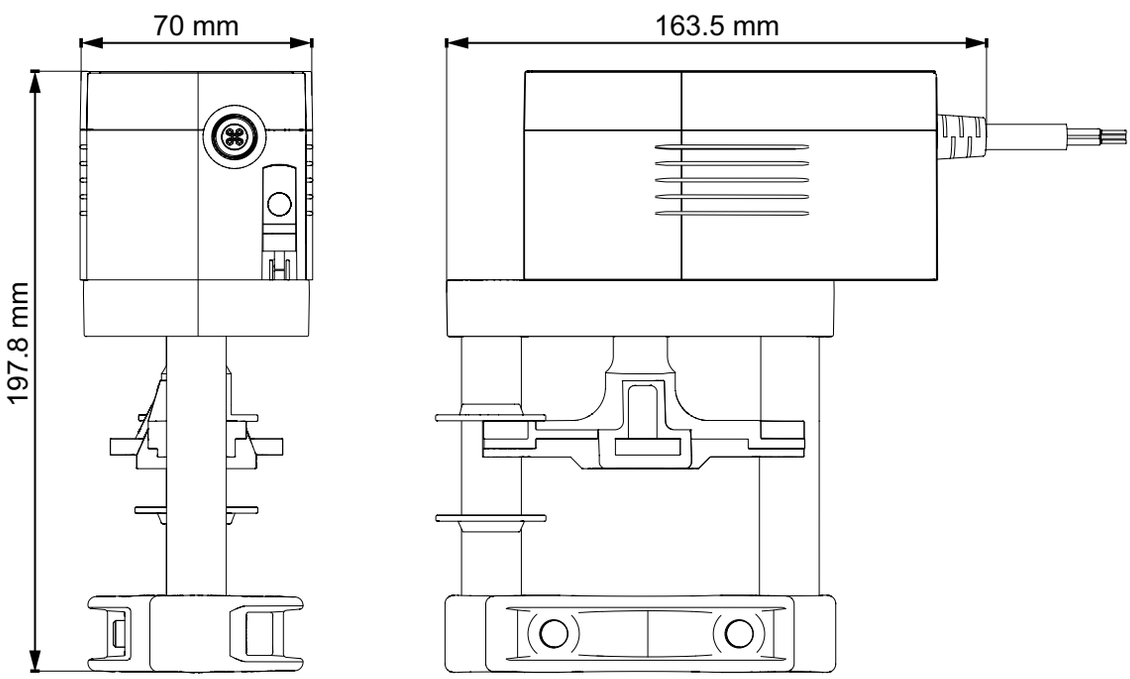
RD = red/rot
BN = brown/braun
BK = black/schwarz
GN = green/grün
GY = grey/grau
VT = violet/violett

Dimension drawing

All dimensions in millimetres.



AVM215SF132-7



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