

AVM321S/AVM322S: 1000N Actuator with analog SUT positioner

Areas of use

For actuation of 2- and 3-way valves. For controllers with constant output (0...10 V / 4...20 mA) or switching output (2-point or 3-point control)

Improving energy efficiency

Automatic adaptation to valve, optimal operator convenience, precision control and high energy efficiency with minimal operating noise.

Features

- BLDC motor (brushless DC) with electronic control unit SUT (Superior Universal Technology) of the third generation and electronic load-dependent cut-off
- Automatic recognition of applied control signal (constant or switched), operating display with bi-coloured LED
- Independent adaptation to the stroke of the valve between 10 and 20 mm
- Very low operating noise
- With the built-in absolute distance measurement system, the position is always maintained in case of power failure
- The direction of operation, characteristic (linear / equal percentage), positioning time and control signal (voltage/current) can be adjusted with coding switches
- Integrated forced operation can be set with coding switches (with selectable direction of operation)
- Easy re-initialisation using a coding switch
- Crank handle for external manual adjustment with motor cut-off
- Simple assembly with valve; spindle is automatically connected after control voltage is applied
- Electrical parallel operation of 5 actuators
- Parameterisation option available through bus interface



Technical description

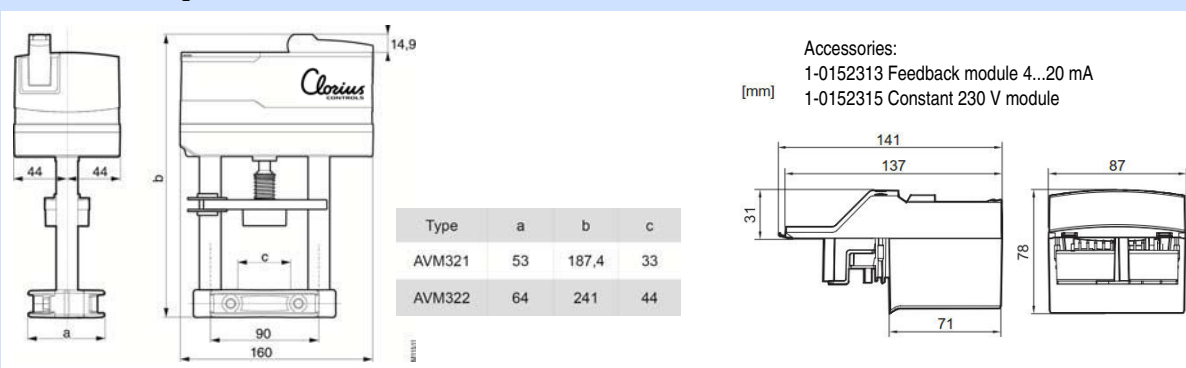
- Power supply 24 V~ or 24 V= (optional accessory module for 85...265Vac 50/60Hz)
- Three-piece housing of flame retardant yellow/black plastic and seals with degree of protection IP54
- Maintenance-free gearbox made of plastic; threaded spindle and gearbox base-plates made of steel
- Patented drive-valve coupling
- Mounting column made of aluminium
- Fixing bracket made of cast light alloy for the valve fitting with 20 mm stroke and made of plastic for the valve fitting with 8 mm stroke
- Electrical connections (max. 1.5 mm²) with screw terminals
- Two break-out cable inlets for metric screw fittings made of plastic M20×1.5
- Fitting position, vertically upright to horizontal, not hanging
- Nominal thrust 1000 N²

Products

Type	Positioning time (s/mm)	Nominal stroke (mm)
AVM321SK001*)	12 (4)	10
AVM322SK001*)	6 (4)	20

*) CSA-certified actuators on request

Dimension drawing



Technical data

Power supply			Admissible ambient conditions	
Operating voltage	24 V~	±20%, 50...60 Hz	Operating temperature	-10...55 °C
	24 V=	-10%...+20%	Storage and transport temperature	-40...80 °C
with accessory module	85-265 V~	±15%, 50...60 Hz	Humidity	5...85% rh
Power consumption (at nominal voltage, with movement)		< 1.7 W, < 3.5 VA		No condensation
Parameters			Installation	
Nominal force ¹⁾		1000 N	Dimensions W x H x D (mm)	AVM321S 160x187x88
Operating noise ²⁾ (at nominal force)		< 30 dB(A)		AVM322S 160x241x88
Response time		> 200 ms	Degree of protection	IP 54 (EN 60529)
Media temperature ³⁾		0...100 °C	Weight (kg)	
Nominal voltage		24 V~/=	AVM321S	1.5
Characteristic		Linear / equal percentage	AVM322S	1.6
Positioner ⁴⁾			Standards and directives	
Control signal y		0...10 V, R _i ≥ 50 kΩ	Protection class	III (EN 60730-1), EN60730-2-14
Control signal y		4...20 mA, R _i ≤ 50 Ω	Additional information	
Positional feedback signal y ₀		0...10 V, load ≥ 5 kΩ	Fitting instructions	99.70.03
Starting point U ₀		0 or 10 V	Declaration on materials and the environment	MD 51.375
Starting point I ₀		4 or 20 mA	Declaration of incorporation	P100012470
Control span ΔU		10 V	Manual & connection diagram	99.70.06.01
Hysteresis Xsh		160 mV		
Control span ΔI		16 mA		
Hysteresis Xsh		0.22 mA		

1) Actuating power 1000 N under nominal conditions (24 V, 25 °C ambient temperature, 50 Hz).

With boundary conditions (19.2 V~ / 28.8 V~ / 21.6 V= / 28.8 V=, -10 °C / 55 °C, 60 Hz) and positioning time, the actuating tensile force is minimised to 800 N

2) Noise level with the slowest positioning time, test distance 1m

3) Use the appropriate accessory when the temperature of the medium is > 100 °C (temperature adaptor).

4) Also for 2- or 3-point, depending on type of connection

Power consumption at nominal voltage

Type	Positioning time (s/mm)	Status	Active power P (W)	Apparent power S (VA)
AVM321S	12 / (4)	Operation	< 1.7	< 3.5
AVM322S	6 / (4)	Standstill *	< 0.45	
		Sizing		≥ 4.5

*) Standstill = actuator in the end position, voltage applied to terminal 1 or 2, motor switched off.

CE Conformity

EMC Directive 2004/108/EC
EN 61000-6-1
EN 61000-6-2
EN 61000-6-3
EN 61000-6-4
Low-voltage Directive 2006/95/EC
EN 60730-1
EN 60730-2-14
Over-voltage category III
Degree of contamination II
Maximum altitude. 2000 m
Machinery Directive 2006/42/EC in accordance with Annex II B
EN 12100

Accessories

Type	Description
1-0152285	Temperature adaptor for media temperature > 100 °C ... 240 °C
1-0152313*	4...20 mA feedback module
1-0152315*	Constant power supply module for 85...265Vac 50/60Hz
1-0152665	Adjustable valve adaptor for for AVM322 and Clorius Controls valves DN15-150
1-xxxx	Valve adaptor for for AVM321 and Clorius Controls valves DN15-25
	Cable glands M20×1.5

*) Dimension drawing or connection diagram is available under the same number



GB Product Data Sheet

AVF234S: 2000N Actuator with analog SUT positioner and spring return

Areas of use

For use with two or three-way. For controllers with continuous output (0...10 V or 4...20 mA) or switching output (2-point or 3-point control). For applications where a fail-safe function is required.



How energy efficiency is improved

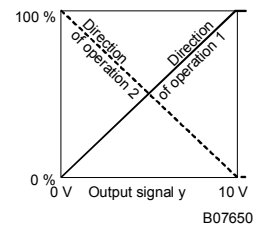
Automatic adaptation to valve, precision control and high energy efficiency with minimal operating noise.

Features

- Actuator with spring return action and pushing force of at least 2000 N with actuator extending or retracting spindle versions.
- Stepping motor with SUT (Superior Universal Technology) electronic control unit and electronic load-dependent cut-off
- Automatic detection of control signal applied (continuous or switching), indicated by two LEDs
- The type of characteristic (linear, quadratic or equal-percentage) can be set on the actuator
- Automatically adapts to valve stroke between 8 and 49 mm; captive even in the event of a power failure
- Direction of travel can be selected via screw terminals when making electrical connection or remotely
- Coding switches for selecting the characteristic and the running time (2, 4 or 6 s/mm)
- Lever for external manual adjustment, with motor cut-off, and for triggering a re-initialisation
- Easy assembly with valve; spindle is connected automatically when control voltage is applied
- The availability of numerous adaptors enables the actuator to be fitted to third-party valves

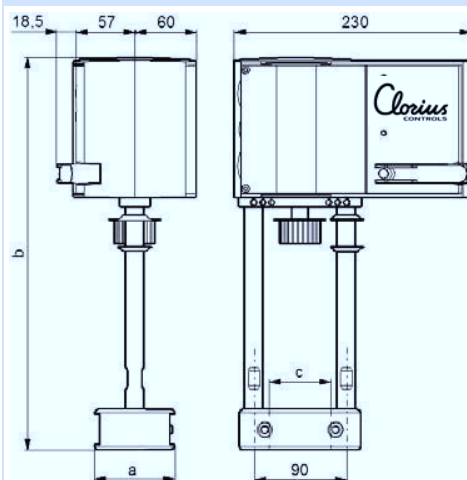
Technical description

- Power supply 230 V with modules or direct connection for 24 V~ or 24 V=; continuous activation also permissible at 230 V
- Two-part housing made of fire-retardant yellow plastic and seals to IP66
- Maintenance-free gearbox of sintered steel, gearbox plate of steel
- Patented actuator–valve coupling
- Spring assembly in stainless steel. Mounting column made of stainless steel; mounting bracket (for fitting the valve) of cast light alloy
- Electrical connections (max. 2.5 mm²) with screw terminals
- Three pre-scored cable inlets for M20×1.5 (2×) and M16×1.5
- Installation position: vertically upright to horizontal, but not upside down



Type	Positioning time (s/mm)	Nominal stroke (mm)
AVF234SK008 Actuator spindle normally retracted	2 / 4 / 6	49
AVF234SK009 Actuator spindle normally extended		

Dimension drawing



a: 64 b: 289 c:44

Technical data

Type	Run time s/mm	Stroke mm	Pushing force N	Power supply ¹⁾	Weight kg
AVF 234S K008 AVF 234S K009	2 / 4 / 6	14...49	2000	24 V~/=	5.6
Positioner: 1)					
Control signal 1	0...10 V, R _i > 100 kΩ		Starting point U ₀	0 or 10 V	
Control signal 2	4...20 mA, R _i = 50 Ω		Control span ΔU	10 V	
Position feedback signal	0...10 V, load > 2.5 kΩ (Optional: 4-20mA)		Switching range X _{sh}	300 mV	
Power supply	24 V~ ± 20%, 50...60 Hz 24 V= ± 15% with accessories 230 V~ ± 15%		Degree of protection	IP 66 (EN 60529)	
			Protection class	III (IEC 60730)	
Power consumption	10 W 18 VA 2)		Response time for 3-point	200 ms	
Stroke	8...49 mm		Manual and wiring diagram	99.70.02.02	
Number of spring returns	>40.000				
Spring return time 3)	15...30s				
Max. temperature of medium	130 °C 4)		Dimension drawing	M10356	
Permitted ambient temperature	-10...55 °C		Fitting instructions	99.70.02	
Permitted ambient humidity	< 95% rh without condensation		Material declaration	MD 51.377	

- 1) Also for 2-point or 3-point depending on the connection for 24 V~
- 2) Design the transformers for this value, otherwise functional faults may occur.
- 3) The return time corresponds to a stroke of 14 to 40mm and does not depend on the set run time
- 4) If the temperature of the medium is higher (from 130 °C to 240 °C), an adaptor is required (see accessories)

CE conformity

EMC Directive 2004/108/EC
EN 61000-6-2 *)
EN 61000-6-4

Low-Voltage Directive 2006/95/EC
EN 60730-1
EN 60730-2-14
Over-voltage category III
Degree of pollution III

Accessories

Type	Description
1-0152285	Temperature adaptor for media temperature > 130 °C ... 240 °C
1-0152287	Potentiometer 1000 Ω , 1 W, 24 V; installation as per MV 505894
1-0152289	Auxiliary change-over contacts (2 pcs. each) 12...250 V Infinitely variable, min. 100 mA and 12 V, additional load 6(2) A, MV 505866
1-0152281	230V Module, plug-in type , for 2-/3-point and continuous activation, additional power 2 VA 230 V ± 15% power supply, MV 505901
1-0152282	115 V Module, plug in type , 100V ±15%, supply voltage
1-0152627	4-20mA Position feedback signal , for 24VAC/DC, output load resistor max. 600 ohm
1-0152666	Adjustable valve adaptor Clorius Controls valves DN15-150 for AVM/AVF234
	Cable gland M20×1.5
	Cable gland M16×1.5

Clorius
CONTROLS

GB Product Data Sheet

AVM234S: 2500N Actuator with analog SUT positioner

Areas of use

For use with two or three-way. For controllers with continuous output (0...10 V or 4...20 mA) or switching output (2-point or 3-point control).

How energy efficiency is improved

Automatic adaptation to valve, precision control and high energy efficiency with minimal operating noise.

Features

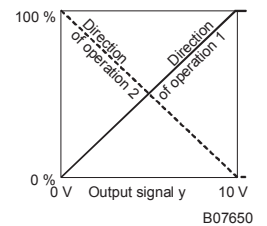
- Pushing force of at least 2500 N
- Stepping motor with SUT (Superior Universal Technology) electronic control unit and electronic load-dependent cut-off
- Automatic detection of control signal applied (continuous or switching), indicated by two LEDs
- The type of characteristic (linear, quadratic or equal-percentage) can be set on the actuator
- Automatically adapts to valve stroke between 8 and 49 mm; captive even in the event of a power failure
- Direction of travel can be selected via screw terminals when making electrical connection or remotely
- Coding switches for selecting the characteristic and the running time (2, 4 or 6 s/mm)
- Lever for external manual adjustment, with motor cut-off, and for triggering a re-initialisation
- Easy assembly with valve; spindle is connected automatically when control voltage is applied
- The availability of numerous adaptors enables the actuator to be fitted to third-party valves



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Technical description

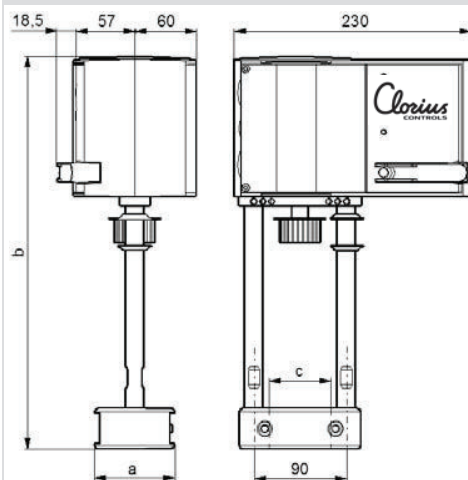
- Power supply 230 V with modules or direct connection for 24 V~ or 24 V=; continuous activation also permissible at 230 V
- Two-part housing made of fire-retardant yellow plastic and seals to IP66
- Maintenance-free gearbox of sintered steel, gearbox plate of steel
- Patented actuator–valve coupling
- Mounting column made of stainless steel; mounting bracket (for fitting the valve) of cast light alloy
- Electrical connections (max. 2.5 mm²) with screw terminals
- Three pre-scored cable inlets for M20×1.5 (2×) and M16×1.5
- Installation position: vertically upright to horizontal, but not upside down



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Type	Positioning time (s/mm)	Nominal stroke (mm)
AVM234SK002	2 / 4 / 6	49

Dimension drawing



a: 64 b: 289 c:44

Technical data

Type	Run time s/mm	Stroke mm	Pushing force N	Power supply ¹⁾	Weight kg
AVM 234S K002	2 / 4 / 6	14...40	2500	24 V~/=	4.1

Positioner: ¹⁾					
Control signal 1	0...10 V, R _i > 100 kΩ		Starting point U ₀	0 or 10 V	
Control signal 2	4...20 mA, R _i = 50 Ω		Control span ΔU	10 V	
Position feedback signal	0...10 V, load > 2.5 kΩ		Switching range X _{Sh}	300 mV	
Power supply	24 V~	± 20%, 50...60 Hz	Degree of protection	IP 66 (EN 60529)	
	24 V=	± 15%	Protection class	III (IEC 60730)	
with accessories	230 V~	± 15%	Response time for 3-point	200 ms	
Power consumption	10 W 18 VA ²⁾		Wiring diagram	A10357	
Stroke	8...49 mm		Dimension drawing	M10356	
Max. temperature of medium	130 °C ³⁾		Fitting instructions	99.70.01	
Permitted ambient temperature	-10...55 °C		Material declaration	MD 51.377	
Permitted ambient humidity	< 95% rh without condensation				

1) Also for 2-point or 3-point depending on the connection for 24 V~

2) Design the transformers for this value, otherwise functional faults may occur.

3) If the temperature of the medium is higher (from 130 °C to 240 °C), an adaptor is required (see accessories)

CE conformity

EMC Directive 2004/108/EC
EN 61000-6-2 ^{*)}
EN 61000-6-4

Low-Voltage Directive 2006/95/EC
EN 60730-1
EN 60730-2-14
Over-voltage category III
Degree of pollution III

Accessories

Type	Description
1-0152285	Temperature adaptor for media temperature > 130 °C ... 240 °C
1-0152287	Potentiometer 1000 Ω , 1 W, 24 V; installation as per MV 505894
1-0152289	Auxiliary change-over contacts (2 pcs. each) 12...250 V Infinitely variable, min. 100 mA and 12 V, additional load 6(2) A, MV 505866
1-0152281	230V Module, plug-in type , for 2-/3-point and continuous activation, additional power 2 VA 230 V ± 15% power supply, MV 505901
1-0152282	115 V Module, plug in type , 100V ±15%, supply voltage
1-0152627	4-20mA Position feedback signal , for 24VAC/DC, output load resistor max. 600 ohm
1-0152666	Adjustable valve adaptor Clorius Controls valves DN15-150 for AVM/AVF234
	Cable gland M20×1.5
	Cable gland M16×1.5

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