

ASM105S, 115S: Fast-action damper drive with SAUTER Universal Technology (SUT)

How energy efficiency is improved

Accurate control and electronic cut-off for efficient use of energy.

Areas of application

For controllers with continuous (0...10 V or 4...20 mA) or switched output (2- or 3-point control). For activating air, shut-off, restrictor and multi-slat dampers

Features

- 5 Nm or 10 Nm of torque and holding torque
- 3 s running time for 90° with 5 Nm, or 6 s running time with 10 Nm
- 24 V~/=
- Signal input 0...10 V or 4...20 mA
- Direction of rotation is selected via DIP switches \cup and \cup
- Pulse length can be altered in 3-point mode, i.e. internal modification of the start-up time
- Degree of protection IP 54
- Self-centring spindle adaptor
- Transmission can be disengaged in order to position the damper or to make manual adjustments
- Brushless motor with electronic control and electronic cut-off
- Maintenance-free
- Intelligent adaptation of the angle of rotation, including adaptation of the feedback
- Electronically cuts out, depending on load
- Freely configurable using the CASE Drives PC tool



T11061

Technical description

- Housing made of fire-retardant plastic, lower section black and upper section yellow
- Power cable 1.2 m long, 6 x 0.5 mm²
- Fitting: upright or horizontal, but not upside down

Products

Type	Torque/holding torque ¹⁾ in operation (Nm)	Running time for 90° (s)	Characteristic	Power supply	Weight (kg)
ASM105SF152	5	3	linear	24 V~/=	0.7
ASM115SF152	10	6	linear	24 V~/=	0.7

Technical data

Electrical supply

Power supply	24 V~ ± 20%, 50...60 Hz	
	24 V= +20%, -10%	
Power consumption (at nominal voltage)		
ASM105SF152	6.0 W	8.5 VA
ASM115SF152	6.5 W	9.0 VA

Version

Angle of rotation	90° 2)
Permissible damper spindle	Ø 8...16 mm
Permissible damper spindle (hardness)	max. 300 HV
Noise during operation (not under load)	< 49 dB (A)
Response time ³⁾ electr. compensated	10 ms
Positioner ¹⁾	
Control signal y	0...10 V or 2...10 V, R _i = 100 kΩ
Control signal y	0...20 mA or 4...20 mA, R _i = 500 Ω
Positional feedback y ₀	0...10 V, load > 10 kΩ
Starting point U ₀	0 or 10 V (or 2 or 10 V)
Starting point I ₀	0 or 20 mA (or 4 or 20 mA)
Control span ΔU	10 V
Switching range .Xsh	100 mV

1) When the actuator is without power, the holding torque is typically 1.5 Nm

2) Also applies to 2- or 3-point, depending on type of connection

3) Maximum angle of rotation 95° (without damper end stops)

Version (continued)

Control span ΔI	20 mA
Switching range .Xsh	0.1 mA

Permitted ambient conditions

Operating temperature	-20...55 °C
Storage and transport temperature	-30...65 °C
Humidity	5...85% rh
	no condensation

Installation

Dimensions W x H x D (mm)	70 x 63 x 133
Weight (kg)	0.7

Standards, guidelines and directives

Degree of protection (horizontal)	IP 54 (EN 60529)
Protection class	III (EN 60730)

Additional information

Fitting instructions	MV P100004172
Material declaration	MD 51.042
Dimension drawing	M11455
Wiring diagram	A10618

Accessories

Type	Description
0313529001*	Split-range unit for setting sequences; to be fitted in separate distribution box as per MV 505671
0372459102*	External circuit, 24 V versions, for parallel operation with ASM/AVM105, 115 or actuators with end switch, including distribution box; MV 506102
0361977002	Assembly kit for MH32/MH42 control valve; MV 505840
0372300001	Anti-torsion device, long (230 mm)
0372301001	Shaft adaptor for squared end (□ 15 mm), hollow profile (pack of 10)
0372462001	CASE Drives PC tool for configuring actuators by computer; MV 506101

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

Operation

Depending on how it is connected (see wiring diagram), the actuator can be used as a continuous 0...10 V or 4...20mA, as a 2-point (open/close) or as a 3-point drive (open/stop/close) with intermediate position.

Manual adjustment is achieved by de-coupling the transmission (by pressing the button next to the power cable and moving the spindle adaptor at the same time).

Pulse length adjustment

This adjustment guarantees that the actuator, when in 3-point mode, carries out the positioning command in full, which makes it unnecessary to calculate the response time in the control system.

Connected as a 2-point control unit using the 6-core power cable

This open/close activation is effected via the shift cable for the preferred direction. Power is applied to the drive via the power supply cable and the wires for the direction of rotation, MM, LS and O1. The wires LS and O1 are connected together. The drive moves in a clockwise direction (looking from the drive to the spindle adaptor) to end position 1 (clockwise direction to 100% angle of rotation). If power is also applied to cable O2, the drive turns in an anti-clockwise direction to end position 2 (anti-clockwise direction to 0% angle of rotation). When power at cable O2 is switched off, the drive moves back to end position 1 (clockwise direction to 100% angle of rotation). In the end positions (the stop on the damper, the stop due to the rotation-angle limiter, or on reaching the maximum angle of rotation of 95°) or in the event of an overload, the electronic motor cut-out is activated (no end switches).

The direction of rotation is set using DIP switch 1. If this is left in position 0, the drive behaves as described above. If the DIP switch is set to position 1, the end positions are transposed, i.e. end position 1 becomes end position 2 and vice versa.

The unused wires should not be connected and should not come into contact with other wires. For these reasons, they should be insulated separately.

Connected as a 3-point control unit using the 6-core power cable

The actuator is connected to the power supply using the MM and LS wires; by connecting power to the wires O1 or O2, the damper drive can be moved to any position. Angle of rotation (as viewed from the drive towards the spindle adaptor):

- The spindle adaptor turns in an anti-clockwise direction if power is applied to wire O1.
- The spindle adaptor turns in a clockwise direction if power is applied to wire O2.

In the end positions (the stop on the damper, the stop due to the rotation-angle limiter, or on reaching the maximum angle of rotation of 95°) or in the event of an overload, the electronic motor cut-out is activated (no end switches). The direction of rotation can be changed by transposing the connections.

The direction of rotation can be set using DIP switch 1; if this is left in position 0, the drive behaves as described above. If the DIP switch is set to position 1, the end positions are transposed, i.e. end position 1 becomes end position 2 and vice versa.

The unused wires should not be connected and should not come into contact with other wires. For these reasons, they should be insulated separately.

Connection for control voltage 0...10 V or 4...20 mA

The in-built positioner controls the drive as a function of the controller's positioning signal y.

Angle of rotation (as viewed from the drive towards the spindle adaptor):

Direction of action 1:

The spindle adaptor turns in a clockwise direction as the positioning signal rises.

Direction of action 2:

The spindle adaptor turns in an anti-clockwise direction as the positioning signal rises.

The starting point and the control span are both pre-set.

Initialisation and feedback signal

The drive initialises itself automatically when it is connected to the power. When power is applied for the first time, the drive moves to the first stop. Then the drive moves to the second stop, determines the value via a path-measuring system and stores the value. The control signal and the feedback are matched to this actual path. If there is a power failure, no re-initialisation is necessary. The values are stored.

In order for the drive to be re-initialised, it must have power applied to it. An initialisation is started by using the manual adjuster twice within a period of 4 s.

During initialisation, the feedback signal is active and equals the input voltage. The re-initialisation does not take effect until the whole procedure has been completed. To interrupt the procedure, simply use the manual adjuster again.

If the drive detects that a blockage has occurred, it reports it by setting the feedback signal to 0 V after about 90 s. However, the drive tries to overcome the blockage during this time. If the blockage can be overcome, the normal control function is re-activated and the feedback signal is re-stated.

The same initialisation is carried out in a 2- or 3-point control system. The feedback signal is then active again.

If the control signal (0...10 V) is interrupted and direction of operation 1 is set via DIP switch 1, the drive turns in an anti-clockwise direction to the 0% position.

ASM105S, 115S

If the control signal (0...10 V) is interrupted and direction of operation 2 is set via DIP switch 1, the drive turns in a clockwise direction to the 100% position.

Coding switches

ASM105SF152 90° ASM115SF152 90°	S1	S2	S3
	Direction of operation	Choice of voltage or current	Raise operating range
Direction of action 1	Off		
Direction of action 2	On		
Input 03 Voltage 0 (2)...10 V		Off	
Input 03 Current 0 (4)...20 mA		On	
Voltage 0 V / Current 0 mA			Off
Voltage 2 V / Current 4 mA			On

CASE Drives PC tool (accessory 0372462001)

CASE Drives enables all the drive's parameters to be set and viewed on site. Connection is via a serial port on the PC (laptop) and a socket on the drive. The set comprises: software including installation and operating instructions, fitting instructions, connectors, cable (1.2 m in length) and an interface converter for the PC. The application is designed for commissioning and service technicians and for experienced users.

Split-range unit (accessory 0361529001)

The starting point U_0 and the control span ΔU can be set using the potentiometer. This makes it possible to activate several regulating units in sequence or in cascade using the controller's control signal. The input signal (partial range) is amplified into an output signal of 0...10 V. This accessory cannot be fitted in the drive, but should be located externally in an electric distribution box.

Engineering and fitting notes

The combination of d.c. motor and electronics unit allows several air dampers with different torque levels to be run in parallel, if drives of the same SUT type are used. It can be put directly onto the damper shaft and clipped onto the anti-torsion device. The self-centring spindle adaptor ensures that the damper spindles are operated smoothly. The damper drive can easily be removed from the damper spindle without having to take off the anti-torsion device.

The coding switches are accessible via a prepared opening with a black plastic pin in the housing cover.

Note

Disconnect the power supply before removing the plastic pin.

The angle of rotation can be limited between 0 and 90°, and set anywhere between 5° and 80°. The limit is set by means of a screw on the drive itself and with the stop on the self-centring spindle adaptor. The spindle adaptor is suitable for damper spindles of $\varnothing 8...16$ mm, $\square 6.5...12.7$ mm.

Note

The housing should not be opened.

Outdoor installation

If the devices are fitted outdoors, we recommend that additional measures be taken to protect them against the effects of the weather.

Additional technical data

The upper part of the housing contains the d.c. motor and the SUT-II electronics unit. The lower part contains the maintenance-free transmission, the gear-release lever and the spindle adaptor.

Power consumption at nominal voltage

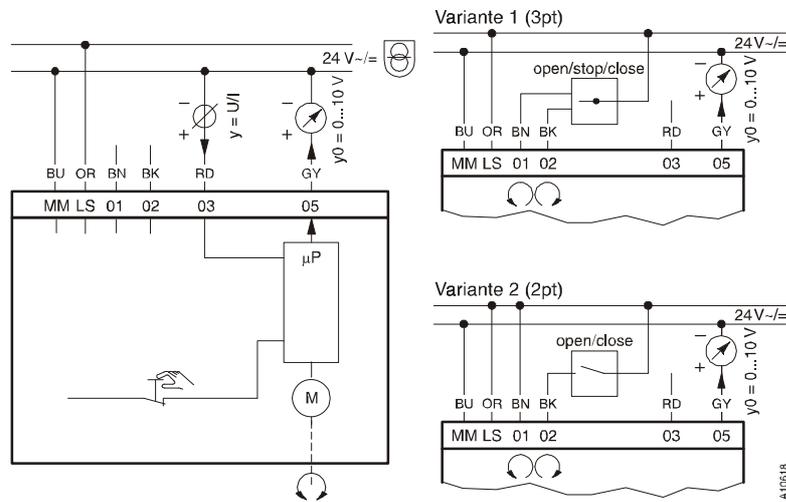
Type	Running time (s)	Status	Actual power P (W)	Apparent power S (VA)
ASM105SF152	3	in operation	6	
	3	standstill*	1	
		sizing		8.5
ASM115SF152	6	in operation	6.5	
	6	standstill*	1	
		sizing		9

*) not under load

CE conformity

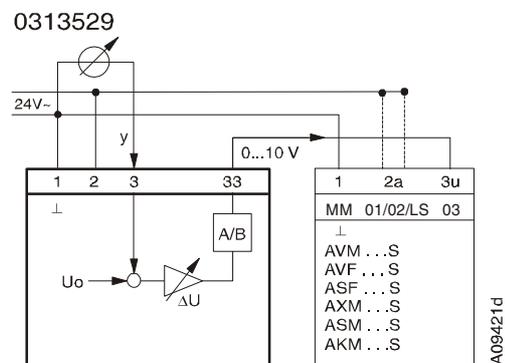
EMC Directive 2004/108/EC
EN 61000-6-1
EN 61000-6-2
EN 61000-6-3
EN 61000-6-4

Wiring diagram



MM	LS	01	02	03	05
BU	OR	BN	BK	RD	GY
Blau	Orange	Braun	Schwarz	Rot	Grau
Blue	Orange	Brown	Black	Red	Grey
Bleu	Orange	Brun	Noir	Rouge	Gris

Accessories
0313529



Dimension drawing

