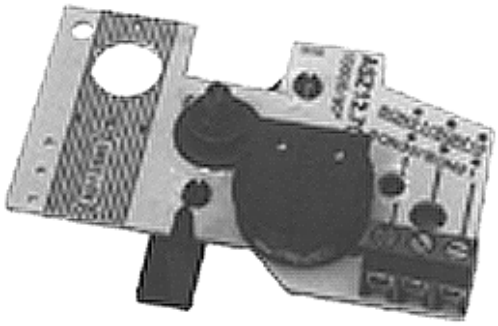
SIEMENS

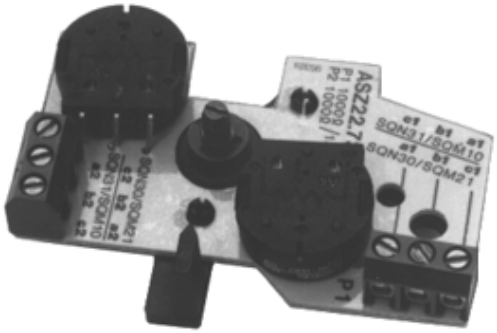
7921

ISO 9001

ASZxx.7xx or ASZxx.8xx



Single potentiometer



Double potentiometer

ASZxx.3x

Single or double potentiometer

Potentiometers ASZ...

For integration into actuators type SQM... and SQN... to indicate the position of the actuator's drive shaft.
Single and double potentiometers in wire or conductive plastic design.

The ASZ... and this Data Sheet are intended for use by OEMs which integrate the potentiometers in their products.

Use

The potentiometers are designed for fitting to the drive shafts of actuators type SQM... and SQN....
They can be used for both position indication and position feedback (position check-back signal).
The wire potentiometers are suited for general use.
For use with actuators in combination with electronic air / fuel ratio control systems RVW20... or actuators SQM5... together with electronic function modules AGA56..., conductive plastic potentiometers are mandatory (extended life and better resolution).

Warning notes

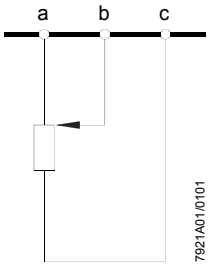
To avoid injury to persons, damage to property or the environment, the following warning notes should be observed.

Do not interfere with or modify the potentiometers!

- Before performing any wiring changes in the connection area, completely isolate the actuator from the mains supply (all-polar disconnection)
- Ensure protection against electric shock hazard by providing adequate protection for the connection terminals
- Check wiring and all safety functions
- After fall or shock, the potentiometers may not be put into operation because safety functions can be adversely affected, even if the potentiometers do not exhibit any damage

Planning notes

Connection diagram



Potentiometer shown in start position

Terminal markings:
a = pickup at end of potentiometer
b = potentiometer wiper
c = pickup at end of potentiometer

Apply operating voltage to **«a»** and **«c»**.
Conductive plastic potentiometers can be destroyed if operating voltage is applied to **«a → b»** or **«b → c»**.

Mounting notes

Ensure that the relevant national safety regulations are complied with.

Installation notes

Installation work must be carried out by qualified staff.

Commissioning notes

Commissioning and maintenance work must be carried out by qualified staff.

Disposal notes

The potentiometers contain electrical and electronic components and may not be disposed of together with as household garbage.
Ensure that local and currently valid legislation is observed.

Mechanical design

The potentiometers consist of a wire or conductive plastic resistance track and are accommodated in a dust-proof casing on a printed circuit board.
The electrical connections are made via triple-pole screw terminal strips.
The potentiometers have no mechanical limitation of the angular rotation.

The movement from the actuator's drive shaft to the potentiometer's spindle is transferred as follows:

- With ASZxx.7xx and ASZxx.8xx:
  - Rigid, by means of a clamp sitting directly on the drive shaft
  - With almost no mechanical and hysteresis via plastic gearwheels
- With ASZxx.3x:
  - Rigid, by means of a clamp sitting directly on the drive shaft

Type summary

Single potentiometers

			For actuators	
			SQN3... [2], **SQN4...**, **SQM1...**, **SQM2...**, **SQM5...**, **SQN9...** [3]	**SQN7...** [4] with connection diagram no. 6
Material	**Angular rotation**	**Resistance**	**Type reference**	**Type reference**
Wire	90°	135 Ω	**ASZ16.703**	---
		220 Ω	**ASZ8.703**	---
		1000 Ω	**ASZ12.703**	---
	135°	135 Ω	**ASZ16.733** [1]	---
		220 Ω	**ASZ8.733**	---
		1000 Ω	**ASZ12.733**	---
Conductive plastic	90°	1000 Ω	**ASZ12.803**	**ASZ12.30**
	135°	1000 Ω	**ASZ12.833**	**ASZ12.33**

Double potentiometers

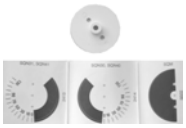
Material	**Angular rotation**	**Resistance**	**Type reference**	**Type reference**
Wire	90°	2 x 1000 Ω	**ASZ22.703**	---
	135°	2 x 135 Ω	**ASZ66.733** [1]	---
		2 x 220 Ω	**ASZ88.733** [1]	---
		1000 / 220 Ω	**ASZ82.733** [1]	---
		2 x 1000 Ω	**ASZ22.733**	---
Conductive plastic	90°	2 x 1000 Ω	**ASZ22.803**	**ASZ22.30**
	135°	2 x 1000 Ω	**ASZ22.833**	**ASZ22.33**
Wire / conductive plastic	90°	1000 / 1000 Ω	**ASZ22.903**	---

[1]) Only available on request
[2]) Only with high cover (refer to Data Sheet 7808, under «Accessories»)
[3]) Refer to «Accessories»
[4]) For use with SQN70... / SQN71... in preparation

Accessories

Conversion kit **AGA32**

- For retrofitting potentiometer ASZ...7... or ASZ...8... to SQN3... / SQN4... (conversion from low to high housing cover)



Service kit **AGA33**

(only for ASZxx.7xx and ASZxx.8xx)

- For use with SQM... / SQN...
- For replacement of potentiometer old / new in case of failure or replacement of former potentiometer

Potentiometer fixing **AGA09**

(only for ASZxx.7xx and ASZxx.8xx)

- For use with SQN9...

Ordering

When ordering, please give type reference according to “Type summary”.

Technical data

General unit data

Type of potentiometer	ASZxx.7xx ASZxx.8xx	ASZxx.3x
Operating voltage	DC 10 V	DC 10 V
Permissible hysteresis	0.2 % of 90° or 135°	0.3 % of 90° or 135°
Total resistance tolerance	±20 %	±20 %
Mechanical angular rotation	360°, with no limit stops	360°, with no limit stops
Effective angular rotation	90° or 135°	90° or 135°
Total resistance (Rges) at		
- < 0°	infinite	infinite
- > 90° or >135°	infinite	infinite
Terminal strip	triple-pole	triple-pole
For cross-sectional areas of	0.5...1 mm²	0.5...1 mm²
Adjusting torque of potentiometer	≤ 0.025 Nm	≤ 0.04 Nm
Mounting position	optional	optional
Weight		
- Single potentiometer	approx. 27 g	approx. 15 g
- Double potentiometer	approx. 41 g	approx. 20 g

Norms and standards

Environmental conditions		
Transport	IEC 60721-3-2	IEC 60721-3-2
Climatic conditions	class 2K2	class 2K2
Mechanical conditions	class 2M2	class 2M2
Temperature range	-50...+75 °C	-50...+75 °C
Operation	IEC 60721-3-3	IEC 60721-3-3
Climatic conditions	class 3K5	class 3K5
Mechanical conditions	class 3M2	class 3M2
Temperature range	-20...+70 °C	-20...+70 °C

⚠ **Condensation, formation of ice and ingress of water are not permitted!**

Wire potentiometers

Load	max. 1 W at 70 °C	
Wiper current rating	min. 1 mA, max. 100 mA	
Transfer resistance (Rü) of wiper contact	Rü ≤ 2 % of Rges at 1 mA	
Life	approx. 250,000 switching cycles	

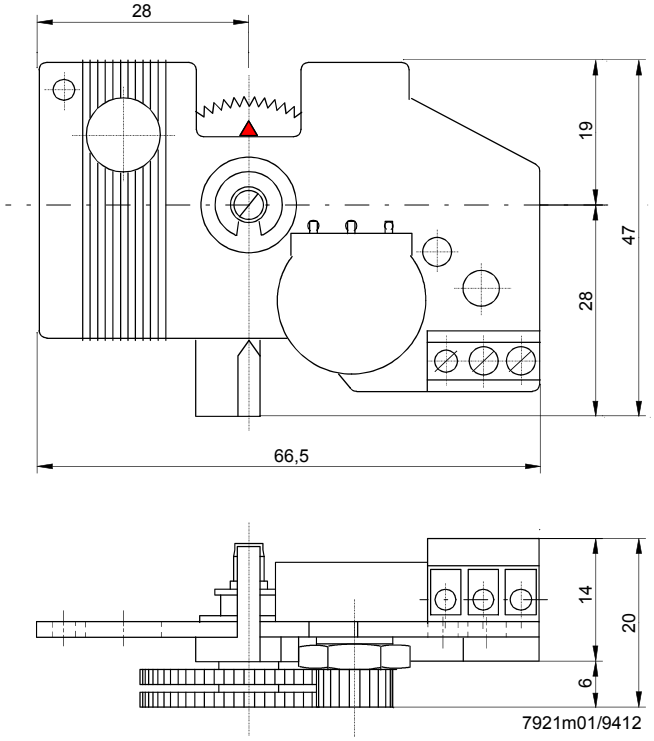
Conductive plastic potentiometer

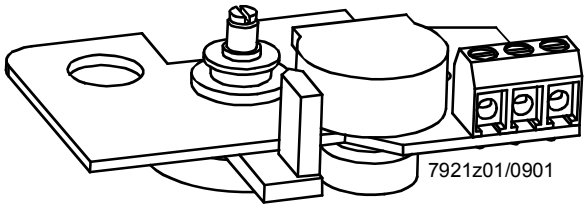
Wiper current rating	max. 100 µA	max. 100 µA
Transfer resistance of wiper contact	max. Rü ≤ 100 Ω	max. Rü ≤ 500 Ω
Linearity (referred to Rges = 1000 Ω)	±1 %	±1 %
Smoothness (alpha = 10°)	< 0.1 %	±0.5 %
Life	approx. 2 million switching cycles	approx. 2 million switching cycles

Dimensions

Dimensions in mm

ASZxx.7xx /
ASZxx.8xx





ASZxx.3x