

POTENTIOMETERS

FSG- AND SYNCHRO DESIGNS



MAXIMUM PERFORMANCE IN SERIES

OUR POTENTIOMETER PORTFOLIO

FSG's potentiometer series are characterised by their high precision, flexible design and versatility and, depending on the application and design – **Made in Germany.**

2 MAXIMUM FLEXIBILITY

- Potentiometer with oil filling
- Function windings, e.g. sin/cos or 360° sawtooth course
- Axis on both sides
- Special circuits available
- Multiple versions possible
- Clamp or central fastening

3 POSSIBLE APPLICATIONS

- In traction and brake actuators for railway vehicles and in command transmitters for ships
- In rudder and propeller systems for ships
- In actuators for power stations and chemical plants
- In slewing and lifting gear for cranes and excavators
- In wind vanes for meteorological measuring tasks
- As dancer potentiometers in textile and paper machines
- For many measuring tasks in mechanical engineering and medical technology.

4 MAXIMUM COMPATIBILITY

- Housing diameter 22–70 mm
- Angle range any up to max. 360°
- Resistance value up to max. 100 kΩ

1 MAXIMUM FUNCTIONALITY

- Wire winding / conductive plastic element
- Angle limiting or spinning
- Shaft diameter 3 / 6 mm



Electrical and mechanical adaptations are also possible for **small** quantities at any time on request.





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POTENTIOMETERS

with WIRE WINDING in Synchro Design

PW609dy
PW611
PW613
PW620
PW1023d


100 % COMPATIBLE
to synchro designs
other manufacturers


TYPE OF
CONSTRUCTION
Ø 22–60 mm


FLEXIBILITY
Angles and
resistance values
freely selectable

SYNCHRO SIZE 9

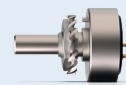
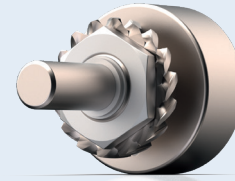
DIAMETER 22.2 mm

PW609dy

Miniature Potentiometer with Wire Winding

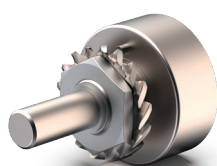
Precision potentiometers of series PW609dy are designed with a high-resolution constantan-wire winding and are suitable for measured value acquisition in small installation spaces.

- Smallest design
- Housing diameter 22.2 mm
- Central fastening



TECHNICAL DATA

| | | | |
|--------------------|-------------------------------------|-------------------------|---|
| Housing material | aluminum, anodized | Active angle | max. 340° |
| Housing diameter | 22.2 mm | Resistance values | up to 10 kΩ |
| Model | synchro size 9 | Resistance tolerance | 5 % |
| IP code | IP30 | Linearity | ±0.5 % |
| Shaft diameter | 3 / 6 mm | Resolution in turns | 1033 |
| Adjustment speed | max. 360 U/min | Capacity | 0.5 W |
| Torque | 0.03 Ncm | Temperature range | -30 °C up to +80 °C |
| Execution | up to three times | Temperature coefficient | 0.0017 % / °C |
| Connection | faston plug / solder-type terminals | Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Fastening | central fixing | Vibration* | 5–200 Hz, 10 g |
| Resistance element | caterpillar | Shock* | 50 g, 6 ms |



You can find all data sheets on www.fsg-sensors.de.

*Depending on customer specifications.



SYNCHRO SIZE 11

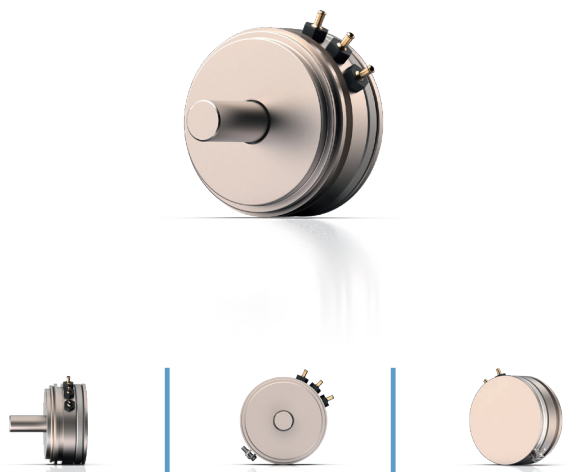
DIAMETER 28 mm

PW611

Precision Potentiometer with Wire Winding

The precision potentiometer of the PW611 series is equipped with a high-resolution wire winding.

The angle and resistance value can be specified by the user as desired and can also be supplemented by additional short-circuit distances and taps on request.



- Compact design in synchro size 11
- Resistance value and angle range can be set as desired
- Angle measurement up to max. 340°

TECHNICAL DATA

| | | | |
|--------------------|-------------------------------------|-------------------------|---|
| Housing material | aluminum, anodized | Active angle | max. 340° |
| Housing diameter | 28 mm | Resistance values | up to 10 kΩ |
| Model | synchro size 11 | Resistance tolerance | 5 % |
| IP code | IP30 | Linearity | ±0.5 % |
| Shaft diameter | 6 mm | Resolution in turns | 1369 |
| Adjustment speed | max. 360 U/min | Capacity | 0.5 W |
| Torque | 0.04 Ncm | Temperature range | -30 °C up to +80 °C |
| Execution | triple | Temperature coefficient | 0,0017 % / °C |
| Connection | faston plug / solder-type terminals | Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Fastening | clamp fixing with synchro flange | Vibration* | 5–200 Hz, 10 g |
| Resistance element | caterpillar | Shock* | 50 g, 6 ms |

*Depending on customer specifications.

available in following VERSIONS



| Type designation | Shaft bearing | Wiper without limit stops |
|------------------|-------------------|------------------------------|
| PW611-15d | ball-bearing | for adjustment purposes only |
| PW611-16d | sintered bearings | for adjustment purposes only |

You can find all data sheets on www.fsg-sensors.de.

SYNCHRO SIZE 13

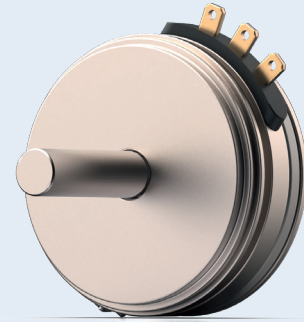
DIAMETER 36.5 mm

PW613

Precision Potentiometer with Wire Winding

The precision potentiometer of series PW613 is equipped with a high-resolution wire winding.

The angle and resistance value can be specified by the user as desired and can also be supplemented by additional short-circuit distances and taps on request.



- Compact design in synchro size 13
- Angle measurement up to max. 360°

TECHNICAL DATA

| | | | |
|--------------------|-------------------------------------|-------------------------|---|
| Housing material | aluminum, anodized | Active angle | max. 345° / 360° |
| Housing diameter | 36,5 mm | Resistance values | up to 20 kΩ |
| Model | synchro size 13 | Resistance tolerance | 5 % / 2 % |
| IP code | IP30 | Linearity | ±0,2 % |
| Shaft diameter | 6 mm | Resolution in turns | 1851 |
| Adjustment speed | max. 360 U/min | Capacity | 1 W |
| Torque | 0,05 Ncm | Temperature range | -30 °C up to +80 °C |
| Execution | sixfold | Temperature coefficient | 0,0017 % / °C |
| Connection | faston plug / solder-type terminals | Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Fastening | clamp fixing with synchro flange | Vibration* | 5–200 Hz, 10 g |
| Resistance element | caterpillar / ring | Shock* | 50 g, 6 ms |

available in following
VERSIONS



| Type designation | Shaft bearing | Resistance element | Wiper without limit stops |
|------------------|-------------------|--------------------|---------------------------|
| PW613-15 | ball-bearing | caterpillar | no |
| PW613-15d | ball-bearing | caterpillar | yes |
| PW613-16 | sintered bearings | caterpillar | no |
| PW613-16d | sintered bearings | caterpillar | yes |
| PW613-18 | ball-bearing | ring | no |
| PW613-18d | ball-bearing | ring | yes |

You can find all data sheets on www.fsg-sensors.de.

*Depending on customer specifications.



SYNCHRO SIZE 20 DIAMETER 50.8 mm

PW620

Precision Potentiometer with Wire Winding

The precision potentiometer of series PW620 is equipped with a high-resolution wire winding.

The angle and resistance value can be specified by the user as desired and can also be supplemented by additional short-circuit distances and taps on request.



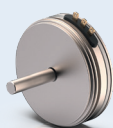
- Compact design in synchro size 20
- Resistance value and angle range can be set as required
- Angle measurement up to max. 360°
- Available with two switches

TECHNICAL DATA

| | | | |
|--------------------|-------------------------------------|-------------------------|---|
| Housing material | aluminum, anodized | Active angle | max. 345° / 360° |
| Housing diameter | 50.8 mm | Resistance values | to 20 kΩ |
| Model | synchro size 20 | Resistance tolerance | 5 % / 2 % |
| IP code | IP30 | Linearity | ±0.2 % |
| Shaft diameter | 6 mm | Resolution in turns | 3434 |
| Adjustment speed | max. 360 U/min | Capacity | 1 W |
| Torque | 0.05 Ncm | Temperature range | -30 °C to +80 °C |
| Execution | sixfold | Temperature coefficient | 0.00 17 % / °C |
| Connection | faston plug / solder-type terminals | Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Fastening | clamp fixing with synchro flange | Vibration* | 5–200 Hz, 10 g |
| Resistance element | caterpillar / ring | Shock* | 50 g, 6 ms |

*Depending on customer specifications.

available in following VERSIONS



| Type designation | Shaft bearing | Resistance element | Wiper without limit stops |
|------------------|-------------------|--------------------|---------------------------|
| PW620-15 | ball-bearing | caterpillar | no |
| PW620-15d | ball-bearing | caterpillar | yes |
| PW620-16 | sintered bearings | caterpillar | no |
| PW620-16d | sintered bearings | caterpillar | yes |
| PW620-18 | ball-bearing | ring | no |
| PW620-18d | ball-bearing | ring | yes |

You can find all data sheets on www.fsg-sensors.de.

SYNCHRO SIZE 23

DIAMETER 60 mm

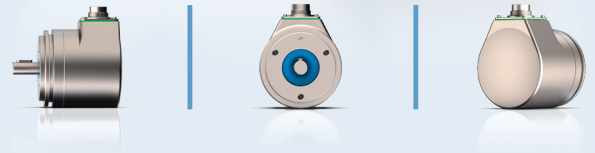
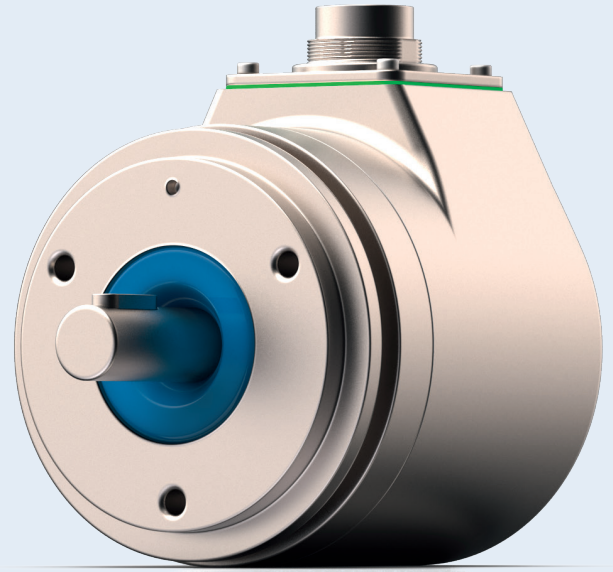
PW1023d

Robust Precision Potentiometer with Wire Winding

The precision potentiometer of series PW1023 is equipped with a high-resolution wire winding.

The angle and resistance value can be specified by the user as desired and can also be supplemented by additional short-circuit distances and taps on request.

- Robust design in synchro size 23
- Resistance value and angle range can be set as required
- Angle measurement up to max. 360°



TECHNICAL DATA

| | |
|------------------|--|
| Housing material | aluminum, anodized |
| Housing diameter | 60 mm |
| Model | synchro size 23 |
| IP code | IP65 |
| Shaft diameter | 10 mm |
| Adjustment speed | max. 360 U/min |
| Torque | 2.5 Ncm |
| Execution | twice |
| Connection | connector / cable |
| Fastening | clamp fixing with synchro flange and 3x M4 to TK 42 mm |


| | |
|-------------------------|---|
| Resistance element | ring |
| Active angle | max. 360° |
| Resistance values | to 20 kΩ |
| Resistance tolerance | 2 % |
| Linearity | ±0,2 % |
| Resolution in turns | 2321 |
| Capacity | 2.5 W |
| Temperature range | -30 °C to +80 °C |
| Temperature coefficient | 0,0017 % / °C |
| Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Vibration* | 5–200 Hz, 10 g |
| Shock* | 50 g, 6 ms |

You can find all data sheets on www.fsg-sensors.de.

*Depending on customer specifications.

POTENTIOMETERS with WIRE WINDING in FSG-Design

PW0045y
PW45
PW45W10
PW55-01
PW70


TYPE OF
CONSTRUCTION
Ø 45-70 mm


FLEXIBILITY
**for all angle /
resistance values**

FSG-DESIGN

DIAMETER 45 mm

PW0045y

Low-cost Precision Potentiometer with Wire Winding

The precision potentiometer of series PW0045 is equipped with a high-resolution wire winding.

The angle range is fixed at 280° and 345°, only the resistance value can be specified by the user as desired and can also be supplemented by additional short-circuit distances and taps on request.



- Low-cost potentiometer
- Light plastic housing
- Angle measurement for 280° or 345°



TECHNICAL DATA

| | | | |
|--------------------|--------------------------------------|-------------------------|---|
| Housing material | thermoplastic | Active angle | max. 280° / 345° |
| Housing diameter | 45 mm | Resistance values | to 25 kΩ |
| Model | FSG-design | Resistance tolerance | 5 % |
| IP code | IP30 | Linearity | ±0.5 % |
| Shaft diameter | 6 mm | Resolution in turns | 2312 |
| Adjustment speed | max. 60 U/min | Capacity | 1.5 W |
| Torque | 0.5 Ncm / 5 Ncm | Temperature range | -30 °C to +80 °C |
| Execution | simple | Temperature coefficient | 0,0017 % / °C |
| Connection | solder-type terminals | Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Fastening | central fixing / threaded hole 2x M4 | Vibration* | 5–200 Hz, 10 g |
| Resistance element | caterpillar | Shock* | 50 g, 6 ms |

available in following VERSIONS



| Type designation | Torque |
|------------------|-------------|
| PW0045my | 0.4–0.5 Ncm |
| PW0045hy | 3–5 Ncm |

You can find all data sheets on www.fsg-sensors.de.

*Depending on customer specifications.



FSG-DESIGN

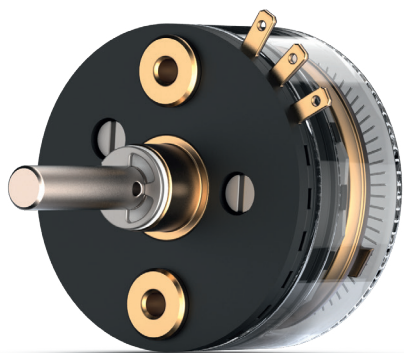
DIAMETER 45 mm

PW45

Precision Potentiometer with Wire Winding

The precision potentiometer of series PW45 is equipped with a high-resolution wire winding.

The angle and resistance value can be specified by the user as desired and can also be supplemented by additional short-circuit distances and taps on request.



- **Compact FSG-Design**
- **Resistance value and angle range can be set as required**
- **Angle measurement up to max. 360°**

TECHNICAL DATA

| | | | |
|--------------------|--------------------------------------|-------------------------|---|
| Housing material | thermoplastic | Active angle | max. 360° |
| Housing diameter | 45 mm | Resistance values | to 20 kΩ |
| Model | FSG-design | Resistance tolerance | 2 % |
| IP code | IP30 | Linearity | ±0,3 % |
| Shaft diameter | 6 mm | Resolution in turns | 2321 |
| Adjustment speed | max. 360 U/min | Capacity | 2.5 W |
| Torque | 0.3 Ncm / 3 Ncm | Temperature range | -30 °C to +80 °C |
| Execution | twice | Temperature coefficient | 0,0017 % / °C |
| Connection | screw connection / solder connection | Lifetime | 10–50 Mio. cycles <small>The lifetime depends on the application and environmental conditions.</small> |
| Fastening | threaded hole 2x M4, distance 32 mm | Vibration* | 5–200 Hz, 10 g |
| Resistance element | ring | Shock* | 50 g, 6 ms |

*Depending on customer specifications.

available in following VERSIONS



| Type designation | Torque | Wiper without limit stops |
|------------------|---------|---------------------------|
| PW45 | 3–5 Ncm | no |
| PW45d | 3–5 Ncm | yes |

You can find all data sheets on www.fsg-sensors.de.

FSG-DESIGN

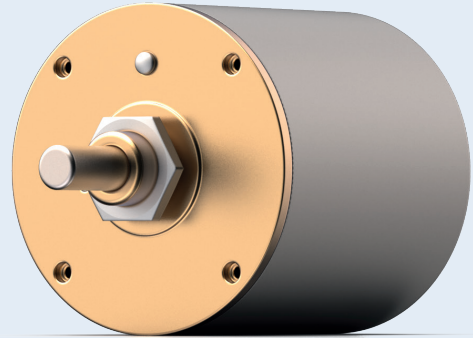
DIAMETER 45 mm

PW45W

10-turn Precision Potentiometer

The multi-turn precision potentiometer of series PW45W10 is equipped with a high-resolution wire winding and can detect up to 10 turns absolutely. The resistance value can be set by the user as desired.

- Multi-turn precision potentiometer
- Resistance value can be set as required
- Absolute angle measurement up to max. 3600°



TECHNICAL DATA

| | | | |
|--------------------|--|-------------------------|---|
| Housing material | brass / thermoplastic | Active angle | max. 1800° / 3600° |
| Housing diameter | 45 mm | Resistance values | to 25 kΩ |
| Model | FSG-design | Resistance tolerance | 5 % |
| IP code | IP30 | Linearity | ±0.1 % |
| Shaft diameter | 6 mm | Resolution in turns | 21049 |
| Adjustment speed | max. 360 U/min | Capacity | 2 W |
| Torque | 0.5 Ncm | Temperature range | -30 °C to +80 °C |
| Execution | twice | Temperature coefficient | 0,0017 % / °C |
| Connection | solder-type terminals | Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Fastening | central fixing / optional clamp fixing | Vibration* | 5–200 Hz, 10 g |
| Resistance element | caterpillar | Shock* | 50 g, 6 ms |

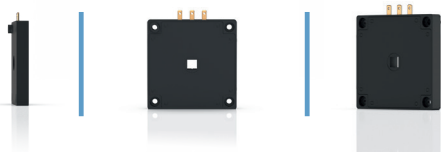
available in following
VERSIONS



| Type designation | Active angle |
|------------------|--------------|
| PW45W3 | 1800° |
| PW45W10 | 3600° |

You can find all data sheets on www.fsg-sensors.de.

*Depending on customer specifications.



FSG-DESIGN

DIAMETER 55 mm

PW55-01

Precision Potentiometer with Wire Winding in flat design

The precision potentiometer of the PW55 series is equipped with a high-resolution wire winding. The angle and resistance value can be specified by the user as desired and can also be supplemented by additional short-circuit distances and taps on request..

- Low-cost potentiometer
- Potentiometer in flat design
- Angle measurement up to max. 350°

TECHNICAL DATA

| | | | |
|--------------------|------------------------------|-------------------------|---|
| Housing material | thermoplastic | Active angle | max. 350° |
| Housing | 55 mm | Resistance values | to 20 kΩ |
| Model | FSG-design | Resistance tolerance | 5 % |
| IP code | IP30 | Linearity | ±0.5 % |
| Shaft diameter | hollow shaft 6 x 6 mm | Resolution in turns | 1620 |
| Adjustment speed | max. 60 U/min | Capacity | 1.5 W |
| Torque | 0.2 Ncm | Temperature range | -30 °C to +80 °C |
| Execution | stackable | Temperature coefficient | 0,0017 % / °C |
| Connection | faston plug | Lifetime | 10–50 Mio. cycles <small>The lifetime depends on the application and environmental conditions.</small> |
| Fastening | 4 mounting holes Ø 3.2 mm | Vibration* | 5–200 Hz, 10 g |
| Resistance element | caterpillar | Shock* | 50 g, 6 ms |

*Depending on customer specifications.

available in following
VERSIONS



| Type designation | Wiper without limit stops |
|------------------|---------------------------|
| PW55-01 | no |
| PW55-01d | yes |

You can find all data sheets on www.fsg-sensors.de.

FSG-DESIGN

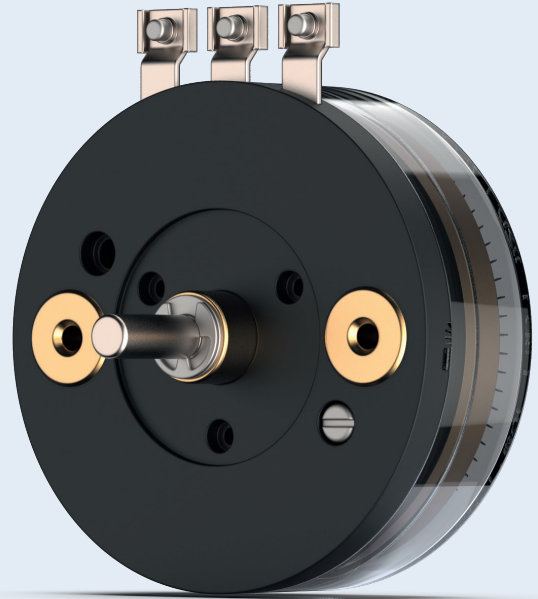
DIAMETER 70 mm

PW70

Precision Potentiometer with Wire Winding

The precision potentiometer of series PW70 is equipped with a high-resolution wire winding.

The angle and resistance value can be specified by the user as desired and can also be supplemented by additional short-circuit distances and taps on request.



- Compact FSG-Design
- Resistance value and angle range can be set as desired
- Angle measurement up to max. 360°
- Available with max. 6 switches

TECHNICAL DATA

| | |
|------------------|--|
| Housing material | thermoset |
| Housing diameter | 70 mm |
| Model | FSG-design |
| IP code | IP30 |
| Shaft diameter | 6 mm |
| Adjustment speed | max. 360 U/min |
| Torque | 0.5 Ncm |
| Execution | sixfold |
| Connection | screw connection / solder-type terminals |
| Fastening | 2x M4 at a distance of 50 mm |
| Lifetime | 10–50 Mio. cycles |

| | |
|-------------------------|---|
| Resistance element | ring |
| Active angle | max. 360° |
| Resistance values | to 50 kΩ |
| Resistance tolerance | 2 % |
| Linearity | ±0.15 % |
| Resolution in turns | 3621 |
| Capacity | 6 W |
| Temperature range | -30 °C to +80 °C |
| Temperature coefficient | 0.0017 % / °C |
| Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Vibration* | 5–200 Hz, 10 g |
| Shock* | 50 g, 6 ms |

available in following
VERSIONS



| Type designation | Wiper without limit stops |
|------------------|---------------------------|
| PW70 | no |
| PW70d | yes |

You can find all data sheets on www.fsg-sensors.de.


*Depending on customer specifications.




POTENTIOMETERS 

with
CONDUCTIVE PLASTIC
 in Synchro Design

- PK309
- PK611
- PK613
- PK620
- PK1023


 100 % COMPATIBLE
to Synchro Designs
other manufacturers


 TYPE OF
 CONSTRUCTION
Ø 22-60 mm


 FLEXIBILITY
for all angle /
resistance values

SYNCHRO SIZE 9

DIAMETER 22.2 mm

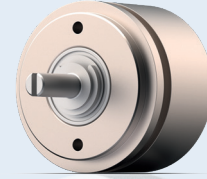
PK309

Miniature Potentiometer with Conductive Plastic Resistive Element

The precision potentiometer of series PK309 is equipped with a high-resolution resistive element of conductive plastic resistance element.

Due to its design, the sensor is particularly suitable for recording measured values in small installation spaces.

- **Smallest potentiometer design**
- **Resistance element made of high-resolution conductive plastic**
- **Angle measurement up to max. 3500°**



TECHNICAL DATA

| | | | |
|--------------------|-------------------------------------|-------------------------|---|
| Housing material | aluminum, anodized | Active angle | max. 345° |
| Housing diameter | 22.2 mm | Resistance values | to 10 kΩ |
| Model | synchro size 9 | Resistance tolerance | ±20 % |
| IP code | IP30 | Linearity | ±2 % / ±0,5% |
| Shaft diameter | 3 / 6 mm | Resolution | almost infinitely |
| Adjustment speed | max. 1000 U/min | Capacity | 0.5 W |
| Torque | 0.03 Ncm | Temperature range | -30 °C to +80 °C |
| Execution | triple | Temperature coefficient | 0.02 % / °C |
| Connection | faston plug / solder-type terminals | Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Fastening | clamp fixing with synchro flange | Vibration* | 5–200 Hz, 10 g |
| Resistance element | conductive plastic | Shock* | 50 g, 6 ms |

available in following VERSIONS



| Type designation | Execution | Connection | Wiper without limit stops |
|------------------|-----------|-------------------------------------|---------------------------|
| PK309-15d | triple | faston plug / solder-type terminals | yes |
| PK309-25d | no | strands | yes |

You can find all data sheets on www.fsg-sensors.de.

*Depending on customer specifications.



SYNCHRO SIZE 11

DIAMETER 28 mm

PK611



Precision Potentiometer with Conductive Plastic Resistance Element

The precision potentiometer of series PK611 has a high-resolution resistance element made of conductive plastic. Due to its small size design the sensor is mainly used in automation.



- **Small potentiometer design**
- **Resistance element made of high-resolution conductive plastic**
- **Angle measurement up to max. 345°**

TECHNICAL DATA

| | | | |
|--------------------|-------------------------------------|-------------------------|---|
| Housing material | aluminum, anodized | Active angle | max. 345° |
| Housing diameter | 28 mm | Resistance values | to 10 kΩ |
| Model | synchro size 11 | Resistance tolerance | ±20 % |
| IP code | IP30 | Linearity | ±2 % / ±0,2 % |
| Shaft diameter | 6 mm | Resolution | almost infinitely |
| Adjustment speed | max. 1000 U/min | Capacity | 0.5 W |
| Torque | 0.04 Ncm | Temperature range | -30 °C to +80 °C |
| Execution | triple | Temperature coefficient | 0.02 % / °C |
| Connection | faston plug / solder-type terminals | Lifetime | 10–50 Mio. cycles <small>The lifetime depends on the application and environmental conditions.</small> |
| Fastening | clamp fixing with synchro flange | Vibration* | 5–200 Hz, 10 g |
| Resistance element | conductive plastic | Shock* | 50 g, 6 ms |

*Depending on customer specifications.

available in following VERSIONS



| Type designation | Wiper without limit stops |
|------------------|---------------------------|
| PK611 | no |
| PK611-15d | yes |

You can find all data sheets on www.fsg-sensors.de.

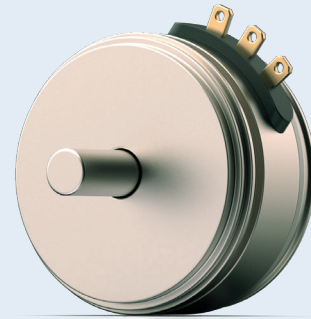
SYNCHRO SIZE 13

DIAMETER 36.5 mm

PK613

Precision Potentiometer with Conductive Plastic Resistance Element

The precision potentiometer of series PK613 has a high-resolution resistance element made of conductive plastic. Due to its compact design the sensor is mainly used in the automation and marine industry.



- Compact Design in synchro size 13
- Resistance element made of high-resolution conductive plastic
- Angle measurement up to max. 352°



TECHNICAL DATA

| | | | |
|--------------------|-------------------------------------|-------------------------|---|
| Housing material | aluminum, anodized | Active angle | max. 352° |
| Housing diameter | 36.5 mm | Resistance values | to 10 kΩ |
| Model | synchro size 13 | Resistance tolerance | ±10 % |
| IP code | IP30 | Linearity | ±1.5 % / ±0.15 % |
| Shaft diameter | 6 mm | Resolution | almost infinitely |
| Adjustment speed | max. 1000 U/min | Capacity | 1 W |
| Torque | 0.05 Ncm | Temperature range | -30 °C to +80 °C |
| Execution | sixfold | Temperature coefficient | 0.02 % / °C |
| Connection | faston plug / solder-type terminals | Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Fastening | clamp fixing with synchro flange | Vibration* | 5–200 Hz, 10 g |
| Resistance element | conductive plastic | Shock* | 50 g, 6 ms |

available in following
VERSIONS



| Type designation | Shaft bearing | Wiper without limit stops |
|------------------|-------------------|---------------------------|
| PK613-15 | ball-bearing | no |
| PK613-15d | ball-bearing | yes |
| PK613-16 | sintered bearings | no |
| PK613-16d | sintered bearings | yes |

You can find all data sheets on www.fsg-sensors.de.

*Depending on customer specifications.



SYNCHRO SIZE 20 DIAMETER 50.8 mm

PK620

Precision Potentiometer with Conductive Plastic Resistance Element

The precision potentiometer of series PK620 has a high-resolution resistance element made of conductive plastic. Due to its compact size design the sensor is mainly used in the automation and marine industry.



- Compact Design in synchro size 20
- Resistive element made of high-resolution conductive plastic
- Angle measurement up to max. 355°
- Additional switches max. 2

TECHNICAL DATA

| | | | |
|--------------------|-------------------------------------|-------------------------|---|
| Housing material | aluminum, anodized | Active angle | max. 355° |
| Housing diameter | 50,8 mm | Resistance values | to 10 kΩ |
| Model | synchro size 20 | Resistance tolerance | ±10 % |
| IP code | IP30 | Linearity | ±1.5 % / ±0.1 % |
| Shaft diameter | 6 mm | Resolution | almost infinitely |
| Adjustment speed | max. 1000 U/min | Capacity | 1 W |
| Torque | 0.05 Ncm | Temperature range | -30 °C to +80 °C |
| Execution | sixfold | Temperature coefficient | 0.02 % / °C |
| Connection | faston plug / solder-type terminals | Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| Fastening | clamp fixing with synchro flange | Vibration* | 5–200 Hz, 10 g |
| Resistance element | conductive plastic | Shock* | 50 g, 6 ms |

* Depending on customer specifications.

available in following VERSIONS



| Type designation | Shaft bearing | Schleifer drehend |
|------------------|-------------------|-------------------|
| PK620-15 | ball-bearing | no |
| PK62015d | ball-bearing | yes |
| PK620-16 | sintered bearings | no |
| PK620-16d | sintered bearings | yes |

You can find all data sheets on www.fsg-sensors.de.

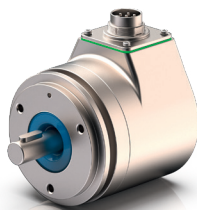
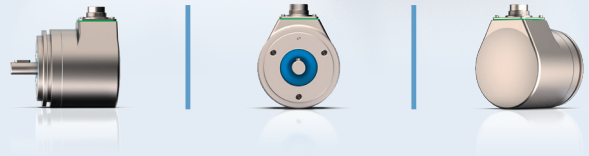
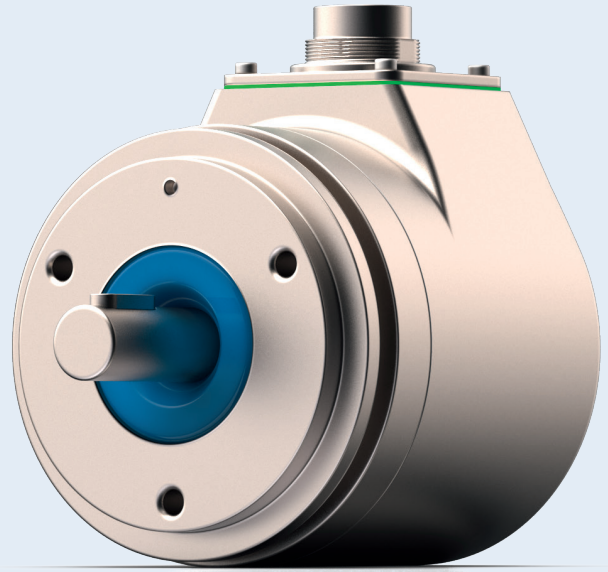
SYNCHRO SIZE 23 DIAMETER 60 mm

PK1023d

Robust precision Potentiometer with Conductive Plastic Resistance Element

The robust precision potentiometer of series PK1023 has a high-resolution resistance element made of conductive plastic. Due to its robust design the sensor is predominantly used in automation and in particularly demanding environmental conditions.

- Robust design in protection class IP65
- Resistance element made of high-resolution conductive plastic
- Angle measurement up to max. 355°



TECHNICAL DATA

| | | | |
|------------------|--|-------------------------|---|
| Housing material | aluminum, anodized | Resistance element | conductive plastic |
| Housing diameter | 60 mm | Active angle | max. 355° |
| Model | synchro size 23 | Resistance values | to 10 kΩ |
| IP code | IP65 | Resistance tolerance | ±10 % |
| Shaft diameter | 6 mm / 10 mm | Linearity | ±1.5 % / ±0.1 % |
| Adjustment speed | max. 1000 U/min | Resolution | almost infinitely |
| Torque | 2.5 Ncm | Capacity | 1 W |
| Execution | twice | Temperature range | -30 °C to +80 °C |
| Connection | connector / cable | Temperature coefficient | 0.02 % / °C |
| Fastening | clamp fixing with synchro flange and 3x M4 to TK 42 mm | Lifetime | 10–50 Mio. cycles <i>The lifetime depends on the application and environmental conditions.</i> |
| | | Vibration* | 5–200 Hz, 10 g |
| | | Shock* | 50 g, 6 ms |

You can find all data sheets on www.fsg-sensors.de.
















*Depending on customer specifications.

OVERVIEW

POTENTIOMETER SERIES

FSG Potentiometer series for you at a glance.

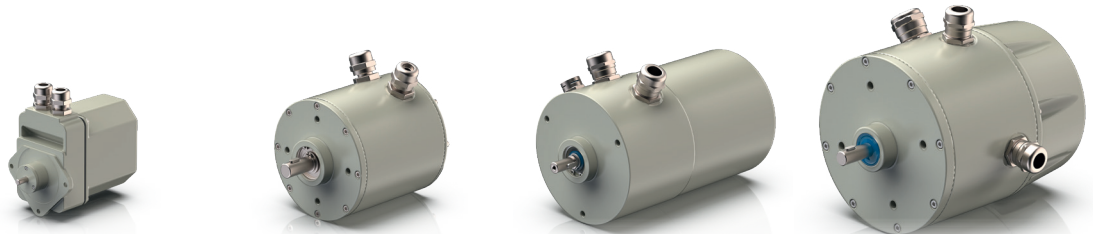
For further specifications in comparison, please feel free to contact us.

| | Serie | Active angle max. | IP-Code max. | Type designation – Wiper without limit stops (d) | Wire winding | Conductive plastic | |
|---|---------|-------------------|--------------|--|--------------|--------------------|---|
|  | PW609dy | 340° | IP30 | | • | - | |
|  | PW611 | 340° | IP30 | | PW611-15d | • | - |
| | | 340° | IP30 | | PW611-16d | • | - |
|  | PW613 | 345° | IP30 | PW613-15 | PW613-15d | • | - |
| | | 345° | IP30 | PW613-16 | PW613-16d | • | - |
| | | 360° | IP30 | PW613-18 | PW613-18d | • | - |
|  | PW620 | 345° | IP30 | PW620-15 | PW620-15d | • | - |
| | | 345° | IP30 | PW620-16 | PW620-16d | • | - |
| | | 345° | IP30 | PW620-18 | | • | - |
| | | 360° | IP30 | | PW 620-18d | • | - |
|  | PW1023d | 360° | IP65 | | • | - | |
|  | PW0045y | 280° / 345° | IP30 | PW0045my | | • | - |
| | | 280° / 345° | IP30 | PW0045hy | | • | - |
|  | PW45 | 345° | IP30 | PW45 | | • | - |
| | | 360° | IP30 | | PW45d | • | - |
|  | PW45W | 1800° | IP30 | PW45W3 | | • | - |
| | | 3600° | IP30 | PW45W10 | | • | - |
|  | PW55-01 | 350° | IP30 | PW55-01 | PW55-01d | • | - |
|  | PW70 | 350° | IP30 | PW70 | | • | - |
| | | 360° | IP30 | | PW 70d | • | - |
|  | PK309 | 345° | IP30 | | PK309-15d | - | • |
| | | 345° | IP30 | | PK309-25d | - | • |
|  | PK611 | 345° | IP30 | | PK611-15d | - | • |
|  | PK613 | 352° | IP30 | PK613-15 | PK613-15d | - | • |
| | | 352° | IP30 | PK613-16 | PK613-16d | - | • |
|  | PK620 | 355° | IP30 | PK620-15 | PK620-15d | - | • |
| | | 355° | IP30 | PK620-16 | PK620-16d | - | • |
|  | PK1023d | 355° | IP65 | | | - | • |

OVERVIEW

PROTECTIVE HOUSING

To protect against mechanical damage as well as dusty and damp industrial atmospheres, a range of housings are available for all angle of rotary encoders, some with built-in backlash-free gear adapters in protection class IP40 to IP67 and EX protection class. For final storage, most types of housing offer the option of installing cam limit switches with forced opening.



| | G90 | GS100 | GS120 | GS150 |
|---------------------------|--|---|--|--|
| Gearing | 1:1–1:10 backlash-free 1:1–25:1 backlash-free 1:1–125:1 low-backlash gearing | 1:1–1:10 backlash-free 1:1–256:1 low-backlash gearing 1:1–256:1 backlash-free | 1:1–1:10 backlash-free 1:1–216:1 backlash-free 1:1–1296:1 low-backlash gearing | 1:1–1:10 backlash-free 1:1–1296:1 backlash-free |
| Housing material | aluminum, painted gray RAL7032 | aluminum, painted gray RAL7032 | aluminum, painted gray RAL7032 | aluminum, painted gray RAL7032 |
| Housing diameter | 80 x 100 mm | 100 mm | 120 mm | 150 mm |
| Ip code of housing up to | IP65 | IP65, optional IP68 | IP65 | IP65, optional IP68 |
| Shaft diameter | 6 mm | 10 / 12 mm | 10 mm | 12 mm |
| Shaft bearing | ball-bearing | ball-bearing | ball-bearing | ball-bearing |
| Shaft material | stainless steel | stainless steel | stainless steel | stainless steel |
| Torque | 1,5 Ncm | 1,5 Ncm | 1,5 Ncm | 4 Ncm |
| Weight | about 1 kg | about 1,5 kg | about 2,5 kg | about 3–8 kg |
| Resistance to compression | 5–200 Hz, 10 g | 5–200 Hz, 10 g | 5–200 Hz, 10 g | 5–200 Hz, 10 g |
| Shock | 50 g, 6 ms | 50 g, 6 ms | 50 g, 6 ms | 50 g, 6 ms |
| Temperature range | -30 °C to +80 °C | -30 °C to +80 °C | -30 °C to +80 °C | -30 °C to +80 °C |
| Connection | max. 2 x M16 x 1,5 | max. 2 x M16 x 1,5 | max. 2 x M25 x 1,5 | max. 2 x M16 x 1,5 / optionally with plug |
| Additional switches | – | – | max. 14 switches | max. 10 switches |

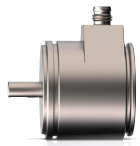
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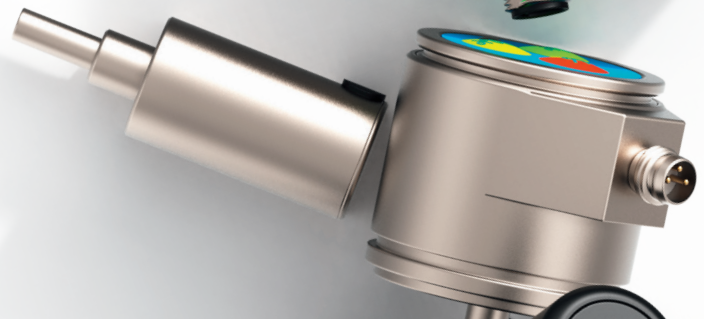
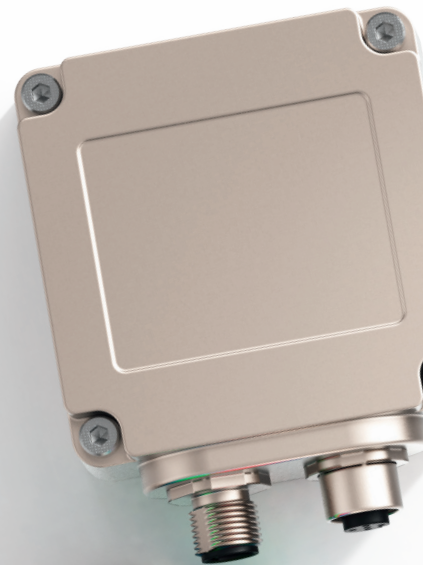
Joysticks 



Foot Pedals 



Wind Sensors 



QUALITY & RELIABILITY 

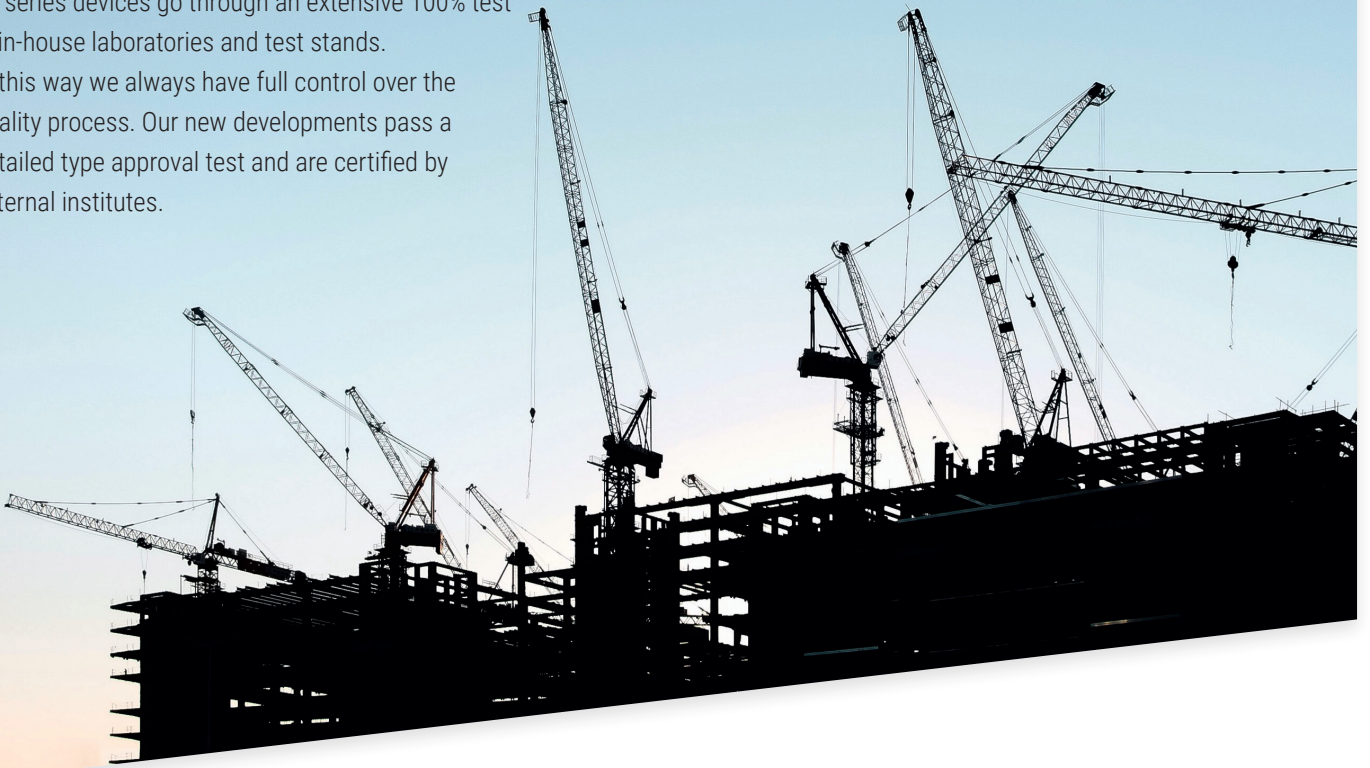
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