

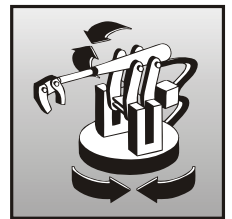
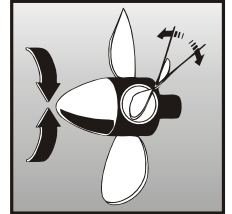
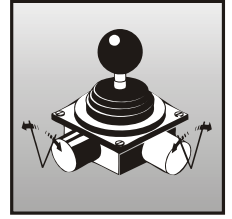
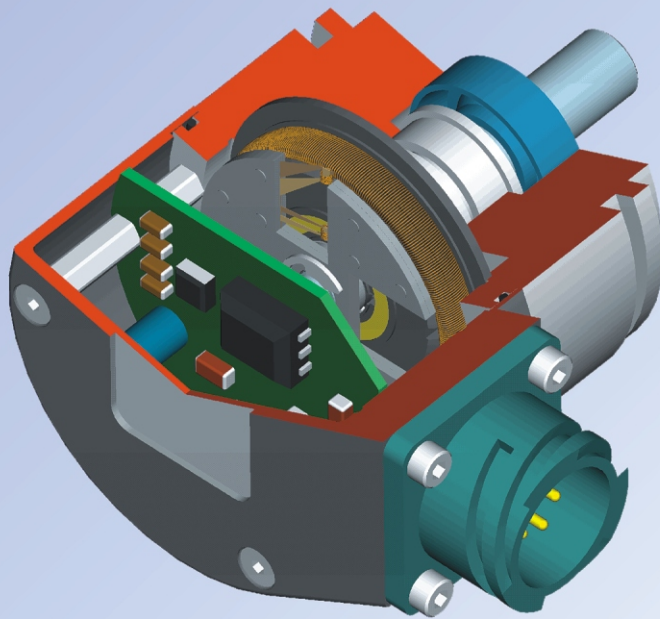
Angular Position Transmitters



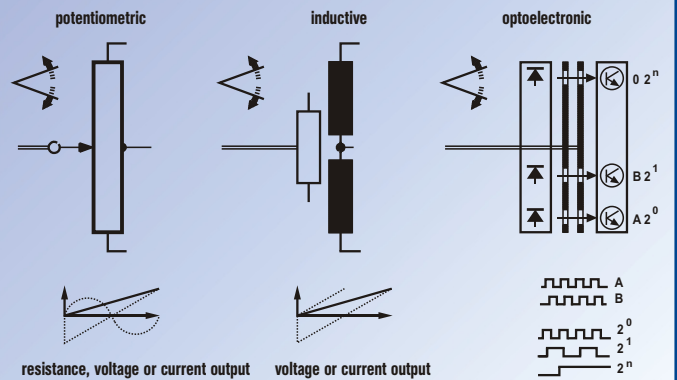
Angular Position Transmitters

with potentiometric, inductive or optoelectronic measuring systems

... Construction



... Measuring systems



For measuring angular positions and converting them into electrical signals for teletransmission purposes, either **potentiometric**, **inductive**, **incrementally** or **absolutely coded** angular position transmitters can be used according to the particular application.

They serve e.g. for recording the position of:

- weir gates and segmental valves**
- valves and control drives**
- ship's engine telegraphs and rudder mechanisms**
- lifting gears and slewing mechanisms of cranes**
- machine tools and handling equipment**
- as well as for set-point adjustment on control transmitters**
- for crane, railway and marine applications**

Potentiometric angular position transmitters comprise either a resistance element made of conductive plastic (series PK) or a high-resolution gold or constantan wirewound resistance element (series PW), offering a variety of resistance and angular values, respectively. Various models and sizes are available as single-gang or multiple-turn potentiometers or in a multiple-unit design, some of them filled with oil.

Inductive angular position transmitters of the non-contacting type are preferred for use in locations exposed to extreme vibrations/shock or aggressive atmospheres.

The built-in electronic system, which is optionally available in degree of protection EEx, provides current or voltage output signals linear with the measured variable.

Optoelectronic angular position transmitters comprise a high resolution incrementally or Gray coded encoder disk whose tracks are digitally scanned through infrared diodes and photo-transistors. They provide a short-circuit-proof pnp or npn transistor output. Systems of the absolute coded type are also available with CAN-bus or SSI-interface and with a built-in d/a-converter current output, respectively.

Protective casings

For protection against mechanical damage as well as dusty and moist industrial atmospheres, a series of protective casings with a degree of protection up to IP 68 is available for the whole line of angular position transmitters, which can partly be equipped with gears and limit switches.

... Specifications

of potentiometric and inductive angular position transmitters

Angular position transmitters with resistance output

| Series | PW 609 | PK 609 | PW 0045 |
|-------------------------|----------------|---------|-----------|
| System | potentiometric | | |
| Casing | plastic | | |
| Shaft bearing | sintered metal | | |
| Angle of rotation (max) | 340° | 340° | 345° |
| Multiple design | - | - | - |
| Oil-filling | - | - | - |
| Resistance element | wirewound | plastic | wirewound |
| Resistance value (max) | 10kΩ | 10 kΩ | 100 kΩ |
| Linearity | ≅ ± 0,5% | | |
| Signal converter | - | - | - |

Angular position transmitters with resistance output

| Series | PW 45 | PW 70 |
|-------------------------|----------------------|----------------------|
| System | potentiometric | |
| Casing material | plastic | plastic |
| Shaft bearing | needle | needle |
| Angle of rotation (max) | any value up to 360° | any value up to 360° |
| Multiple design | twofold | sixfold |
| Oil-filling | yes | yes |
| Resistance element | wirewound | wirewound |
| Resistance value (max) | 100 kΩ ± 1% | 100 kΩ ± 1% |
| Linearity | ≅ 0,2% | ≅ 0,2% |
| Signal converter | - | - |

Angular position transmitters with resistance or current output

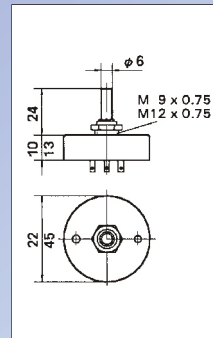
| Series | PW 613 | PK 613 | PW 620 | PK 620 |
|------------------------------|---------------------|--------------|---------------------|--------------|
| System | potentiometric | | | |
| Casing material | aluminium, anodised | | aluminium, anodised | |
| Shaft bearing | ball | | ball | |
| Angle of rotation (max) | 360° | 352° | 360° | 355° |
| Multiple design | sixfold | | sixfold | |
| Oil-filling | yes | | yes | |
| Resistance element | wirewound | plastic | wirewound | plastic |
| Resistance value (max) | 50 kΩ | 10 kΩ | 100 kΩ | 10 kΩ |
| Linearity | ≅ 0,3% | ≅ 0,2% | ≅ 0,2% | ≅ 0,1% |
| with signal converter | Output | 0 or 4-20 mA | | 0 or 4-20 mA |
| | Burden | 600Ω max. | | 600Ω max. |
| | Supply | 18-33 VDC | | 18-33 VDC |

Inductive angular position transmitters with current output

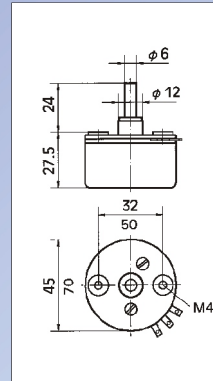
| Series | WD 613 | WD 620; WDG 620 | |
|------------------------------|---------------------|---------------------|--|
| System | inductive | | |
| Casing material | aluminium, anodised | aluminium, anodised | |
| Shaft bearing | ball | ball | |
| Angle of rotation (max) | 0-70° | 0-90° or 0-360° | |
| Multiple design | - | - | |
| Oil-filling | - | - | |
| Linearity | ≅ ± 0,5% | | |
| with signal converter | Output | 0 or 4-20 mA | |
| | Burden | max. 600Ω | |
| | Supply | 18-33 VDC | |
| Degree of protection | - | yes | |

... Models

FSG-standard design, central mount



FSG-standard design,



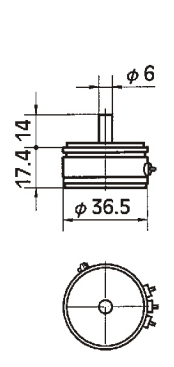
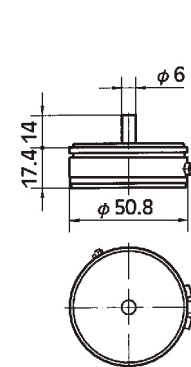
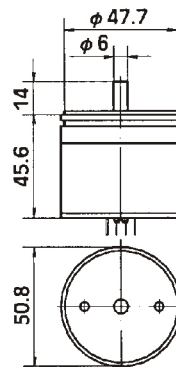
Sizes 9, 11, 13 and 20 servo mount



...620

...620

...613



model with signal converter

... Specifications

of potentiometric, inductive and optoelectronic angular position transmitters

Angular position transmitters with resistance or current output

| Series | PW 1023 | PK 1023 | WD 1023; WDG 1023 |
|------------------------------|---------------------|-------------------|---------------------|
| System | potentiometric | | inductive |
| Casing material | aluminium, anodised | | aluminium, anodised |
| Degree of protection | IP 65 | | IP 65 |
| Shaft bearing | ball | | ball |
| Angle of rotation (max) | 360° | 355° | 90°, WDG 360° |
| Resistance element | Draht | Kunststoff | - |
| Resistance value (max) | 100 k Ω | 10 k Ω | - |
| Linearity | $\pm 0,2\%$ | $\pm 0,1\%$ | $\pm 0,5\%$ |
| with signal converter | Output | 0 or 4-20 mA | 0 or 4-20 mA |
| | Burden | max. 600 Ω | max. 600 Ω |
| | Supply | 18-33 VDC | 18-33 VDC |

Size 23 servo mount also available as incremental or 16 bit multiturn transmitter. Data on request.

Angular position transmitters with resistance or current output

| Series | PW 0613 | PK 0613 | WD 0613; WD 1025; |
|------------------------------|---------------------|-------------------|---------------------|
| System | PW 1025 | PK 1025 | WDG 1025 |
| Casing material | potentiometric | | inductive |
| Degree of protection | inductive | | aluminium, anodised |
| Shaft bearing | aluminium, anodised | | IP 65 |
| Angle of rotation (max) | IP 65 | | ball |
| Resistance element | 360° | 355° | 70°, 90°, WDG 360° |
| Resistance value (max) | wirewound | plastic | - |
| Linearity | 100 k Ω | 10 k Ω | - |
| with signal converter | Output | 0 or 4-20 mA | 0 or 4-20 mA |
| | Burden | max. 600 Ω | max. 600 Ω |
| | Supply | 18-33 VDC | 18-33 VDC |

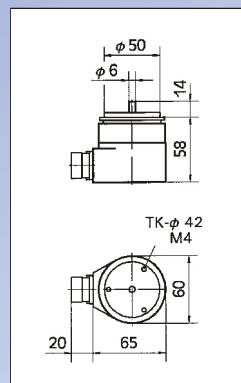
Sizes 13 and 25 servo mount also available as incremental transmitter. Data on request.

Angular position transmitters with digital or analog output

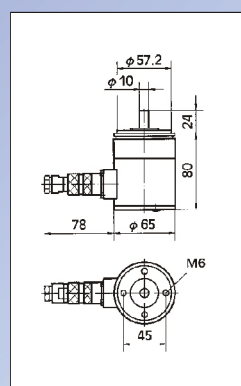
| Series | XA 13-GS 90; XA 14-GS 90; | XA-12F-GS 90 |
|-------------------------|------------------------------|--|
| System | optoelectronic | |
| Casing material | aluminium, anodised | |
| Degree of protection | IP 65 | IP 67 |
| Shaft bearing | ball | |
| Angle of rotation (max) | 360° | |
| Encoding | Gray code | |
| Resolution | 13 or. 14 bit | 12 bit |
| Transistor output | PNP, short-circuit-proof | |
| Current output | - | 4-20 mA for 0-360° sawtooth characteristic |
| Supply | 18-33 VDC | |
| Interface | CAN or SSI | |

... Models

Size 23 servo mount



Size 13 and 25 servo mount



Size 35 servo mount

