

Single-Turn Continuous Rotation Analog Displacement Sensors



FEATURES

- Conductive plastic potentiometer technology, infinite resolution
- Servo mount anodized light alloy housing
- Precious metal contacts
- Stainless steel shaft and bearings
- Applicable standards: NFC 93255, MIL R39023

DESIGN SUPPORT TOOLS AVAILABLE



QUICK REFERENCE DATA

| | |
|------------------|--------------------------------|
| Sensor type | ROTATIONAL, conductive plastic |
| Output type | Output by turrets |
| Market appliance | Industrial, avionics |
| Dimensions | Ø 36, Ø 44, Ø 50, Ø 76 |

ELECTRICAL SPECIFICATIONS

| PARAMETER | POHR36 | POHR44 | POTH44 | POTH50 | POTH76 |
|--|--|--|--------|-----------------------------|--------------------|
| Theoretical electrical travel (TET) | 350° ± 3° | 350° ± 3° | | 350° ± 3° | 350° ± 1° |
| Theoretical electrical travel (on request) | - | 62.5° 90° 120° 120° 182.5° 210° | 90° | - | - |
| Useful electrical travel (on request) | - | 60° 90° 90° 119° 180° 180° | 89° | - | - |
| Standard linearity (≤) | ± 0.5 % | ± 0.5 % | | ± 0.25 % | ± 0.1 % |
| Optional linearity (≤) | ± 0.25 %, ± 0.1 %, ± 0.05 % | ± 0.4 %, ± 0.25 %, ± 0.1 %, ± 0.05 %, ± 0.04 % | | ± 0.1 %, ± 0.05 %, ± 0.03 % | ± 0.05 %, ± 0.02 % |
| Total resistance range (E3) | 4.7 kΩ or 10 kΩ | 4.7 kΩ or 10 kΩ | | 4.7 kΩ or 10 kΩ | 4.7 kΩ or 10 kΩ |
| Tolerance on R _n | ± 10 %, optional: ± 20 %, ± 15 %, ± 5 % | | | | |
| Output smoothness | < 0.1 % (on request: 0.5 %, 0.05 %, 0.025 %) | | | | |
| Power rating at 70 °C | 2 W | 2.5 W | 2.5 W | 3 W | 4 W |
| Temperature coefficient | -300 ± 300 ppm/°C | | | | |
| Wiper current | ≤ 1 mA | | | | |
| Recommended load impedance | ≥ 1000 R _n | | | | |
| Insulation resistance | ≥ 10 GΩ at 500 V _{DC} | | | | |
| Dielectric strength | 1000 V _{RMS} , 50 Hz, 1 min | | | | |

MECHANICAL SPECIFICATIONS

| PARAMETER | POHR36 | POHR44 | POTH44 | POTH50 | POTH76 | |
|--|------------------|--------|--------|--------|--------|------|
| Size | 15 | 18 | 18 | 20 | 30 | |
| Running and starting torque (cN cm) | first stage | 20 | 20 | 20 | 25 | 35 |
| | additional stage | 18 | 18 | 18 | 22 | 30 |
| Moment of inertia (g cm ²) | first stage | ≤ 2.2 | ≤ 2.6 | ≤ 6 | ≤ 8 | ≤ 20 |
| | additional stage | 0.6 | ≤ 0.6 | ≤ 5 | ≤ 6 | ≤ 17 |
| Weight (g) | first stage | 50 | 80 | 100 | 100 | 230 |
| | additional stage | 12 | 12 | 50 | 55 | 80 |
| Protection class | IP50 | | | | | |



| PERFORMANCE | |
|-------------------|-------------------|
| PARAMETER | |
| Life | 25M cycles |
| Temperature range | -55 °C to +125 °C |
| Rotation speed | 600 rpm |

Note

- Nothing stated herein shall be construed as a guarantee of quality or durability.

| SAP PART NUMBERING GUIDELINES | | | | | | |
|---|-----------|------|-----------|---|-------|-----------|
| MODEL | SIZE (mm) | GANG | VALUE | LINEARITY | ANGLE | PACKAGING |
| POTH | 44 | 1 | 472 = 4K7 | B = 0.5 % C = 0.25 % D = 0.1 % E = 0.05 % (see "Electrical Specifications") | 350 | b = box |
| | 50 | 2 | 103 = 10K | | | |
| | 76 | 3 | | | | |
| POHR | 36 44 | 4 | | | | |
| | | 5 | | | | |
| | | 6 | | | | |
| | | 7 | | | | |
| | | 8 | | | | |
| (max. number of stages: see "Dimensions") | | | | | | |

DIMENSIONS in millimeters

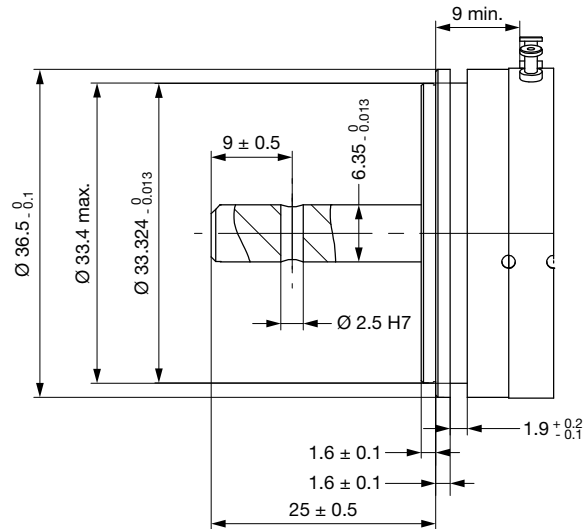
POHR36

| | | | | | | | | |
|-----------------|----|----|----|----|----|----|----|----|
| Number of cups: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| L: | 21 | 26 | 31 | 36 | 41 | 46 | 51 | 56 |

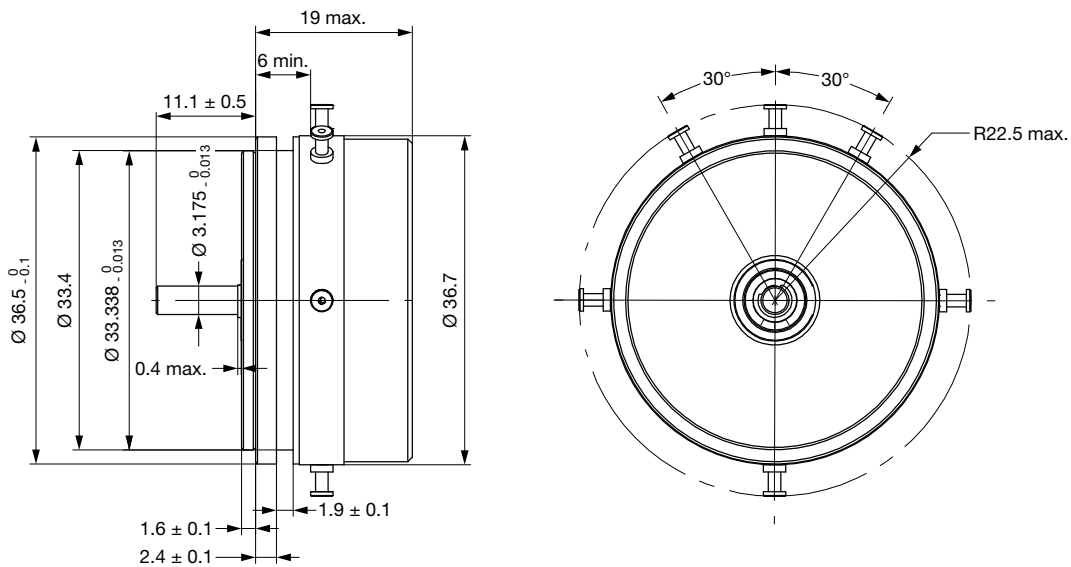
DIMENSIONS in millimeters

DESIGNS ON REQUEST FOR POHR36

OPTION 1



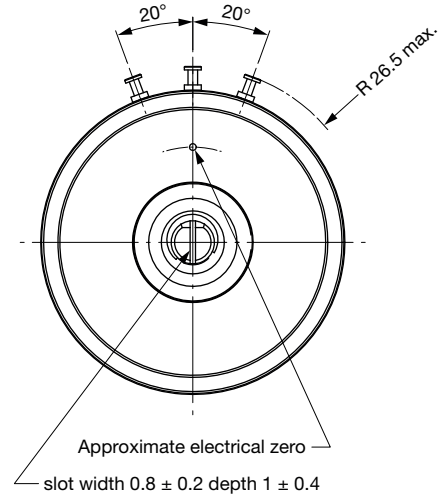
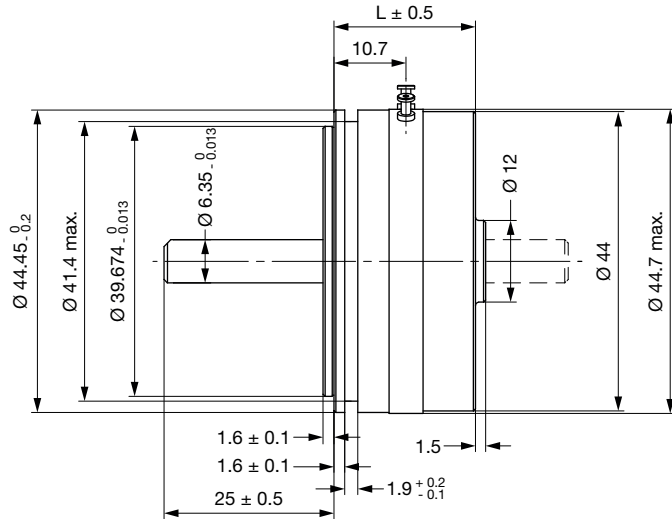
OPTION 2





DIMENSIONS in millimeters

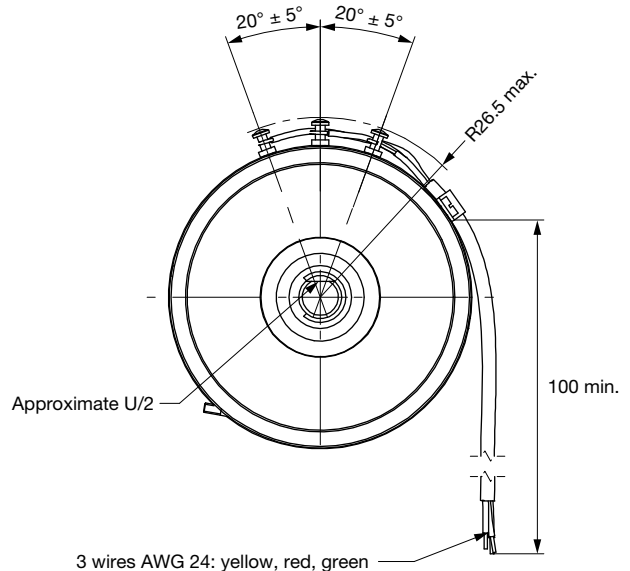
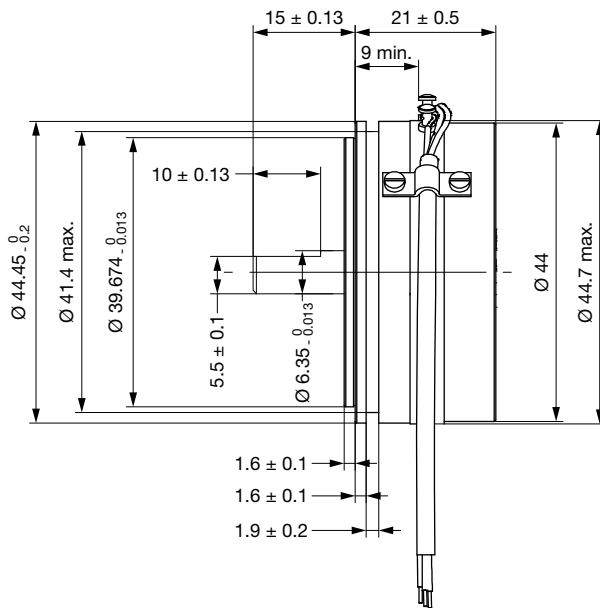
POHR44



| | | | | | | | | |
|-----------------|----|----|----|----|----|----|----|----|
| Number of cups: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| L: | 21 | 26 | 31 | 36 | 41 | 46 | 51 | 56 |

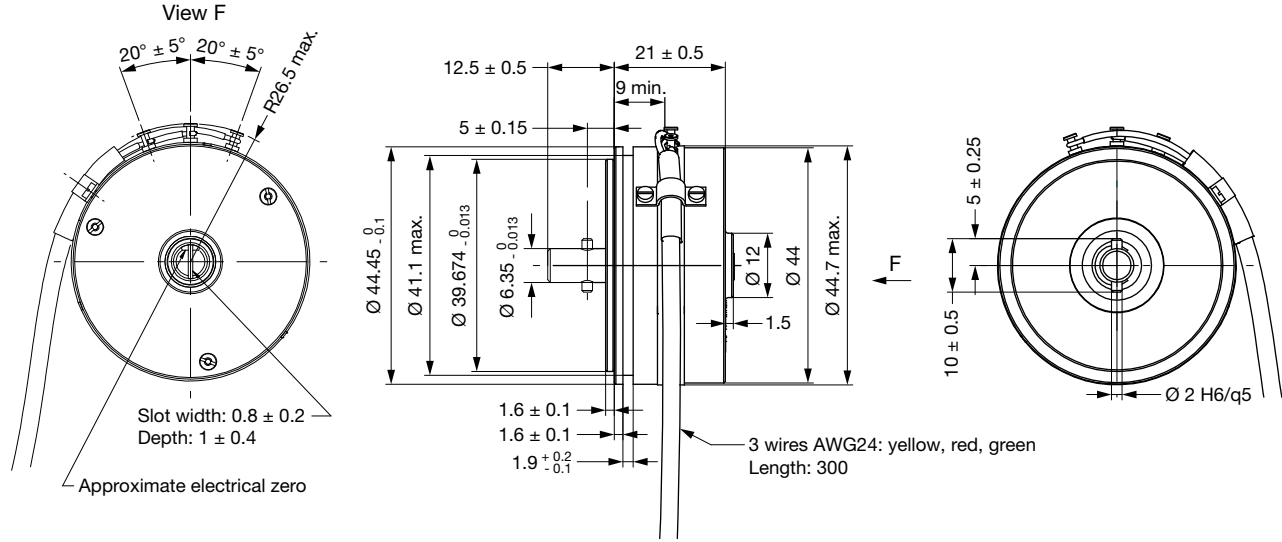
DESIGNS ON REQUEST FOR POHR44

OPTION 1

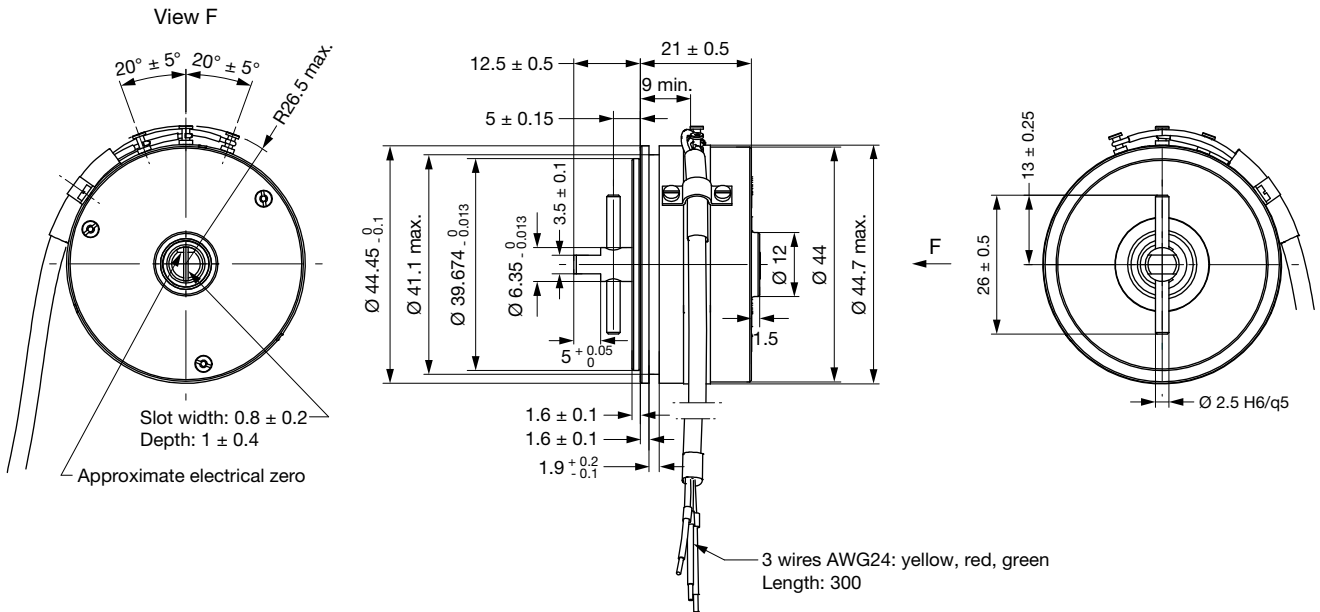


DIMENSIONS in millimeters

OPTION 2

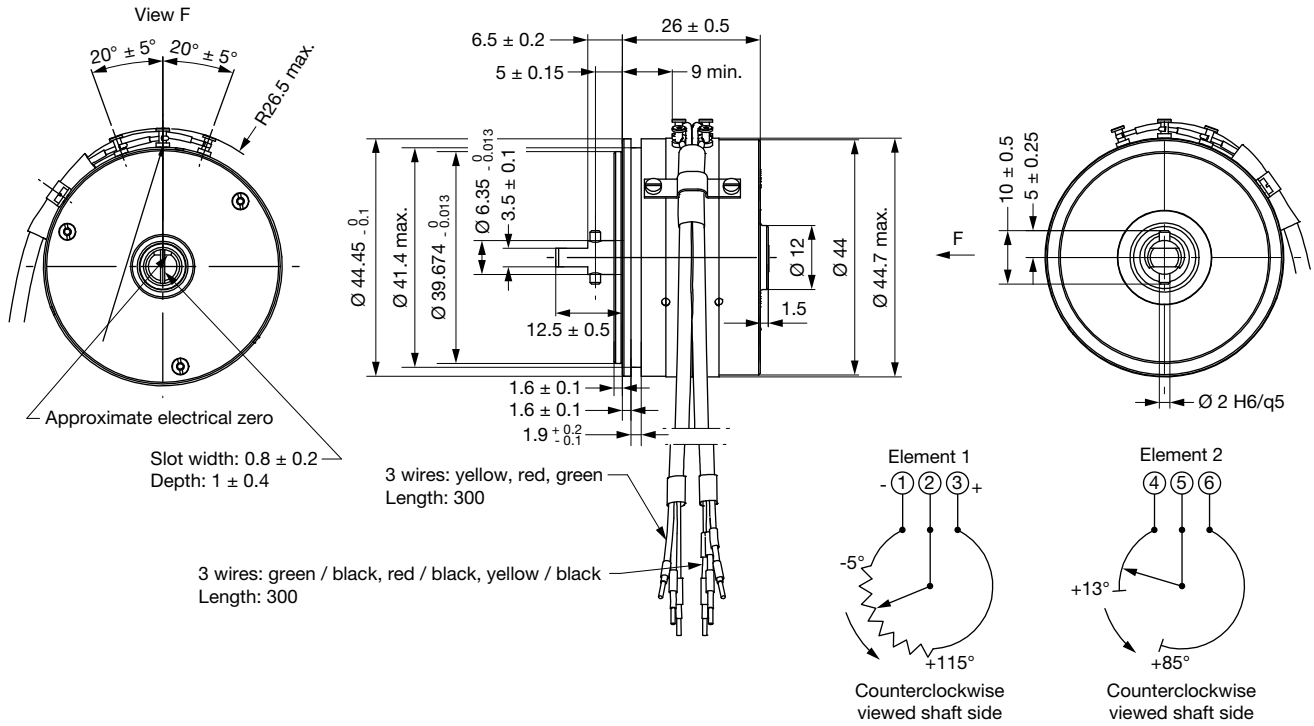


OPTION 3

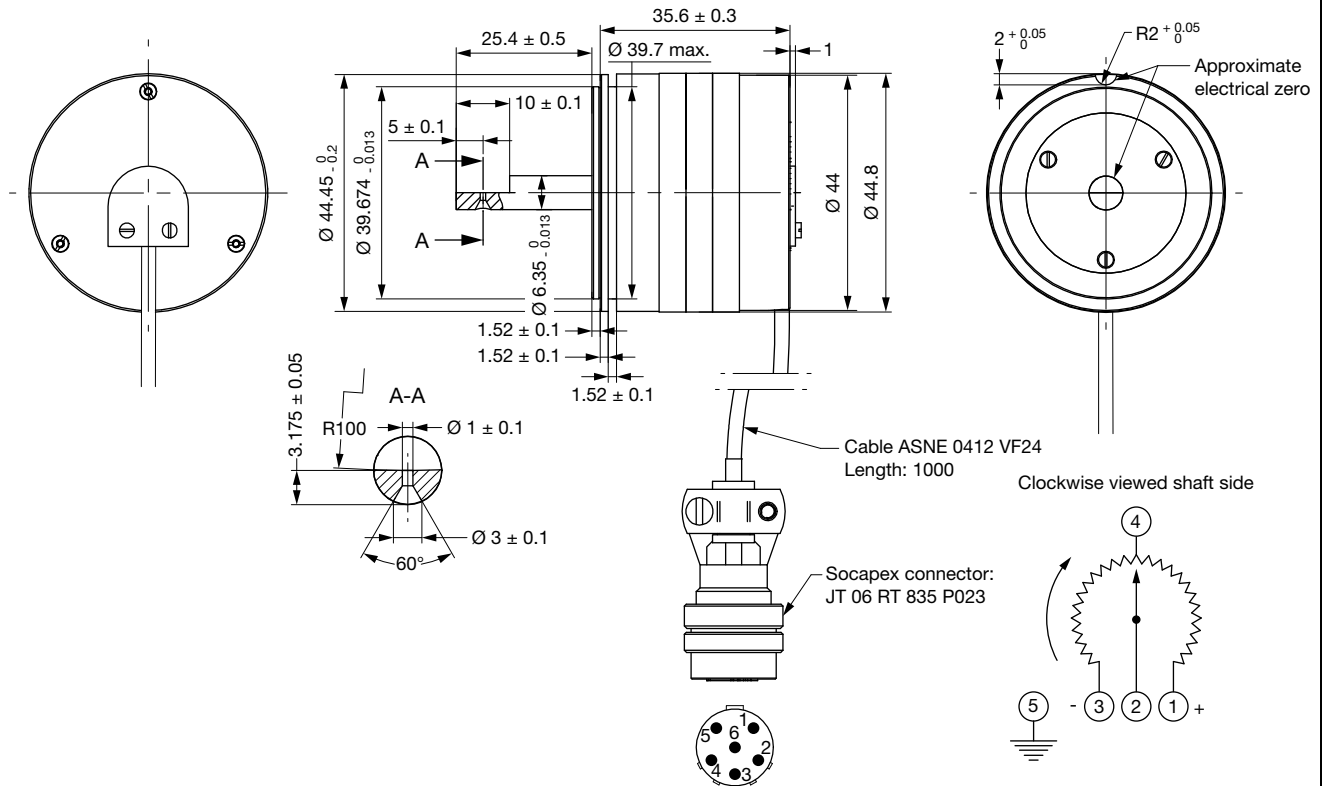


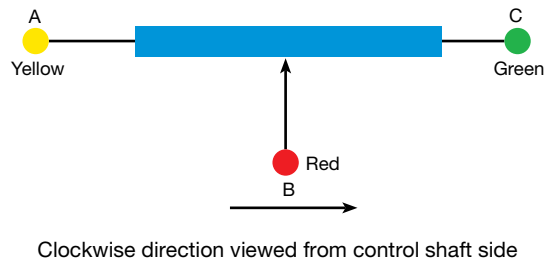
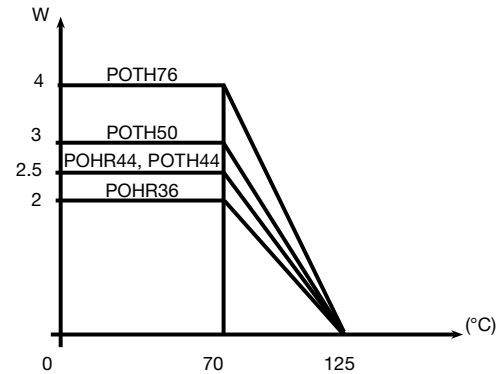
DIMENSIONS in millimeters

OPTION 6



OPTION 7



ELECTRICAL DIAGRAM

POWER RATING CHART

OPTIONS (on request)

- Other ohmic values: 2.5 k Ω (POHR36); 1.6 k Ω , 2 k Ω , or 2.8 k Ω (POHR44); 1 k Ω (POTH44)
- Other tolerances on R_n (see “Electrical Specifications” table): $\pm 20\%$
- Other linearities (see “Electrical Specifications” table): 0.2 % (POHR36)
- Other theoretical electrical travel: $354^\circ \pm 1^\circ$ and 120° (with UET = 100°) (POHR36); 120° (with UET = 100°) (POHR44)
- Connectors (center tap)
- Wire outputs (only on POHR44 and POTH44)
- Through shaft
- Phasing between wipers: $180^\circ \pm 2^\circ$ (POHR36 x 2)
- Specific function:
 - sine and cosine (360°) with accuracy $\pm 0.2\%$
 - switch sector with accuracy $\pm 1^\circ$ or $\pm 30'$ (POHR44)
- Middle tap: POHR44 U/2 $\pm 0.5\%$
- For space application: removing of fabrication for tracks and ball bearings
- Protection resistor in series with wiper: 150 Ω ; 300 Ω ($\pm 15\%$)
- Version waterproof: POHR44 (starting torque ≤ 60 cNcm)
- Electrical output by connector: plug Socapex: JT 06 RT 835 P023 (or equivalent) with cable length 1 m
- Version supplying voltage: $6\text{ V} < U < 30\text{ V}$



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