

## Analog Rectilinear Displacement Sensor



### FEATURES

- Conductive plastic potentiometer technology. Infinite resolution
- Anodized light alloy housing
- Precious metal multi-contact wiper
- Stainless steel floating shaft
- Collar mounting
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### QUICK REFERENCE DATA

Sensor type	LINEAR, conductive plastic
Output type	Output by wires
Market appliance	Avionics, industrial
Dimensions	Diameter 1/2" (12.7 mm)

### ELECTRICAL SPECIFICATIONS

PARAMETER					
Total electrical travel (TET)	UET - 0 + 0.3 mm				
Independent linearity standard	± 1 %				
Independent linearity optional	± 3 %, ± 1 %, ± 0.1 %, ± 0.25 %, ± 0.4 %, ± 0.5 %				
Tolerance on R <sub>n</sub>	± 10 % (± 20 % on request)				
Temperature coefficient	-300 ppm/°C ± 300 ppm/°C				
Power rating at +70 °C	0.2 W/cm of travel (see Power Rating Chart)				
Wiper current	≤ 1 mA				
Recommended load impedance	≥ 1000 R <sub>n</sub>				
Dielectric strength	500 V <sub>RMS</sub> , 50 Hz, 1 min				
Insulation resistance	≥ 10 GΩ at 500 V <sub>DC</sub>				
Useful electrical travel (UET)	10 mm	25 mm	50 mm	75 mm	100 mm
Total resistance R <sub>n</sub>	2.2 kΩ	1 kΩ to 22 kΩ	1 kΩ to 47 kΩ	2.2 kΩ to 47 kΩ	4.7 kΩ to 100 kΩ
Output smoothness	≤ 0.1 %	≤ 0.1 %	≤ 0.1 %	≤ 0.1 %	≤ 0.1 %

### MECHANICAL SPECIFICATIONS

PARAMETER					
Mechanical travel	UET - 0 + 3 mm				
Driving force	≤ 2 N (≤ 1.5 N on request)				
Driving force with probe (optional)	≤ 3 N to 7 N				
Backlash	< 10 μm				
Protection class	IP 50				
Maximum displacement speed	1.5 m/s				
Maximum misalignment	± 0.2 mm				
Useful electrical travel (UET)	10 mm <sup>(1)</sup>	25 mm	50 mm	75 mm	100 mm
Total weight	13 g	18 g	23 g	28 g	33 g
Weight of moving part	3 g	4.5 g	6 g	7.5 g	9 g

#### Note

<sup>(1)</sup> Tolerances: - 2 mm, + 0 mm

### PERFORMANCE

PARAMETER	
Operating temperature range	-55 °C to +125 °C
Life	10M cycles

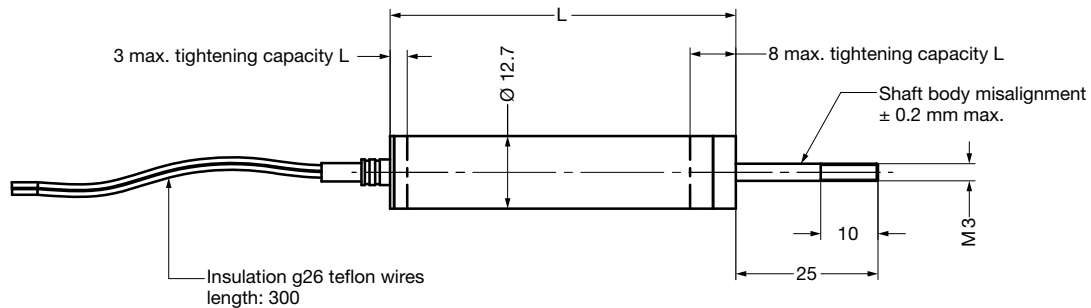
#### Note

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



SAP PART NUMBERING GUIDELINES - PORH12							
MODEL	TYPE	DIAMETER	LENGTH (mm)	SHAFT VERSION	VALUE	LINEARITY	PACKAGING
POR	H	12	010 025 050 075 100	F = floating shaft	Manual transducers 102 = 01K 472 = 4K7 103 = 10K 223 = 22K 473 = 47K 104 = 100K  In accordance with UET, see "Electrical Specifications"	A = 1 % D = 0.1 %	B = box

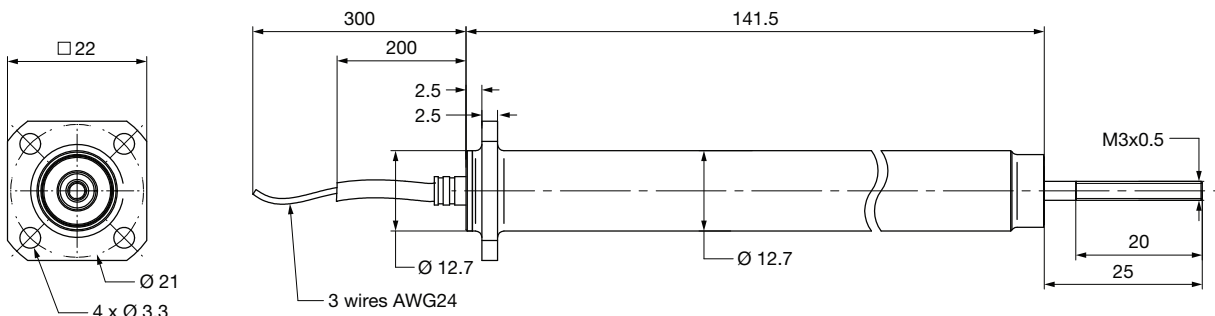
**DIMENSIONS** in millimeters



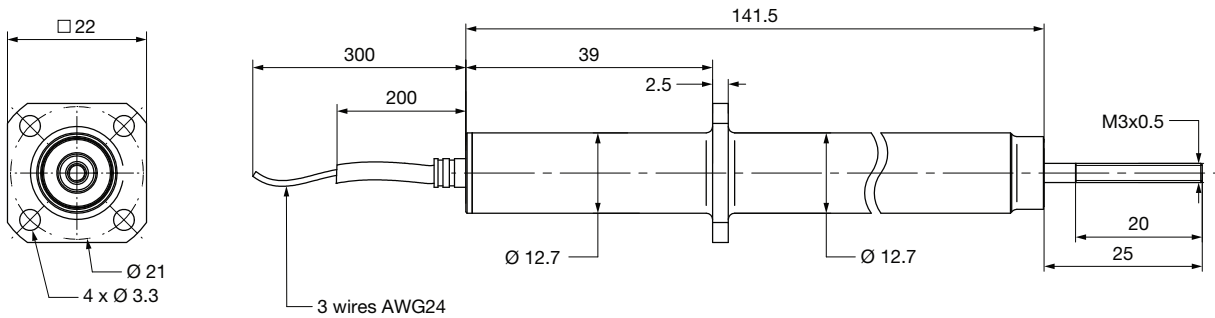
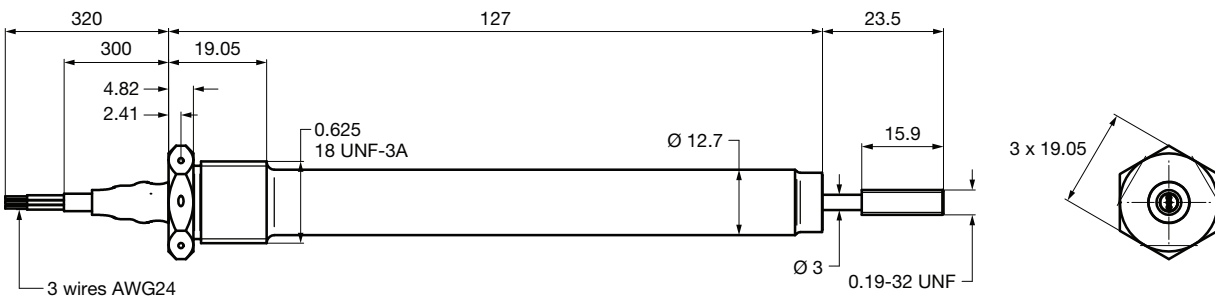
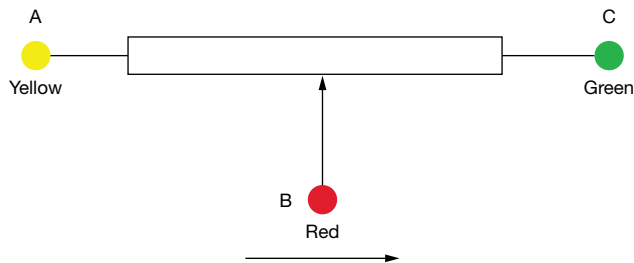
Useful electrical travel	10	25	50	75	100
L ± 0.5 mm	45.5	60.5	85.5	110.5	135.5

**DESIGNS ON REQUEST (FOR VERSION PORR12)**

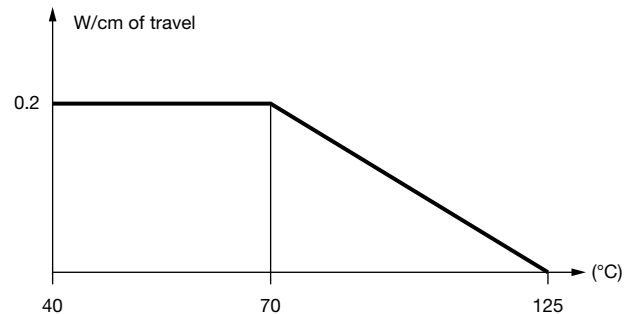
**OPTION 1**



**DIMENSIONS** in millimeters

**OPTION 2**

**OPTION 3**

**ELECTRICAL DIAGRAM**


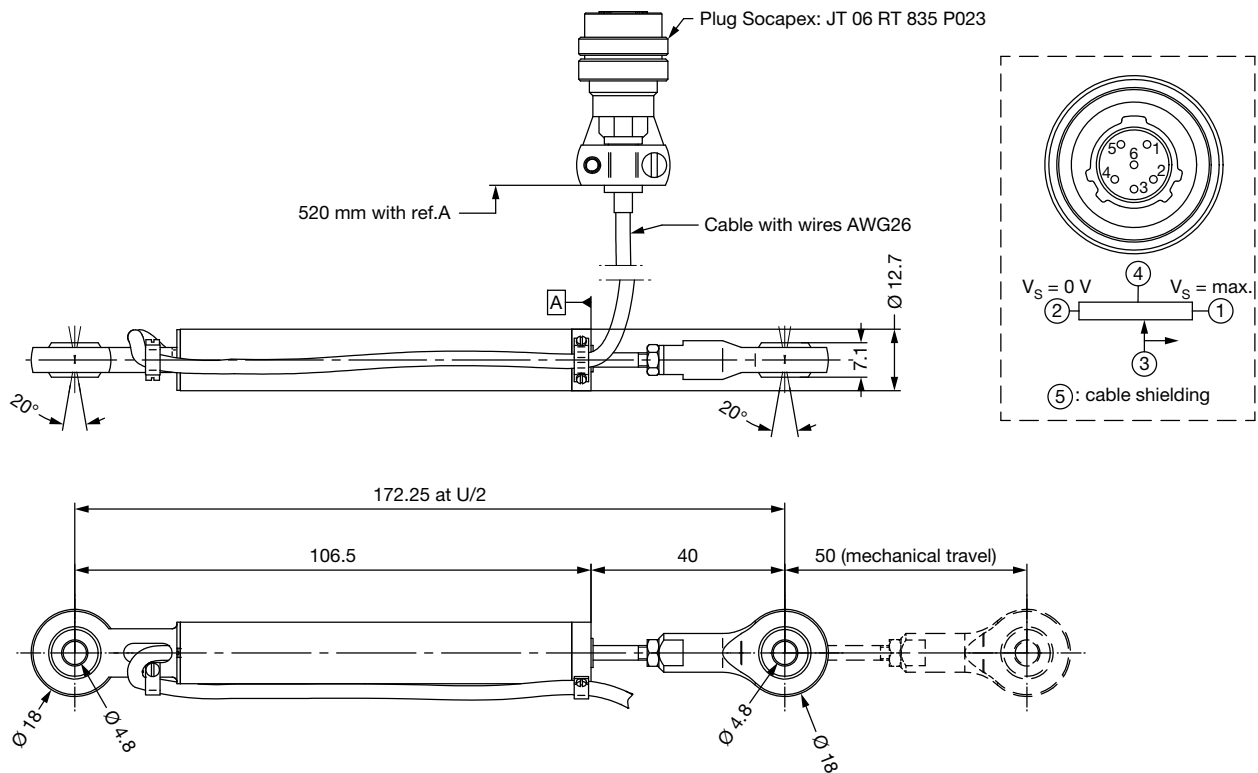
Direction of wiper displacement with shaft extended

**POWER RATING CHART**

**OPTIONS** (on request)

- Other travels: UET = 72 mm with TET = 75.2 mm and mechanical travel = 81 mm
- Other ohmic value ( $R_n$ ): 2.2 k $\Omega$ ; 5 k $\Omega$ , 6.5 k $\Omega$
- Other linearity
- Electrically independent double track (= redundancy)
- Middle tap
- Electrical phasing (for double track) at U/2:  
 0.5 U  $\pm$  0.7 % U (for PORR12 shaft output at 75.5 mm  $\pm$  1 mm),  
 or 0.5 U  $\pm$  0.5 % U (for PORR12),  
 or up to  $\pm$  0.13 % (track 1 / track 2) (for PORH12)
- Electrical bonding:  $\leq$  0.05  $\Omega$

- Electrical output by connector:  
plug Socapex: JT 06 RT 835 P023 (or equivalent) with cable length 300 mm, 500 mm, or 750 mm
- Specific design to support temperature pic of 200 °C
- Other length of shaft: 12 mm (pushed shaft)
- Guided shaft
- Probe with return spring and tip on request
- Other design including diameter 9.5 mm: version RH9.5
- Specific reinforced version for hard environment conditions (vibrations, shocks, temperature): version RR12
- Other wire lengths: 330 mm; 355 mm; 380 mm, and 1 m
- Temperature coefficient:  $-200 \text{ ppm}/^{\circ}\text{C} \pm 200 \text{ ppm}/^{\circ}\text{C}$  (in function of ohmic value)
- Smaller length: 5 mm; 10 mm; 15 mm; 17 mm (UET = 16 mm)
- Variant with additional requirement of microlinearity (example  $\pm 0.1 \text{ mm}$  over UET)
- Option RH12050 with front pivot and rear pivot

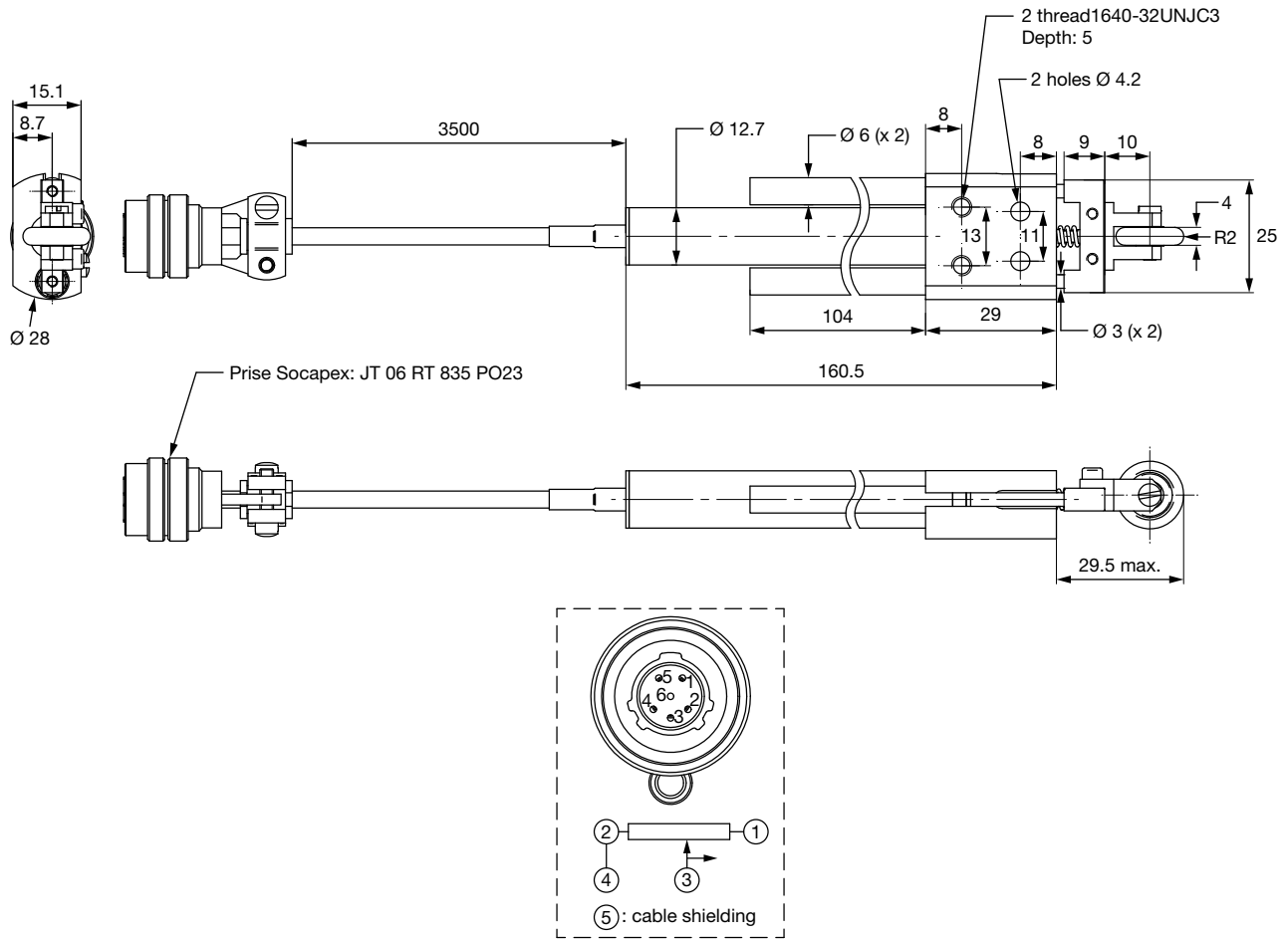
### DIMENSIONS in millimeters





- Option RH12100 with roller pivot

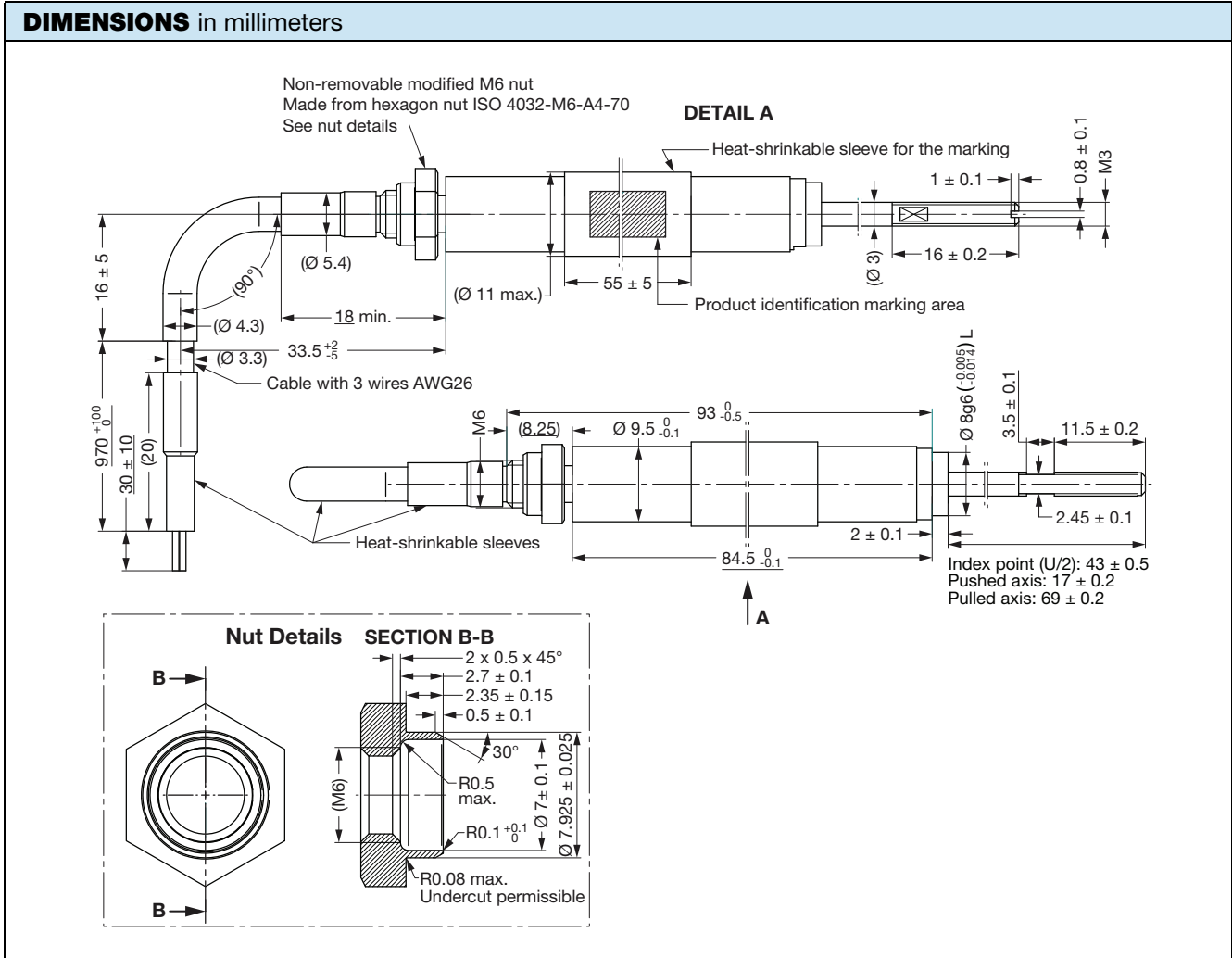
## DIMENSIONS in millimeters







- Option of PORR09 with bent sheath





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