

# High Reliable Sensor Dedicated to Aeronautic Applications



## FEATURES

- Very high endurance life 25M cycles
- Very robust version in harsh conditions (shocks, vibrations, on temperature range)
- Conductive plastic potentiometer technology
- Precious metal contacts, stainless steel shaft and bearings, anodized light alloy flange
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

## QUICK REFERENCE DATA

Sensor type	ROTATIONAL, conductive plastic
Output type	Output by wires
Market appliance	Industrial, avionics
Dimensions	22.1 mm

## ELECTRICAL SPECIFICATIONS

PARAMETER	
Number of cup	1
Total electrical travel	≥ 340° (less on request)
Useful electrical travel	≥ 340° (less on request)
Electrical continuity	≥ 340°
Rated resistance	5 kΩ ± 20 % (10 kΩ on request)
Independent linearity standard	± 1 %
Independent linearity optional	± 0.5 %, ± 0.4 %, ± 0.2 % on request
Rated power dissipation	0.25 W at 70 °C
Temperature coefficient	-300 ppm/°C ± 300 ppm/°C
Output smoothness	≤ 0.1 %
Resolution	Infinite
Insulation resistance	≥ 1 GΩ at 500 V <sub>DC</sub>
Dielectric strength	Leakage current ≤ 1 mA under conditions 750 V <sub>AC</sub> , 50 Hz, 1 min
Wiper current	≤ 1 mA (≤ 10 mA on request)
Output voltage hysteresis	≤ 0.08 % of U <sub>supply</sub>

## MECHANICAL SPECIFICATIONS

PARAMETER	
Mechanical travel	360° (continuous rotation)
Mechanical backlash	< 0.1°
Running torque	≤ 20 cN cm
Recommended mounting	Flexible coupling between customer motor element and potentiometer shaft
Weight	< 17.5 g (including wires)

## PERFORMANCE

PARAMETER	
Life	25M cycles, ≥ 175M cycles (pseudo-random cycle in lab conditions)

### Note

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

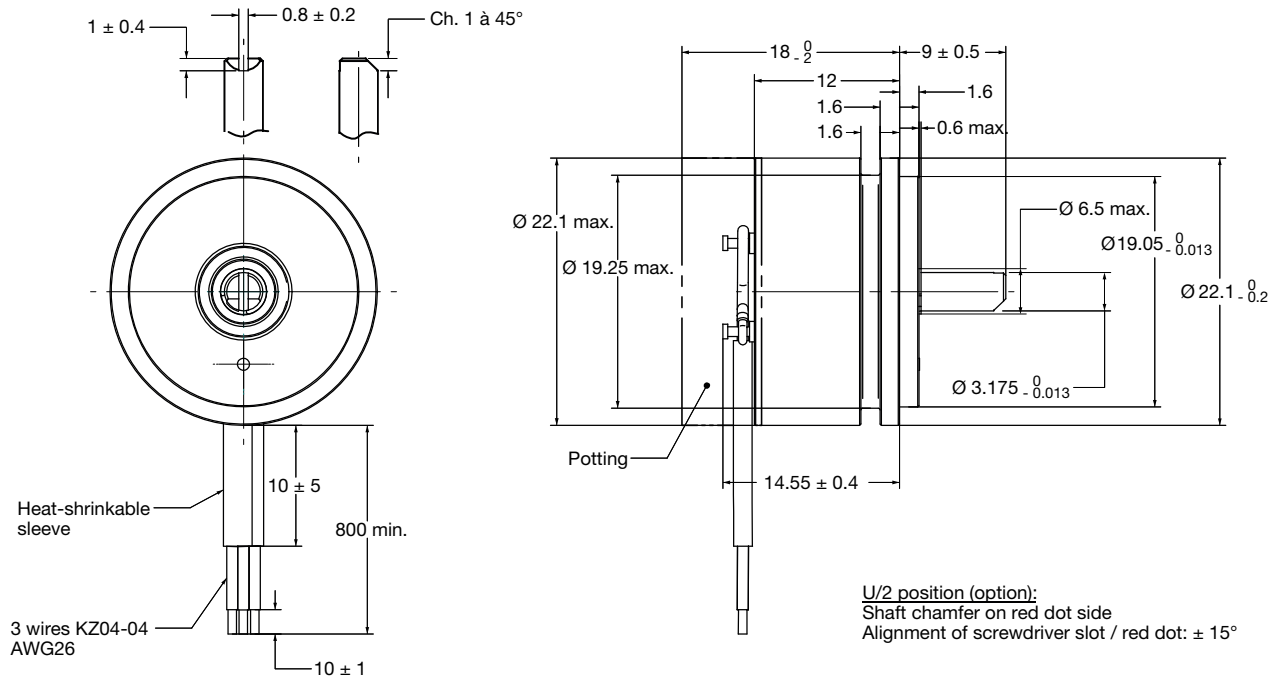
## ENVIRONMENTAL SPECIFICATIONS

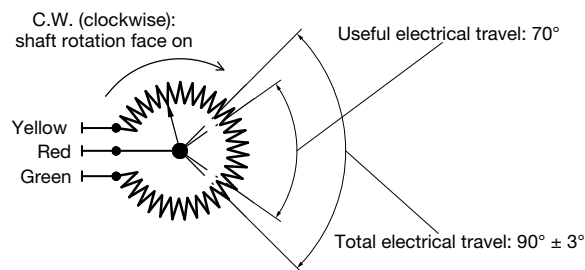
PARAMETER	
Operating temperature	-55 °C to +125 °C
Operational shocks	50 g - 11 ms - 1/2 sinus (on each direction of the three major axis)
Vibration	1.5 mm peak to peak between 10 Hz to 60 Hz (on the three major axis) 20 g between 60 Hz to 2000 Hz (on the three major axis)
Applicable specification	NFC 93-255 / MIL R 39023

**SAP PART NUMBERING GUIDELINES**

MODEL	MOUNTING	TYPE	VALUE	LINEARITY	ANGLE	PACKAGING
PP22	S = servo	A = aeronautic (including ball bearing)	502 = 05K	A = 1 % B = 0.5 %	090	B = box

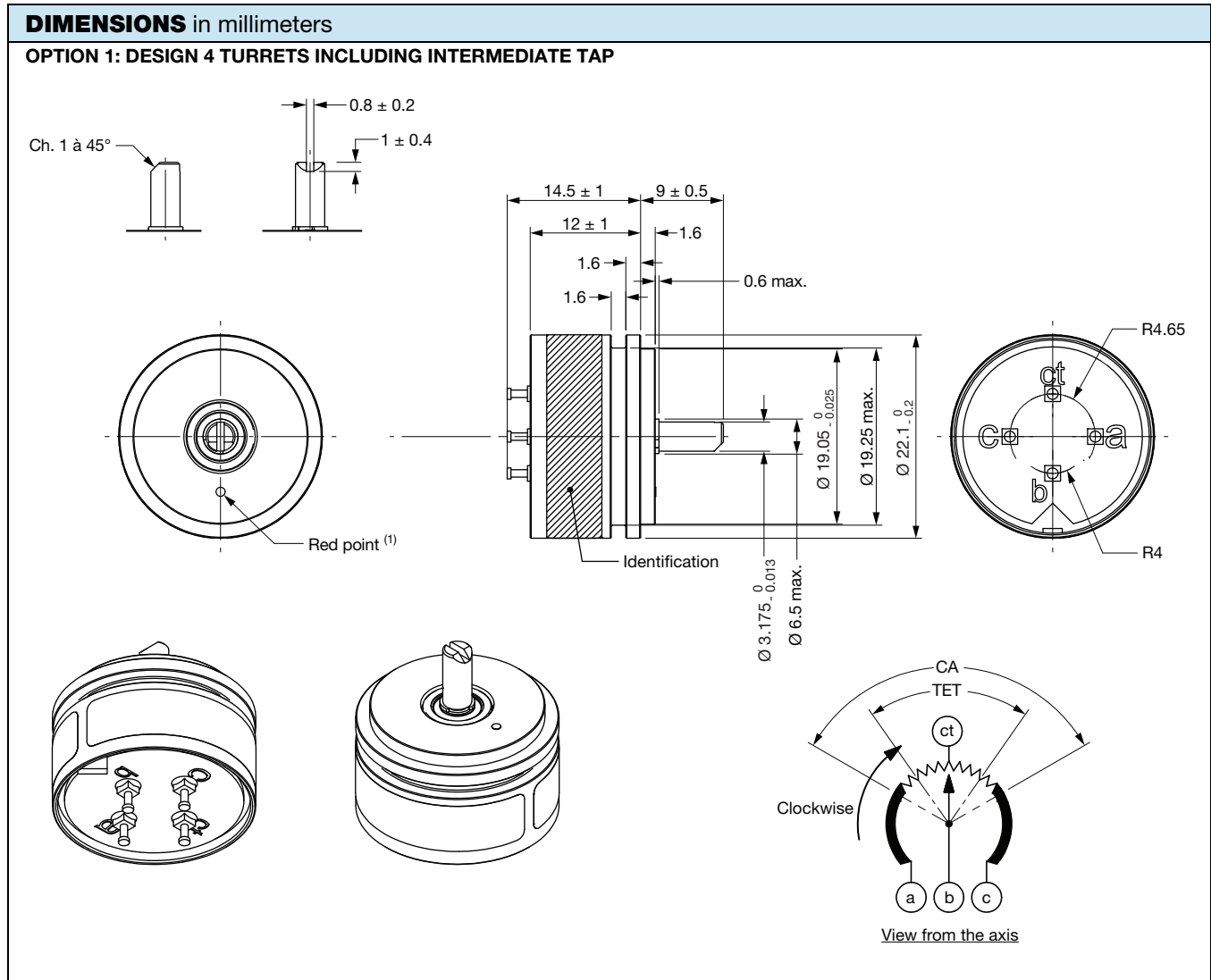
**DIMENSIONS** in millimeters

**MECHANICAL INTERFACE DESCRIPTION**

**DIMENSIONS** in millimeters

**ELECTRICAL INTERFACE DESCRIPTION**

**OPTIONS** (on request)

- Other ohmic value (example: 10 k $\Omega$ ) and tolerances on this ohmic value (examples: 20 % or 10 %)
- Other linearity and absolute function
- Other total and useful electrical travel between  $0^\circ$  and  $360^\circ$  (consult us for feasibility)
- Other shaft designs
- Mechanical phasing
- Intermediate tap and middle tap feasible (example: center tap of  $3^\circ$ )
- Electrical reference:  $0.5 U \pm 0.1 \% U$  (at middle of electrical travel)
- Output by turrets
- Additional potting to protect and to insulate the turrets at the rear side on sensor

**DESIGN ON REQUEST**



**Note**

(1) The reference point (0°) is obtained when the chamfer and the slot of the shaft are aligned with the red point  $\pm 15^\circ$



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