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

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_{DC}
Dielectric strength	Leakage current ≤ 1 mA under conditions 750 V_{AC}, 50 Hz, 1 min
Wiper current	≤ 1 mA (≤ 10 mA on request)
Output voltage hysteresis	≤ 0.08 % of U_{supply}

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

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

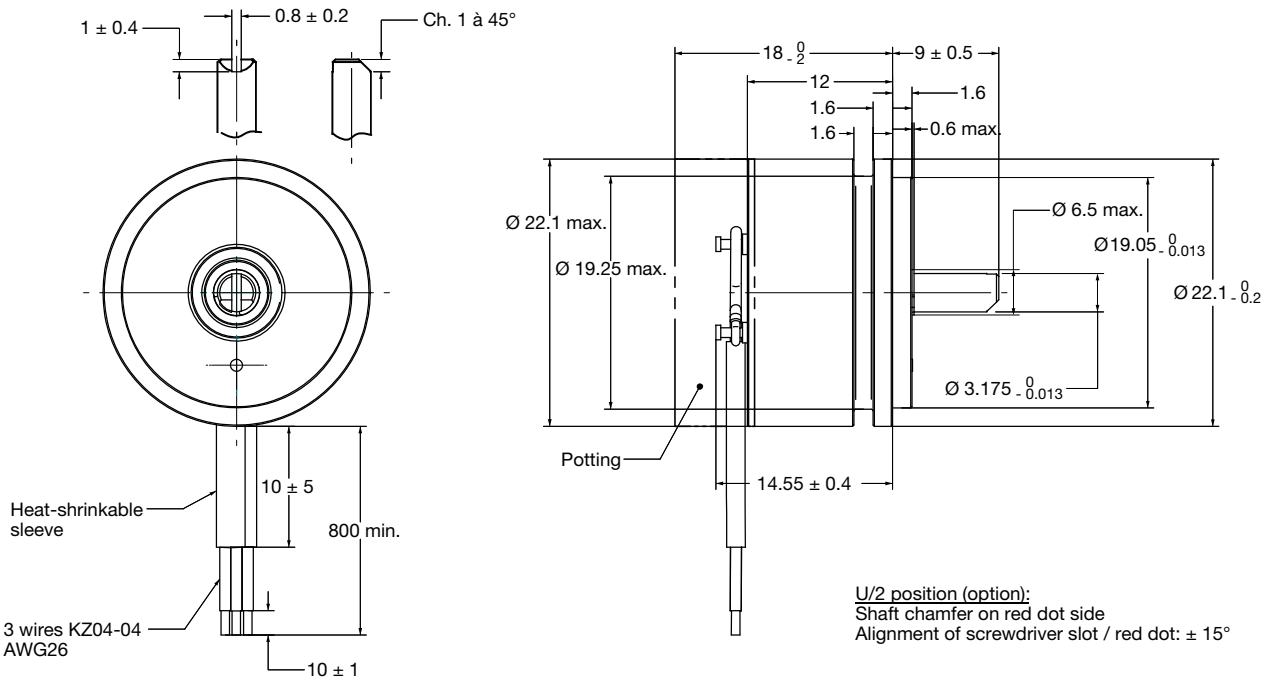
ENVIRONMENTAL SPECIFICATIONS	
PARAMETER	
Operating temperature	-55 °C to +125 °C
Operational shocks	50 *g* - 11 ms - 1/2 sinus (on each direction of the three major axis)
Vibration	1.5 mm peak to peak between 10 Hz to 60 Hz (on the three major axis)
	20 *g* between 60 Hz to 2000 Hz (on the three major 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

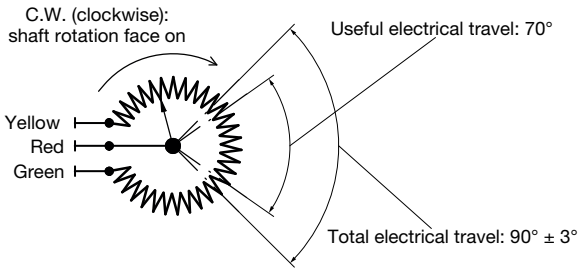
DIMENSIONS in millimeters

MECHANICAL INTERFACE DESCRIPTION



DIMENSIONS in millimeters

ELECTRICAL INTERFACE DESCRIPTION



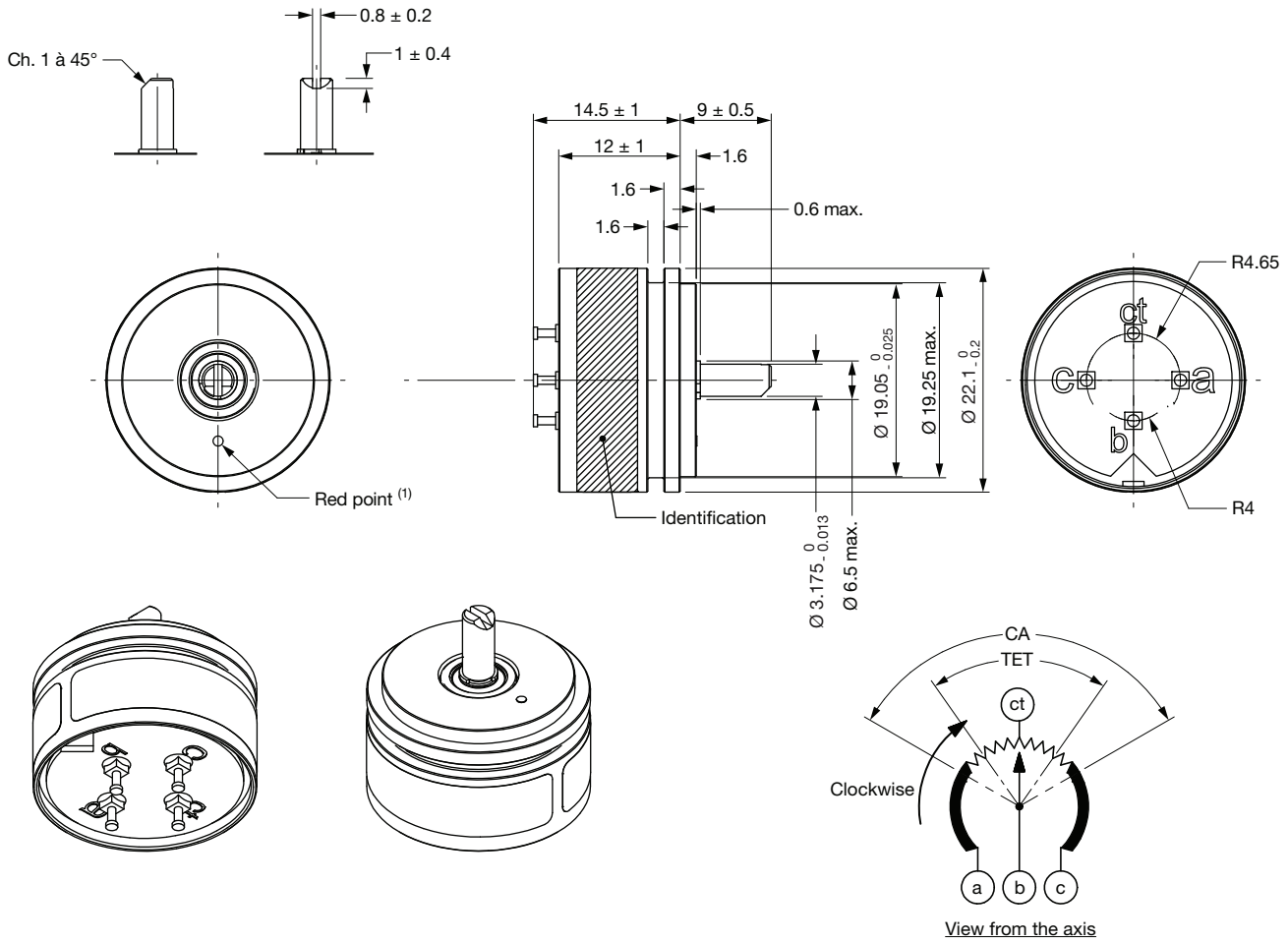
OPTIONS (on request)

- Other ohmic value (example: 10 kΩ) and tolerances on this ohmic value (examples: 20 % or 10 %)
- Other linearity and absolute function
- Other total and useful electrical travel between 0° and 360° (consult us for feasibility)
- Other shaft designs
- Mechanical phasing
- Intermediate tap and middle tap feasible (example: center tap of 3°)
- Electrical reference: 0.5 U ± 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

DIMENSIONS in millimeters

OPTION 1: DESIGN 4 TURRETS INCLUDING INTERMEDIATE TAP



Note

(1) The reference point (0°) is obtained when the chamfer and the slot of the shaft are aligned with the red point ± 15°

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.