1/2" (12.7 mm) Single - Turn Wirewound Servo Mount Type Precision Potentiometer



FEATURES

- Ohmic value range: 50 Ω up to 20 kΩ
- Smallest size available: 12.7 mm
- Center tap on request
- Custom shafts available on request
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

QUICK REFERENCE DATA	
Sensor type	ROTATIONAL, single turn wirewound
Output type	Output by turrets
Market appliance	Professional
Dimensions	1/2" (12.7 mm)

ELECTRICAL SPECIFICATIONS	
PARAMETER	
Total Resistance	50 Ω to 20 kΩ
Tolerance	± 5 %
Absolute Minimum Resistance	Linearity x total resistance or 0.5 Ω, whichever is greater
Linearity (independent)	± 1.0 %
Noise	100 Ω ENR
Power Rating	2 W at 40 °C ambient derating linearly to zero at 125 °C
Insulation Resistance	1000 MΩ min. 500 V_{DC}
Dielectric Strength	1000 V_{RMS}, 60 Hz
Electrical Angle	350° +0° -4°
End Voltage	Linearity x total applied voltage for total resistance above 20 Ω; 2.0 % of total applied voltage for 20 Ω and below

MATERIAL SPECIFICATIONS	
Shaft	Stainless steel, non magnetic non-passivated
Housing	Aluminum, anodized
Rear Lid	Molded glass filled thermoset plastic
Terminals	Brass, gold plated

ENVIRONMENTAL SPECIFICATIONS	
Vibration	20 *g* thru 2000 Hz
Shock	50 *g*
Salt Spray	96 h
Rotational Life	500 000 shaft revolutions
Load Life	900 h
Temperature Range	-55 °C to +125 °C (operating)

Note

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

ORDERING INFORMATION

1	4	2	S	0	1	5	0	2	X	X	X	X

MODEL	STYLE	MECHANICAL OPTIONS	FEATURES	VALUE	SPECIAL REQUEST
142	**S**: servo	**0** = continuous rotation	**0** = standard torque **1** = center tap (10K max. Rt)	**470** = 47 Ω **222** = 2.200 Ω **103** = 10 kΩ For ohmic value range see electrical specification	Custom reference

For technical questions, contact: sferprecisionpot@vishay.com

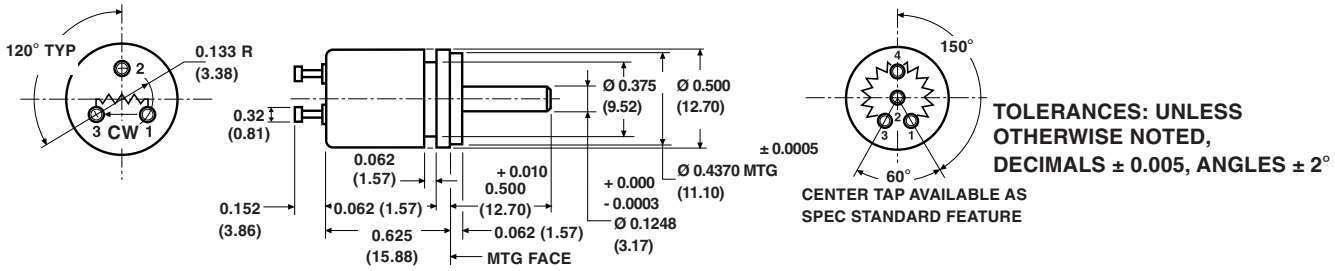
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

PART NUMBER DESCRIPTION (for information only)

142	0-	1-	502	xxxx
MODEL	MECHANICAL OPTIONS	FEATURES	OHMIC VALUE	SPECIAL

DIMENSIONS in inches (millimeters)

MODEL 142S/142-...

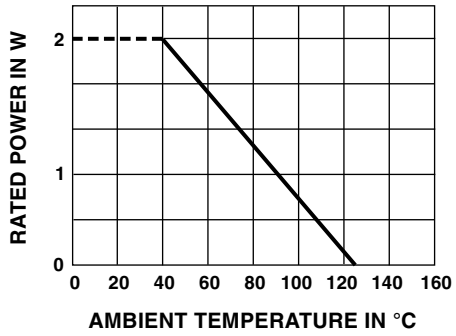


TOLERANCES: UNLESS OTHERWISE NOTED, DECIMALS ± 0.005, ANGLES ± 2°

MECHANICAL SPECIFICATIONS

PARAMETER	
Rotation	360° continuous
Bearing Type Torque (maximums) Starting Running Dead Zone	**BALL BEARING** 0.075 oz. - in (5.40 g - cm) 0.05 oz. - in (3.60 g - cm) 0.20 oz. - in (14.40 g - cm)
Weight	0.3 oz. (8.50 g) maximum
Runouts (maximum) Shaft (TIR) Pilot Dia. (TIR) Lateral (TIR) Shaft End Play Shaft Radial Play	 0.002" (0.05 cm) 0.002" (0.05 cm) 0.002" (0.05 cm) 0.004" (0.10 cm) 0.002" (0.05 cm)

POWER RATING CHART



RESISTANCE ELEMENT DATA

STD RESISTANCE VALUES (Ω)	RESO-LUTION (%)	OHMS PER TURN	MAXIMUM CURRENT AT 40 °C AMBIENT (mA)	MAXIMUM VOLTAGE ACROSS COIL (V)	WIRE TEMP. COEF. (ppm/°C)
50	0.542	0.271	200.0	10.0	20
100	0.431	0.431	141.0	14.1	20
200	0.361	0.722	100.0	20.0	20
500	0.312	1.56	63.2	31.6	20
1K	0.255	2.55	44.7	44.7	20
2K	0.197	3.94	31.6	63.2	20
5K	0.170	8.50	20.0	100.0	20
10K	0.147	14.7	14.1	141.0	20
20K	0.105	21.0	10.0	200.0	20

MARKING

Unit Identification	Units shall be marked with manufacturer's name, model number, resistance value and tolerance, circuit diagram, terminal identification, linearity and data code. Example of a marking for a standard part: 142-0-1-102

For technical questions, contact: sferprecisionpot@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

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.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. 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.

© 2024 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED