



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



### FEATURES

- Ohmic value range: 50 Ω up to 20 kΩ
- Smallest size available: 12.7 mm
- Mechanical stops on request
- High torque and sealed versions available
- 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, 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 <sub>DC</sub>  |
| Dielectric Strength         | 1000 V <sub>RMS</sub> , 60 Hz   |
| Electrical Angle            | 320° ± 5°   |
| End Voltage                 | Linearity x total applied voltage for total resistance above 20 Ω;<br>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                            |
| Mounting Hardware<br>Lockwasher Internal Tooth:<br>Panel Nut: | Steel, nickel plated.<br>Brass, nickel 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) |

| ORDERING INFORMATION/DESCRIPTION |   |   |             |                  |
|----------------------------------|---|---|-------------|------------------|
| 140B                             | 0   | 0   | 20K         | BO10             |
| MODEL                            | MECHANICAL OPTIONS  | SPECIAL FEATURE   | OHMIC VALUE | PACKAGING        |
|                                  | 0. Stops, slotted shaft (std)<br>1. Plain shaft<br>2. Shaft lock<br>3. Continuous rotation<br>4. Combination 1 and 2<br>5. Combination 1 and 3<br>6. Combination 2 and 3<br>7. Combination 1, 2 and 3 | 0. Standard torque<br>1. Center tap (10K max. R <sub>i</sub> )<br>2. High torque<br>3. Sealed construction<br>4. Combination 1 and 2<br>5. Combination 1 and 3<br>6. Combination 2 and 3<br>7. Combination 1, 2 and 3 |             | Box of 10 pieces |

| SAP PART NUMBERING GUIDELINES |                   |             |             |                  |
|-------------------------------|-------------------|-------------|-------------|------------------|
| 140B                          | 7                 | 0           | 103         | B10              |
| MODEL                         | MECHANICAL OPTION | FEATURE     | OHMIC VALUE | PACKAGING        |
|                               | From 0 to 7       | From 0 to 7 | 103 = 10K   | Box of 10 pieces |

**DIMENSIONS** in inches (millimeters)

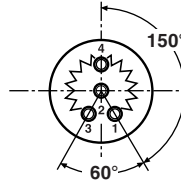


MODEL 140B/140-...

**SHAFT LOCK OPTION**



**CENTER TAP OPTION**



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

CENTER TAP AVAILABLE AS SPEC STANDARD FEATURE

| MECHANICAL SPECIFICATIONS |                                  |
|---------------------------|----------------------------------|
| PARAMETER                 |                                  |
| Rotation                  | 330° ± 5°                        |
| Bearing Type              | <b>SLEEVE BEARING</b>            |
| Torque (maximums)         |                                  |
| Starting                  | 0.2 oz. - in (14.40 g - cm)      |
| Running                   | 0.2 oz. - in (14.40 g - cm)      |
| Dead Zone                 | Not applicable                   |
| Weight                    | 0.1 oz. maximum (2.84 g)         |
| Stop Strength             | 5 in - lbs (5.76 kg - cm) static |
| Runouts (maximum)         |                                  |
| Shaft (TIR)               | 0.002" (0.05 cm)                 |
| Pilot Dia. (TIR)          | 0.002" (0.05 cm)                 |
| Lateral (TIR)             | 0.003" (0.08 cm)                 |
| Shaft End Play            | 0.006" (0.15 cm)                 |
| Shaft Radial Play         | 0.003" (0.08 cm)                 |

**POWER RATING CHART**



**RESISTANCE ELEMENT DATA**

| STD RESISTANCE VALUES (Ω) | RESOLUTION (%) | 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**

|                            |  |
|----------------------------|--|
| <b>Unit Identification</b> | 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: 140-1-2-103 |
|----------------------------|--|



## 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.

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.

## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».



## JONHON

«**JONHON**» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«**FORSTAR**» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А