

## Precision Linear Transducers, Conductive Plastic, up to 3000 mm



The 139 L is a robust industrial linear motion transducer with a side actuation, ideally suited for applications with very long travels.

### FEATURES

- Measurement range 25 mm to 3000 mm
- High accuracy  $\pm 1\%$  down to  $\pm 0.025\%$
- Excellent repeatability
- Essentially infinite resolution
- Simple mounting
- Actuation tolerant to some misalignment
- Reduced bulk
- 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	LINEAR, conductive plastic
Output type	Connector
Market appliance	Industrial
Dimensions	L x 36 mm x 61 mm (with L = TET + 169 mm max.)

### ELECTRICAL SPECIFICATIONS

Theoretical electrical travel (TET) = E	From 25 mm to 3000 mm in increments of 25 mm
Independent linearity (over TET) On request	$\leq \pm 1\%$ ; $\leq \pm 0.1\%$ $\leq \pm 0.05\%$ for $E \geq 100$ mm $\leq \pm 0.025\%$ for $E \geq 200$ mm
Actual electrical travel (AET)	AET = E + 1.5 mm min.
Ohmic value ( $R_T$ )	400 $\Omega$ /cm to 2 k $\Omega$ /cm
Resistance tolerance at 20 °C	$\pm 20\%$
Repeatability	$\leq 0.01\%$
Maximum power rating	0.05 W/cm at 70 °C, 0 W at 125 °C
Wiper current	Recommended: a few $\mu$ A - 1 mA max. (continuous)
Load resistance	Minimum $10^3 \times R_T$
Insulation resistance	$\geq 1000$ M $\Omega$ , 500 V <sub>DC</sub>
Dielectric strength	$\geq 1000$ V <sub>RMS</sub> , 50 Hz

### MECHANICAL SPECIFICATIONS

Mechanical travel (MT)	See dimensions table 1
Housing	Anodized aluminum
Operating force	2.5 N typical
Coupling	Self alignment
Termination	Hydraulic type connector DIN 43650
Wiper	Precious metal multifinger
Sealed to	IP53
Mounting	Movable brackets

### PERFORMANCE

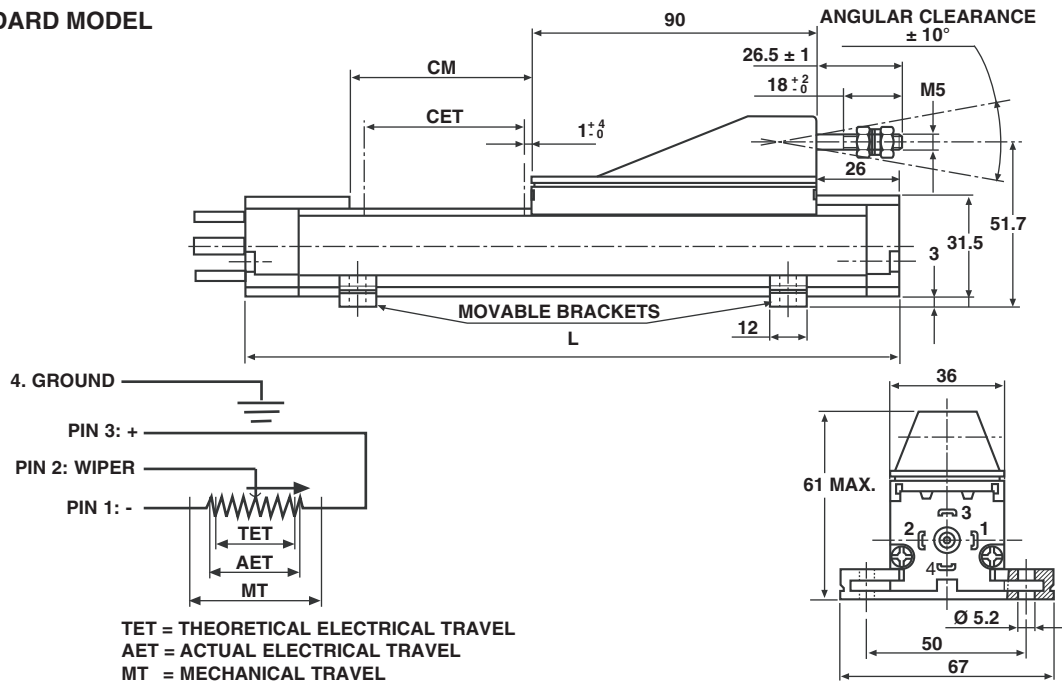
Operating life	40 million cycles typical/1 Hz/T° = 20 °C $\pm$ 5 °C/80 % TET
Temperature range	-55 °C to +125 °C
Sine vibration on 3 axes	1.5 mm peak to peak or 15 g - 10 Hz - 2000 Hz
Mechanical shocks on 3 axes	50 g - 11 ms - half sine
Speed (max.)	8 m/s for $f < 2$ Hz; 3 m/s for $f < 5$ Hz

#### Note

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

## DIMENSIONS in millimeters, general tolerance $\pm 1$ mm

### STANDARD MODEL

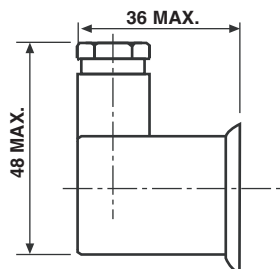


LENGTH	AET	MT	L
L1 to L20	TET + 1.5 min.	TET + 7 min.	TET + 158 max.
L21 to L40	TET + 1.5 min.	TET + 11 min.	TET + 163 max.
L41 to L120	TET + 1.5 min.	TET + 15 min.	TET + 169 max.

## ELECTRICAL CONNECTIONS

### FEMALE CONNECTOR

Vishay's Reference: 3248610



## ORDERING INFORMATION/DESCRIPTION

REC	139	L	43	D	103	W...	e3
SERIES	MODEL	NUMBER OF TRACKS	THEORETICAL ELECTRICAL TRAVEL	LINEARITY	OHMIC VALUE	MODIFICATIONS	LEAD FINISH
		L = 1	Times 25 mm	A: $\pm 1\%$ D: $\pm 0.1\%$ E: $\pm 0.05\%$ F: $\pm 0.025\%$	First 2 digits are significant numbers 3 <sup>rd</sup> digit indicates number of zeros	Special feature code number	Pure tin

## SAP PART NUMBERING GUIDELINES

RE	139 L	43	D	103	W....
SERIES	MODEL	TET	LINEARITY	OHMIC VALUE	SPECIAL FEATURES



## 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.