

## 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

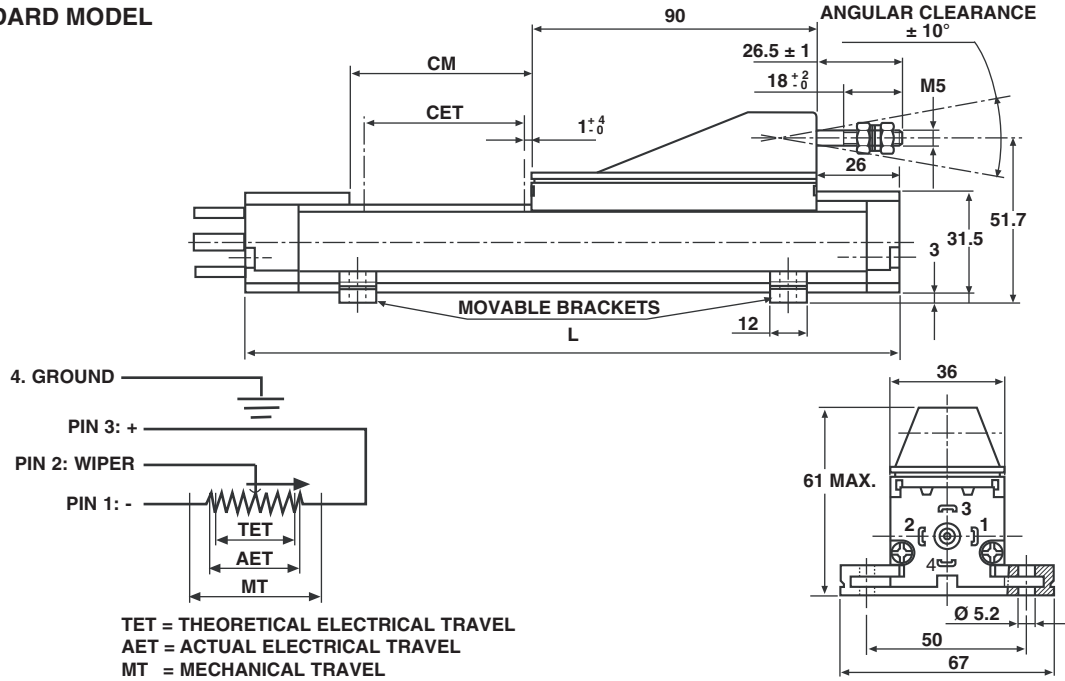
Mechanical travel (MT)	See dimensions table 1
Housing	Anodized aluminum
Operating force	2.5 N typical
Coupling	Self alignment
Termination	Hydraulic type connector DIN 43650
Wiper	Precious metal multifinger
Sealed to	IP53
Mounting	Movable brackets

### 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

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

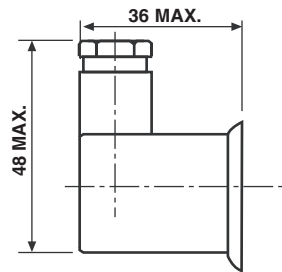
**STANDARD MODEL**



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



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