

# Analog Linear Displacement Sensor



## FEATURES

- Conductive plastic potentiometer technology. Infinite resolution
- Anodized light alloy housing
- Precious metal multi-contact wiper
- Stainless steel floating shaft
- Flange mounting
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



## QUICK REFERENCE DATA

Sensor type	LINEAR, conductive plastic
Output type	Output by cable
Market appliance	Industrial
Dimensions	35 mm

## ELECTRICAL SPECIFICATIONS

PARAMETER												
Theoretical electrical travel (TET)	UET - 0 mm + 2 mm											
Independent linearity standard	± 0.1 %											
Independent linearity optional	± 0.05 %											
Tolerance on R <sub>n</sub>	± 20 %											
Temperature coefficient	-300 ± 300 ppm/°C											
Wiper current	≤ 1 mA											
Recommended load impedance	≥ 1000 R <sub>n</sub>											
Dielectric strength	500 V <sub>RMS</sub> , 50 Hz, 1 min											
Insulation resistance	≥ 10 GΩ at 500 V <sub>DC</sub>											
Output smoothness	≤ 0.05 %											
Useful electrical travel (UET)	100 mm	150 mm	200 mm	250 mm	300 mm	400 mm	500 mm	600 mm	700 mm	800 mm	900 mm	1000 mm
Total resistance R <sub>n</sub> (E3 series)	4.7 kΩ	4.7 kΩ	4.7 kΩ	4.7 kΩ	4.7 kΩ	10 kΩ	10 kΩ	22 kΩ	22 kΩ	47 kΩ	47 kΩ	47 kΩ
Power rating at +70 °C (0.15 W/cm of travel)	1.5 W	2.25 W	3 W	3.75 W	4.5 W	6 W	7.5 W	9 W	10.5 W	12 W	13.5 W	15 W

## SPECIFIC CHARACTERISTICS

PARAMETER	
Shaft version	F = floating G = guided (on request)
Connector output	S = standard (straight plug) C = with right angle plug (on request)
Cable output	A = axial cable sheath (on request) R = radial cable (on request)

## MECHANICAL SPECIFICATIONS

PARAMETER													
Mechanical travel	UET + 3 mm min.												
Driving force	≤ 5 N in F version (floating shaft) ≤ 10 N in G version (guided shaft)												
Backlash	< 10 μm												
Protection class	IP 50 in F version (floating shaft) IP 64 in G version (guided shaft)												
Maximum displacement speed	1.5 m/s												
Shaft / body misalignment	≤ ± 0.5 mm in F version												
Mounting	Flanges												
Useful electrical travel (UET)	100 mm	150 mm	200 mm	250 mm	300 mm	400 mm	500 mm	600 mm	700 mm	800 mm	900 mm	1000 mm	
Weight	Shaft + wiper	46 g	56 g	67 g	78 g	89 g	110 g	131 g	153 g	175 g	196 g	220 g	240 g
	Sensor	450 g	540 g	620 g	720 g	800 g	970 g	1140 g	1320 g	1490 g	1660 g	1830 g	2000 g

PERFORMANCE	
PARAMETER	
Operating temperature range	-40 °C to +105 °C
Storage temperature range	-55 °C to +125 °C
Life	20M operations for UET ≤ 250 mm
	10M operations for 250 < UET ≤ 600 mm
	5M operations for UET < 600 mm

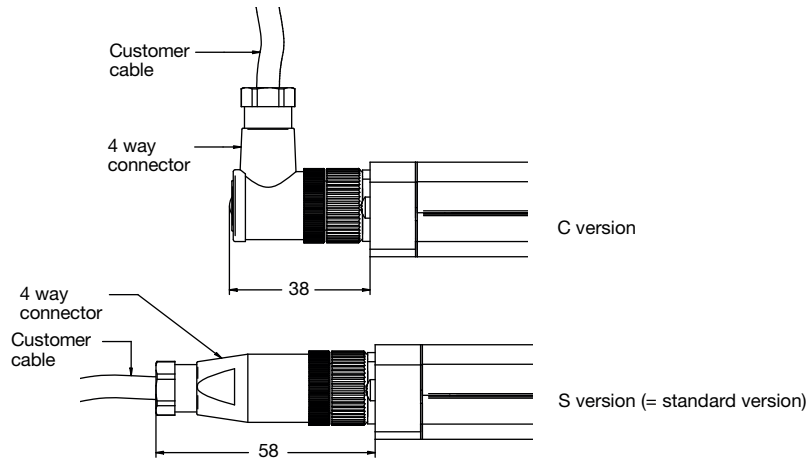
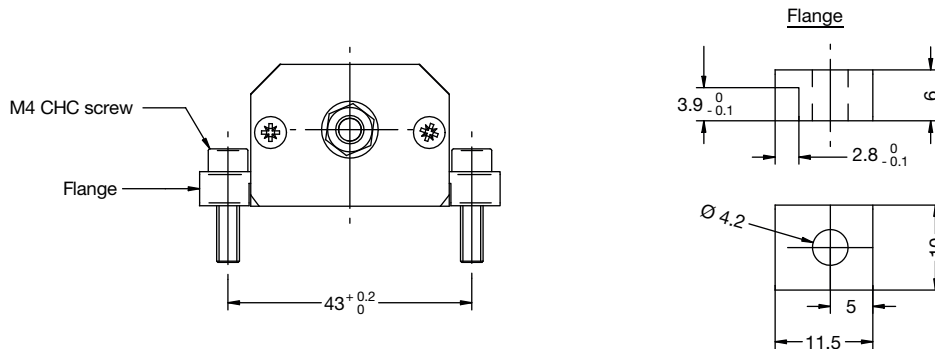
**Note**

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

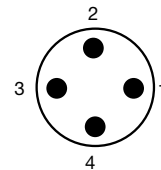
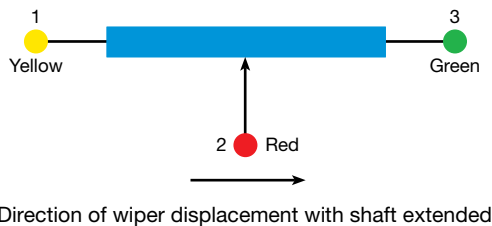
SAP PART NUMBERING GUIDELINES						
MODEL	USEFUL ELECTRICAL TRAVEL (mm)	SHAFT VERSION	VALUE	LINEARITY	LEADS	PACKAGING
RH28	0025	F = floating shaft	472 = 4K7	D = 0.1 %	S = standard (straight plug)	B = box
	0050		103 = 10K			
	0100		223 = 22K			
	0150		473 = 47K			
	0200		In accordance with UET, see "Electrical Specifications"			
	0250					
	0300					
	0350					
	0400					
	0500					
	0600					
	0700					
	0800					
	0900					
1000						

DIMENSIONS in millimeters
<p><b>RADIAL CABLE OUTPUT VERSION (R) (WITH OPTIONAL FRONT AND REAR PIVOTS) (ON REQUEST)</b></p>
<p><b>AXIAL CABLE OUTPUT VERSION (A) (ON REQUEST)</b></p>

**DIMENSIONS** in millimeters

**CONNECTOR OUTPUT VERSION (WITH STRAIGHT OR RIGHT ANGLE PLUG, S OR C VERSION)**

**MOUNTING**


Useful electrical travel UET	Up to 250 mm	300 mm to 550 mm	600 mm to 900 mm	1000 mm
Number of flanges	4	6	8	10

**ELECTRICAL DIAGRAM**


BINDER 713 Series M12 connector (4 pin)  
for use with a 3 mm to 6 mm diameter cable  
Soldering contacts for 0.75 mm<sup>2</sup> max. wires

**OPTIONS** (on request)

- Independent linearity ± 0.05 %
- 25 mm and 50 mm electrical travels
- Front pivot
- Rear pivot (with radial cable output only)



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