

# Analog Displacement Sensor for Mounting in Hydraulic Cylinder



This sensor is designed to be integrated into a hydraulic cylinder. Due to its small diameter, it can be fitted in the rod of small cylinders. The geometry of the profile and wiper is perfectly suited to operation at an optimum speed under all oil viscosity conditions encountered in the temperature range.

## FEATURES

- Conductive plastic potentiometer technology. Infinite resolution
- Precious metal multi-contact wiper
- Light alloy profiled support
- Wire or connector outputs
- 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	Wires and connector
Market appliance	Industrial
Dimensions	Diameter 12 mm

## ELECTRICAL SPECIFICATIONS

PARAMETER	
Theoretical electrical travel (TET)	100 mm to 1000 mm
Independent linearity standard	± 0.1 %
Independent linearity optional	± 0.05 %
Total resistance ( $R_n$ )	425 $\Omega$ /cm (350 $\Omega$ /cm to 4000 $\Omega$ /cm optional)
Tolerance on $R_n$	± 20 %
Temperature coefficient	-300 ± 300 ppm/°C
Power rating at +25 °C	0.3 W/cm of travel
Power rating at +125 °C	0 W/cm
Wiper current	≤ 1 mA
Recommended load impedance	≥ 1000 $R_n$
Dielectric strength	1000 $V_{RMS}$ , 50 Hz, 1 min
Insulation resistance	≥ 10 G $\Omega$ at 500 $V_{CC}$
Output smoothness	≤ 0.05 %

## MECHANICAL SPECIFICATIONS

PARAMETER	
Mechanical travel	TET + 1.5 mm
Driving force	≤ 1 N typical
Backlash	< 10 $\mu$ m
Maximum displacement speed	1.5 m/s (32 cst oil)

## PERFORMANCE

PARAMETER	
Operating temperature range	-40 °C to +125 °C
Storage temperature range	-55 °C to +125 °C
Life	20M cycles for TET ≤ 300 mm 10M cycles for 300 mm < TET ≤ 600 mm 5M cycles for TET > 600 mm
Operating pressure	350 bar in continuous mode (600 bar at peak)

### Note

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

## SAP PART NUMBERING GUIDELINES

MODEL	DIAMETER	LENGTH (mm)	VALUE	LINEARITY	PACKAGING
PRHY	12	107	9631 = 9K6	D = 0.1 %	B = box
		177	1592 = 15K9		
		527	4742 = 47K4		

## CONNECTIONS

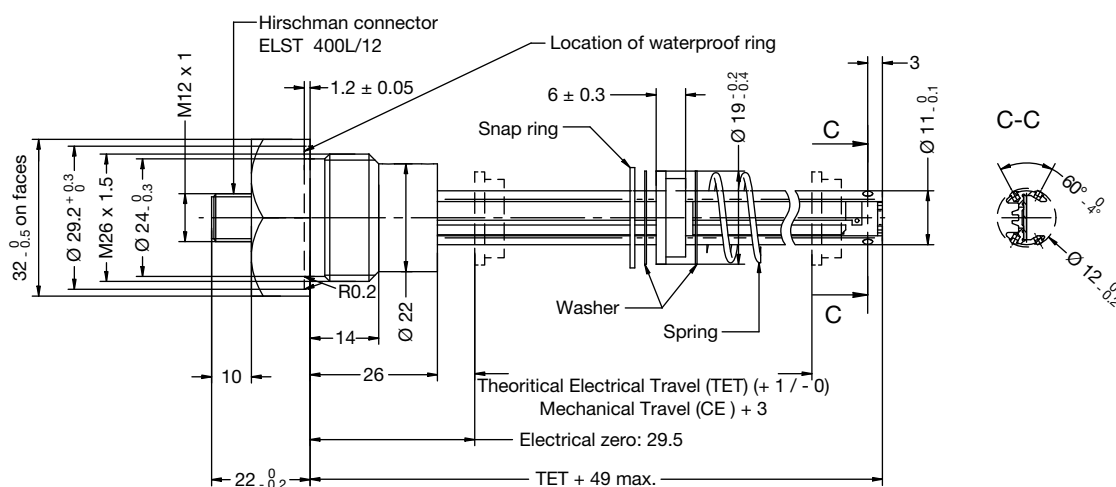
**Design 1:** Standard version with connector inserted in interface flange

**Design 2:** Sensor with wire outputs without sealed feed-through and flange

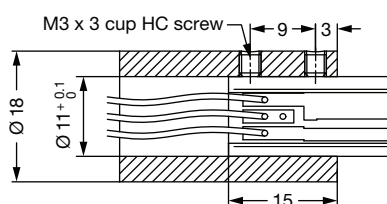
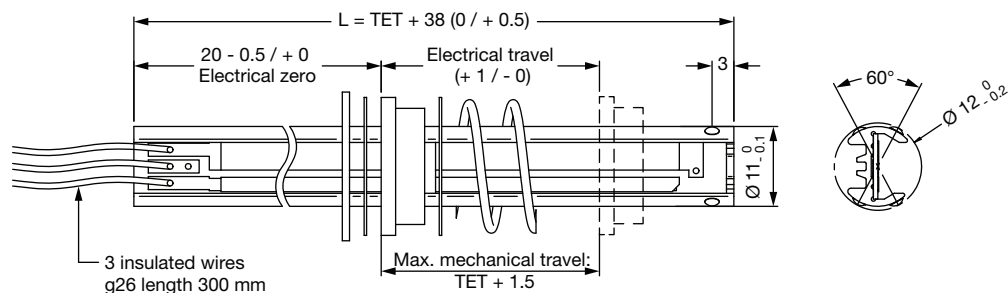
**Design 3:** Sensor equipped with a sealed feed-through and a wire output cylinder interface flange

**DIMENSIONS** in millimeters

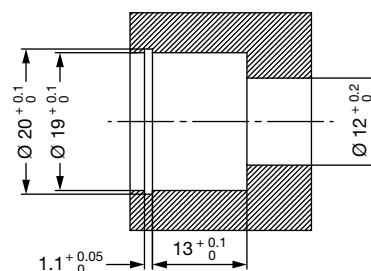
### DESIGN 1 (STANDARD VERSION)



## DESIGN 2 (ON REQUEST)

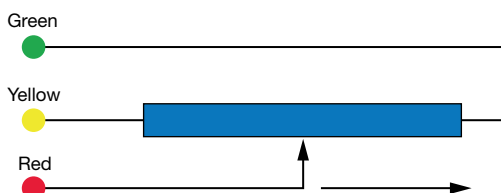


## CYLINDER ROD BORING



**DIMENSIONS** in millimeters

**DESIGN 3 (ON REQUEST)**

**ELECTRICAL DIAGRAM**

**OPTIONS** (on request)

- Other ohm value ( $R_n$ ) - see Electrical Specifications
- Other linearity - see Electrical Specifications
- Special equipment
- Other diameter: 6 mm



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