

# Optimum series

## 58 AC miniature LVDT displacement transducers



- > Good measurement range to length ratio
- > Small body diameter
- > Large radial core to bore clearance
- > Rugged construction
- > High performance

The Optimum Series of LVDT transducers is an ideal choice for process control and research applications. The free core variants are designed for precise linear positioning and measurement of moving parts where zero friction and hysteresis is required within a restricted space.

The free core version is available with an optional light weight core for mounting on to small, rapidly moving structures without affecting their performance and integrity - important in some control applications. The lightweight core has a 1.9mm diameter which improves core to bore clearance, making alignment easier. A light titanium core carrier can be supplied on request.

The Optimum is also available as a guided product and with universal joints either as an LVDT or Digital product for use in applications where it is not possible to mount the core and carrier on the moving part.

*Note: the Optimum can be wired as either differential output or ratiometric*



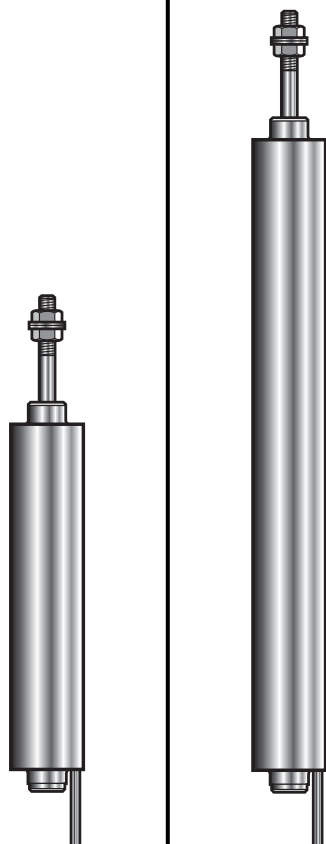
Product type	Analogue	Digital
Guided	OP1.5	D03
Free		
Measurement		
Measurement Range (mm)	<b>±1.5</b>	<b>3</b>
Pre-travel (mm)	1.78	
Total mechanical travel (mm)	6.72	
Linearity (%FRO)	0.25	
Resolution (µm)	see note 1	<0.1
Min Upward force <sup>1</sup> (g)	69	
Horizontal Force at mid point (g)	66	
Mechanical		
Material	400 Series stainless steel	
Standard cable length (m)	0.5 (PTFE)	
Length of carrier (protruding at 0 position) <sup>2</sup>	15.42	
Transducer weight ±0.5 (g)	7	
Mass of moving components ±0.2 (g)	1.5	
Spring rate (g/mm)	14.2	
Environmental		
Storage Temperature (°C)	-40 to +150	
Operating Temperature (°C)	-40 to +150	
IP rating	IP65	
Electrical Interface (LVDT)		
Wiring configuration	LVDT	
Energising Voltage (Vrms)	1 to 10	
Sensitivity at 5 kHz (±5% mV/V/mm)	108	-
Energising Current at 5 kHz (mA/V)	6	-
Zero Phase Frequency (kHz)	13.1	-

**1** Dependent on electronics

**2** Only guided with spring

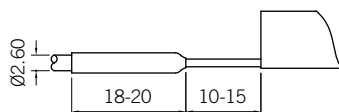
**3** For guided versions only

All analogue LVDT transducers calibrated at 3V, 5kHz frequency into a 100kΩ load.

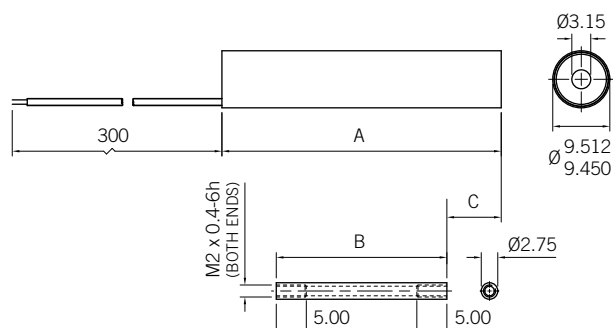


Analogue	Digital	Analogue	Digital
OP6	D012	OP12.5	D025
<b>±6.0</b>	<b>12</b>	<b>±12.5</b>	<b>25</b>
1.53		2.33	
15.22		29.82	
0.25		0.25	
see note 1	<0.1	see note 1	<0.2
82		73	
94		93	
400 Series stainless steel		400 Series stainless steel	
0.5 (PTFE)		0.5 (PTFE)	
26.77		43.97	
12		20	
2.5		3.5	
6.6		5.2	
-40 to +150		-40 to +150	
-40 to +150		-40 to +150	
IP65		IP65	
LVDT		LVDT	
1 to 10		1 to 10	
78	-	69	-
4.5	-	5.7	-
24.1	-	24.8	-

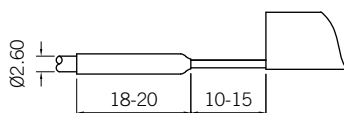
### Free Core



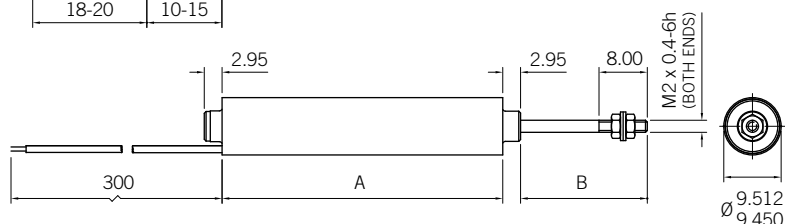
Type	'A' Body Length	'B' Core Length	'C' At Null
<b>OP1.5</b>	20.60	11.00	4.80
<b>OP6.0</b>	46.50	28.40	9.05
<b>OP12.5</b>	83.50	50.80	16.35



### Guided Core



Type	'A' Body Length	'B' At Null
<b>OP1.5</b>	20.60	14.10
<b>OP6.0</b>	46.50	21.00
<b>OP12.5</b>	83.50	31.70



### Universal Joints

