Optimum series

Narrow bodied high performance sensors

- Good measurement range to body length ratio
- Small body diameter
- Larger radial bore clearance
- Rugged Construction

The Optimum Series of LVDT sensors 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 posible to mount the core and carrier on the moving part.

Note: the Optimum can be wired as either differential output or ratiometric (except OP/10)

Sensor					
LVDT Free Core	OP/1.5/F	OP/6/F	OP/10/F	OP/12.5/F	OP/25/F
LVDT Guided	OP/1.5/G	OP/6/G	OP/10/G	OP/12.5/G	OP/25/G
ORBIT Digital Guided	DO/3	DO/12	DO/20	DO/25	DO/50
Measurement					
Measurement Range (LVDT/Digital) (mm)	±1.5 / 3	±6 / 12	±10 / 20	±12 / 24	±25 / 50
Total mechanical travel ±0.5 (mm)	3.6	15.2	23.2	29.8	TBA
Pre-travel (guided only) (mm)	1.78	1.53	1.53	2.33	TBA
Linearity (% FSO)	<0.25				
Resolution μm[1]	<0.1			<0.2	<0.4
Temperature Coefficients (%FSO/°C)	<0.05%				
Mechanical					
Body diameter (mm)	9.52				
Case Material	400 Series Stainless Steel				
Tip Force ±20% (Horizontal at middle of range) N	66	94	94	93	TBA
Cable Type	F.E.P.				
Standard cable Length (m)	5 (max)				
Standard cable Style	A or B				
Nominal Mass (g)	7	12	12	20	TBA
Nominal Mass of Moving Parts (g)	1.5	2.5	2.0	3.5	TBA
Environment					
Operating Temperature (Sensor) (°C)	-40 to +150				
Storage Temperature (Sensor) (°C)	-40 to +150				
Sealing	IP65				
Electrical Interface (LVDT)					
Energising Voltage	1-10 (Vrms)				
Energising Current at 5kHz (mA/V)	6	4.5	3.2 at 20 kHz	7	TBA
Frequency Response (-3db) Hz	Depends on Electronics and Sensor Configuration				
Sensitivity at 5kHz ±10% mV/V/mm	108	78	85 at 20 kHz	69	TBA
Zero phase frequency (kHz)	13.1	24.1	>30	24.8	TBA
Electrical Interface (Orbit)					
Bandwidth	Up to 460 Hz (selectable)				
Output	Solartron Orbit				
Power (VDC)	5±0.25 @ 0.06A				
Sealing	IP43				
Weight (grams) Probe Interface electronics	52				
T connector (including DIN rail adaptor)	46				

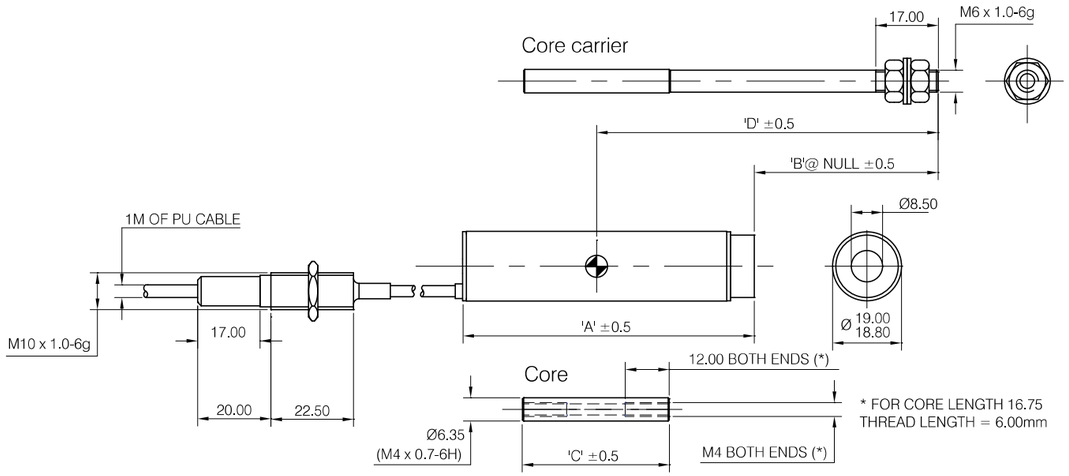
Note 1: Resolution specification is only applicable to ORBIT digital sensors. The resolution of LVDT sensors is effectively infinite and is only limited by the conditioning electronics.

Cable Style A comprises of individual twisted cores
Cable Style B comprises a sheathed and screened cable

Also see...	
Sensor dimensions/drawings	Page 37
Orbit interface dimensions/drawings	Page 41

SR series dimensions (mm)

MI Cable / Free Core

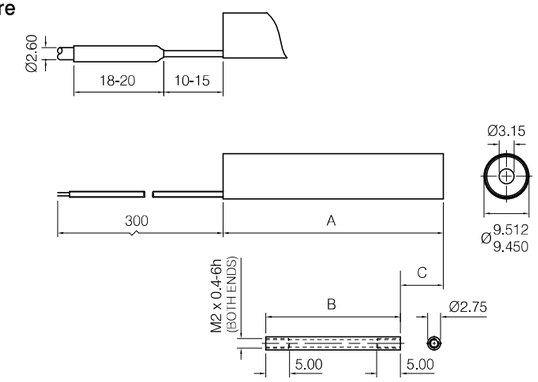


A = Body length
B = Carrier Protrusion From Front Face at Mid Range (null)
C = Core Length
D = Null Point to End of Carrier at Mid Range

Range (mm)		MI Cable Free Core				
LVDT	DC & 4-20mA	LVDT	DC & 4-20mA	All		
		A	A	B	C	D
±2.5	5	55.6	93.4	37.8	16.75	63.4
±5	10	74.5	112.5	45.7	29.00	80.5
±7.5	15	82.0	120.0	47.0	31.50	85.8
±10	20	96.5	134.5	54.5	39.00	100.5
±15	30	110.5	148.5	64.9	37.50	117.8
±25	50	132.5	170.5	77.2	38.50	141.3
±50	100	189.5	225.2	112.6	50.00	205.0
±75	150	240.5	278.5	157.8	50.00	276.0

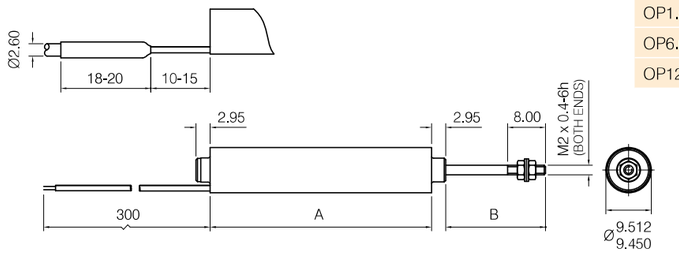
Optimum series dimensions (mm)

Free core



Type	A	B	C at null
OP1.5	20.60	11.00	4.80
OP6.0	46.50	28.40	9.05
OP12.5	83.50	50.80	16.35

Guided core



Type	A	B at null
OP1.5	20.60	14.10
OP6.0	46.50	21.00
OP12.5	83.50	31.70

Universal joints