

## MODEL LSM - MINIATURE LENGTH SENSOR

- COMPACT SIZE
- QUADRATURE OUTPUT
- BUILT-IN SPRING TENSIONING
- VERTICAL, HORIZONTAL, OR UPSIDE-DOWN MOUNTING
- REDUCES INSTALLATION TIME



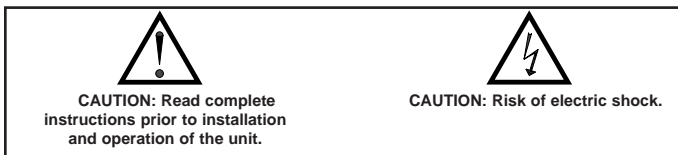
### DESCRIPTION

Designed for light to medium duty sensing applications, the Miniature Length Sensor, Model LSM, is compact in size and easy-to-use.

It features a built-in spring-loaded torsion arm that provides a simple-to-adjust torsion load, allowing the unit to be mounted in almost any orientation, including upside down. Using one of two 6" measuring wheel, the LSM can be used on almost any surface, while operating at speeds up to 3000 feet per minute. The housing is a durable, conductive composite material that will eliminate static build up. Whether you need to measure speed, position, or distances, the Model LSM is the ideal solution. For other pulse rates and/or wiring configurations, contact the factory for further details.

### SAFETY SUMMARY

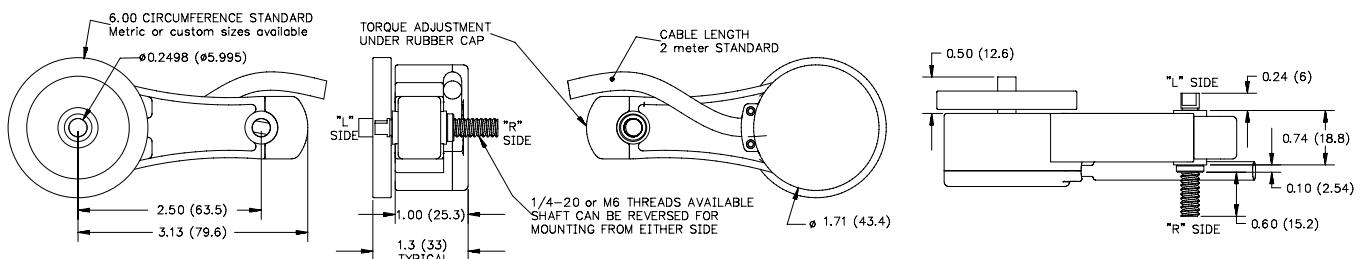
All safety related regulations, local codes and instructions that appear in the literature or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.



### ELECTRICAL SPECIFICATIONS

- INPUT VOLTAGE:** 4.75 to 28 VDC max for temperatures up to 85° C; 4.75 to 24 VDC for temperatures between 85° C to 100° C
- INPUT CURRENT:** 100 mA max (65 mA typical) with no output load
- OUTPUT FORMAT:**  
Incremental: Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the wheel side.  
*See Waveform Diagrams.*
- OUTPUT TYPE:** Open Collector; 20 mA max per channel
- FREQUENCY RESPONSE:** 200 KHz standard
- NOISE IMMUNITY:** Tested to BS EN61000-6-2; BS EN50081-2; BS EN61000-4-2; BS EN61000-4-3; BS EN61000-4-6, BS EN500811
- SYMMETRY:** 180° (±18°) electrical
- QUAD. PHASING:** 90° (±22.5°) electrical
- MIN. EDGE SEP:** 67.5° electrical
- ACCURACY:** Within 0.017° mechanical or 1 arc-minute from true position. (for CPR>189)

### DIMENSIONS In inches (mm)



Note: All dimensions are in inches with a tolerance of +0.005" or +0.01" unless otherwise specified.

## MECHANICAL SPECIFICATIONS

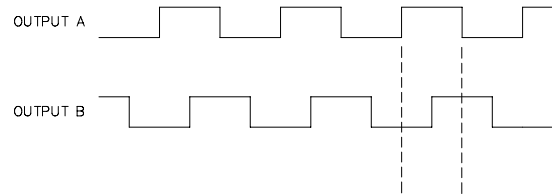
- MAXIMUM MECHANICAL SPEED:** 6000 RPM. Higher speeds may be achievable, contact the factory.
- SHAFT MATERIAL:** Stainless Steel
- SHAFT TOLERANCE:** +0.0000/-0.0004" (+0.000/-0.010 mm)
- RADIAL SHAFT LOAD:** 5 lb. max. Rated load of 2 to 3 lb for bearing life of  $1.2 \times 10^{10}$  revolutions
- AXIAL SHAFT LOAD:** 5 lb. max. Rated load of 2 to 3 lb for bearing life of  $1.2 \times 10^{10}$  revolutions
- STARTING TORQUE:** IP50 0.05 oz-in; IP65 0.4 oz-in
- ELECTRICAL CONNECTION:** 2 meter Cable, (foil and braid shield, 24 AWG conductors). Drain wire internally connected.
- MOUNTING:** Pivot Shaft can be mounted from either side of the housing and is field reversible
- HOUSING:** Stainless steel fibers in a high temperature nylon composite
- OPERATING TEMPERATURE:** -20° to +85° C
- WEIGHT:** 5 oz typical

## ENVIRONMENTAL SPECIFICATIONS

- OPERATING TEMPERATURE:** -20° to +85° C for standard models  
-40° to +85° C for low temperature option  
-20° to +100° C for high temperature option
- STORAGE TEMPERATURE:** -25° to +85° C
- HUMIDITY:** 98% RH non-condensing
- VIBRATION:** 10 g @ 58 to 500 Hz
- SHOCK:** 80 g @ 11 msec duration
- SEALING:** IP50 standard; IP65 available

## WAVEFORM DIAGRAMS

### INCREMENTAL SIGNALS



## WIRING SPECIFICATIONS

FUNCTION	CABLE WIRE COLOR
Com	Black
+VDC	Red
A	White
B	Green
Shield	Bare

## ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PPR	PART NUMBER
LSM	Miniature Length Sensor with Quadrature Output	250	LSM10250
		500	LSM10500
		1000	LSM11000
	Urethane (6" Circumference) Wheel	-	WI0006OF
	Knurled (6" Circumference) Wheel	-	WI0006OK

### LIMITED WARRANTY

The Company warrants the products it manufactures against defects in materials and workmanship for a period limited to one year from the date of shipment, provided the products have been stored, handled, installed, and used under proper conditions. The Company's liability under this limited warranty shall extend only to the repair or replacement of a defective product, at The Company's option. The Company disclaims all liability for any affirmation, promise or representation with respect to the products.

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