Model ZMD - Miniature Length Sensor (Relplaces Model LSM)

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



DESCRIPTION

Designed for light to medium duty sensing applications, the Miniature Length Sensor, Model ZMD, 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 a 6" or 200 mm wheel, the ZMD 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 ZMD is the ideal solution. For other pulse rates and/or wiring configurations, contact the factory for further details.

OPEN COLLECTOR OUTPUT WIRING

The ZMD sensors have open collector outputs. An open collector output brings the uncommitted collector of the encoder switching device to the external world. Because the collector element is not associated with the sensor supply voltage, the sensor output collector may be “pulled up” to external voltages different than the encoder supply voltage (30 VDC maximum). NPN open collector outputs are current sinking devices. An output signal will not be generated unless a pull-up resistor is connected from the open-collector to the positive side of an external supply. The same supply can be used for powering the unit and for the pull-up resistor.

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.

CAUTION: Risk of Danger.
Read complete instructions prior to installation and operation of the unit.

SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

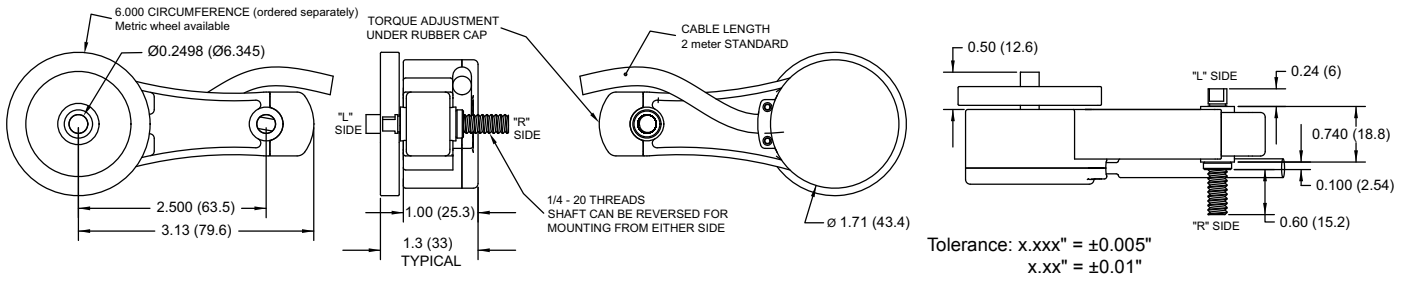
1. **INPUT VOLTAGE**: 4.75 to 28 VDC max for temperatures up to 85 ºC; 4.75 to 24 VDC for temperatures between 85 ºC to 100 ºC, reverse polarity protected.
2. **INPUT CURRENT**: 100 mA max (65 mA typical) with no output load
3. **OUTPUTS**: NPN Open Collector Transistor, V_{OH} = 30 VDC max.; 20 mA max. current. Incremental - Two square waves in quadrature with A leading B for clockwise rotation, as viewed from the wheel side.
4. **MAX FREQUENCY**: 200 KHz standard
5. **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 (Tested with 2 meter cable)
6. **SYMMETRY**: 180º (±18º) electrical
7. **QUAD. PHASING**: 90º (±22.5º) electrical
8. **MIN. EDGE SEP**: 67.5º electrical
9. **ACCURACY**: Within 0.017º mechanical or 1 arc-minute from true position. (for PPR>189)

MECHANICAL SPECIFICATIONS

1. **MAXIMUM MECHANICAL SPEED**: 6000 RPM. Higher speeds may be achievable, contact the factory.
2. **SHAFT MATERIAL**: Stainless Steel
3. **SHAFT TOLERANCE**: +0.0000/-0.0004" (+0.000/-0.010 mm)
4. **RADIAL SHAFT LOAD**: 5 lb. max. Rated load of 2 to 3 lb for bearing life of 1.2 x 10^{10} revolutions
5. **AXIAL SHAFT LOAD**: 5 lb. max. Rated load of 2 to 3 lb for bearing life of 1.2 x 10^{10} revolutions
6. **STARTING TORQUE**: 0.05 oz-in
7. **ELECTRICAL CONNECTION**: 2 meter Cable, (foil and braid shield, 24 AWG conductors). Drain wire internally connected to case.

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

DIMENSIONS In inches (mm)



8. **HOUSING**: Stainless steel fibers in a high temperature nylon composite
9. **MOUNTING**: Pivot Shaft can be mounted from either side of the housing and is field reversible.
10. **WEIGHT**: 5 oz. typical (141.7 g)

ENVIRONMENTAL SPECIFICATIONS

1. **OPERATING TEMPERATURE**: -20 °C to 85 °C
2. **STORAGE TEMPERATURE**: -25 °C to +85 °C
3. **HUMIDITY**: 98% RH non-condensing
4. **VIBRATION**: 10 g @ 58 to 500 Hz
5. **SHOCK**: 80 g @ 11 msec duration
6. **SEALING**: IP50

ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PPR	PART NUMBER
ZMD	Miniature Length Sensor with Quadrature Output	250	ZMD0250B
		500	ZMD0500B
		1000	ZMD1000B
		2000	ZMD2000B
		2500	ZMD2500B

Only factory stocked part numbers are listed. Consult Factory for part number and availability of other PPR and output configurations.

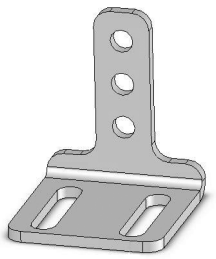
ACCESSORIES

DESCRIPTION	PART NUMBER
Mounting Bracket	RPGMB002
Urethane (6" Circumference) Wheel	WI0006OF
Knurled (6" Circumference) Wheel	WI0006OK
Urethane (200 mm Circumference) Wheel	WM0200OF
Knurled (200 mm Circumference) Wheel	WM0200OK

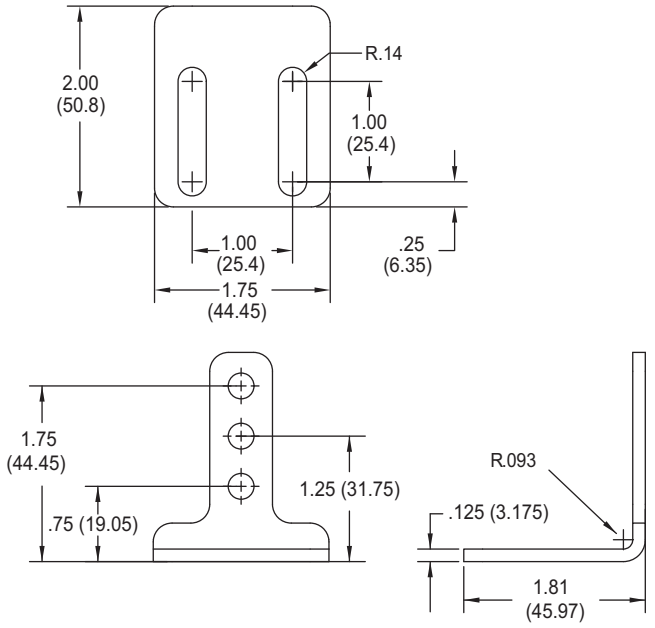
Do not dispose of unit in trash - Recycle

MOUNTING BRACKET

This accessory angle mounting bracket allows for a variety of mounting positions and makes installation of the ZMD even easier.



DIMENSIONS In inches (mm)



LIMITED WARRANTY

(a) Red Lion Controls Inc. (the "Company") warrants that all Products shall be free from defects in material and workmanship under normal use for the period of time provided in "Statement of Warranty Periods" (available at www.redlion.net) current at the time of shipment of the Products (the "Warranty Period"). **EXCEPT FOR THE ABOVE-STATED WARRANTY, COMPANY MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO THE PRODUCTS, INCLUDING ANY (A) WARRANTY OF MERCHANTABILITY; (B) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; OR (C) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.** Customer shall be responsible for determining that a Product is suitable for Customer's use and that such use complies with any applicable local, state or federal law.

(b) The Company shall not be liable for a breach of the warranty set forth in paragraph (a) if (i) the defect is a result of Customer's failure to store, install, commission or maintain the Product according to specifications; (ii) Customer alters or repairs such Product without the prior written consent of Company.

(c) Subject to paragraph (b), with respect to any such Product during the Warranty Period, Company shall, in its sole discretion, either (i) repair or replace the Product; or (ii) credit or refund the price of Product provided that, if Company so requests, Customer shall, at Company's expense, return such Product to Company.

(d) **THE REMEDIES SET FORTH IN PARAGRAPH (c) SHALL BE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDY AND COMPANY'S ENTIRE LIABILITY FOR ANY BREACH OF THE LIMITED WARRANTY SET FORTH IN PARAGRAPH (a).**