MODEL LDM
Non-Contacting
High Resolution
Linear Encoder Kit

- Low cost non-contacting linear encoder designed for OEM usage
- Utilizes reflective optical diffraction technology for superb bi-directional repeatability
- .520” by 1.814” cross section designed to fit most space restrictive applications
- Available in either Metric or English Resolutions down to (1.0 Micron, .00005 inch)
- Differential, TTL compatible line driver output with optional index
- Travel speeds up to 2 meters per second (80 inches per second)
- Up to 48” (1220mm) travel lengths
- Enhanced mounting tolerances
- Single LED light source

The model LDM is a compact non-contacting high resolution incremental linear encoder. It is available with three scale options. Mini scale, Micro scale and the Micro scale mounted on a spar for simplifying the scale installation. In addition to the varies scale options the model LDM can also be supplied with varies lengths of PVC jacketed cable or a 12” PARLEX high flex cable.
**ELECTRICAL**

- **Resolution range:** See part number table for available resolutions.
- **Light source:** Gallium aluminum arsenide L.E.D. rated @ 100,000 Hrs. MTBF (mfg’s spec).
- **Light sensor:** Phototransistor detectors.
- **Excitation voltage:** +5Vdc ± 5% at 120mA maximum.
- **Output format:** Differential line driver RS422 output.
- **Quadrature:** Two count channels (A & B) in phase quadrature with an optional ZR output.
- **Symmetry:** 90° ± 45° (at maximum conditions).
- **Rise and fall time:** 180° ± 18° (at 10 KHz output frequency).
- **Zero reference width:** See Zero Reference width chart.
- **Phase sense:** Channel A leads channel B for left to right movement of the scale when viewing the pattern side of the scale.

**MECHANICAL**

- **Housing material:** 20% glass filled polycarbonate.
- **Scale material:** Soda-lime glass (Thermal expansion 4.5 PPM/°F).
- **Cover material:** 20% glass filled polycarbonate.
- **Connector on encoder:**
  - JST # 08FMS-1.0SP-TF (fits Parlex cable).
  - JST # SM08B-SRSS-TB (fits PVC cable).

**ENVIRONMENTAL**

- **Operating temperature:** 0°C to +70°C
- **Storage temperature range:** -25°C to +85°C
- **Shock:** 10 G for 11 millisecond duration.
- **Humidity:** To 98% R.H. (non-condensing).

<table>
<thead>
<tr>
<th>RESOLUTION</th>
<th>SPEED</th>
<th>ZERO REFERENCE WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>(.5) .005 MV</td>
<td>80 IN. / SEC. (2.0 MPS)</td>
<td>8 CYCLES APPROXIMATE</td>
</tr>
<tr>
<td>(.2) .001 IN.</td>
<td>80 IN. / SEC. (2.0 MPS)</td>
<td>15 CYCLES APPROXIMATE</td>
</tr>
<tr>
<td>(.3) .0005 IN.</td>
<td>40 IN. / SEC. (1.0 MPS)</td>
<td>30 CYCLES APPROXIMATE</td>
</tr>
<tr>
<td>(.4) .001 MV</td>
<td>40 IN. / SEC. (1.0 MPS)</td>
<td>38 CYCLES APPROXIMATE</td>
</tr>
<tr>
<td>(.5) .0005 MV</td>
<td>20 IN. / SEC. (0.5 MPS)</td>
<td>76 CYCLES APPROXIMATE</td>
</tr>
</tbody>
</table>

LDM = X - X - X - XX

- RESOLUTION (0-5)
- CABLE
- ADD FOR SPECIAL MODIFICATION

1 = .005 MM
2 = .001 IN.
3 = .0005 IN.
4 = .001 MV
5 = .0005 MV
0 = NONE WITH Connector 08FMS-1.0SP-TF ON HOUSING
1 = NONE WITH Connector SM08B-SRSS-TB ON HOUSING
2 = 12 INCH HIGH FLEX W/O CONNECTOR
3 = 12 INCH HIGH FLEX W/ CONNECTOR
4 = 24 INCH PVC JACKETED CABLE, 28 AWG WIRES
5 = 36 INCH PVC JACKETED CABLE, 28 AWG WIRES
6 = 48 INCH PVC JACKETED CABLE, 28 AWG WIRES
7 = 60 INCH PVC JACKETED CABLE, 28 AWG WIRES
TABLE 1

MAX. LENGTH OF MEASUREMENT STROKE (MICRO SCALE)

<table>
<thead>
<tr>
<th>ENGLISH</th>
<th>METRIC</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.32 IN.</td>
<td>135 MM</td>
<td>NO ZERO</td>
</tr>
<tr>
<td>5.02 IN.</td>
<td>127 MM</td>
<td>LEFT END OF TRAVEL</td>
</tr>
<tr>
<td>5.02 IN.</td>
<td>127 MM</td>
<td>RIGHT END OF TRAVEL</td>
</tr>
<tr>
<td>5.32 IN.</td>
<td>135 MM</td>
<td>CENTER OF TRAVEL</td>
</tr>
</tbody>
</table>

TABLE 2

GAP | RESOLUTION
---|------------
.015 | .0001 IN.; .00005 IN.; .001 MM
.010 | .0005 MM

FUNCTION

+5 VDC (RED)
Z- (GRAY)
Z+ (BROWN)
B- (BLUE)
B+ (YELLOW)
A- (GREEN)
A+ (ORANGE)
GND (BLACK)