**TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise</td>
<td>0.03% output smoothness</td>
</tr>
<tr>
<td>Resolution</td>
<td>Essentially infinite</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Independent and absolute linearity to ±0.025%</td>
</tr>
<tr>
<td>Resistance-Temperature Characteristic</td>
<td>Typically ±5% maximum change in total resistance over standard operating temperature ±200 PPM/°C available in some resistances</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-55°C to 125°C standard. ... optional to 225°C in some designs</td>
</tr>
<tr>
<td>Power Ratings</td>
<td>1 watt/cm²</td>
</tr>
<tr>
<td>Resistance Tolerance</td>
<td>±20% standard (±10% optional)</td>
</tr>
<tr>
<td>Output Functions</td>
<td>Linear, log, audio, or custom non-linear</td>
</tr>
<tr>
<td>Environmental</td>
<td>Operates under wide variety of “hostile” environments</td>
</tr>
<tr>
<td>Function Lengths</td>
<td>Up to 160° for linear motion and to 359° for rotary units</td>
</tr>
</tbody>
</table>

![Diagram of MystR® Elements](image)

Examples of monotonic functions:

- **SIN θ**
  - $0 \leq \theta \leq 90°$
  - Linear function
  - Log function

Examples of non-monotonic functions:

- % 𝐸₀/𝐸𝑖𝑛
- % TRAVEL

Courtesy of Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com
### TECHNICAL SPECIFICATIONS

#### MODELS

<table>
<thead>
<tr>
<th>Models</th>
<th>M-22B</th>
<th>M-22S</th>
</tr>
</thead>
</table>

#### MECHANICAL

<table>
<thead>
<tr>
<th>Case Diameter</th>
<th>7/8&quot; (22mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Mechanical Travel</td>
<td>330° ± 5°</td>
</tr>
<tr>
<td>Starting Torque (max)</td>
<td>1.0 oz. in.</td>
</tr>
<tr>
<td>Shaft Run Out (max)</td>
<td>NA</td>
</tr>
<tr>
<td>Stop Strength</td>
<td>5 in. lb.</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-40° to 85°C (-40° to 185°F)</td>
</tr>
</tbody>
</table>

#### ELECTRICAL

| Theoretical Electrical Travel | 320° |
| Independent Linearity*        | ±1%  |
| Total Resistance               | ±20% |
| Output Smoothness              | 0.10%|
| Resistance Temperature Characteristic | ±5% |
| Resolution                     | Infinite |
| Dielectric Strength            | 750 V rms |
| Insulation Resistance          | 1000 MΩ @ 500 Vdc |
| Power Rating                   | 0.4 Watts |
| Wiper Current (max)            | <1µA  |

#### OPTIONS**

**Shaft**
- M-22B: Flat, slot
- M-22S: NA

**Shaft Diameter**
- M-22B: 1/4" slot
- M-22S: NA

**Anti-rotational Pin**
- Available without
- M-22S: NA

**Resistance Values**
- M-22B: 1K, 5K, 10K ohms
- M-22S: ±10%

**Resistance Tolerance**
- M-22B: ±0.5%
- M-22S: ±5%, ±25%

### DIMENSIONS

#### M-22B POTENTIOMETER

**VIEW COMMON TO BOTH M22S/M22B**

**Hardware Kit Supplied**

**M-22S POTENTIOMETER**

**Slot:** 1/32" wide x 1/16" deep

**Flat:** 1/32" deep x 3/8" long

---

* 5 to 95% of Theoretical Electrical Travel

**Minimum quantities may be required**

**NOTE:** Do not test using an Ohmmeter on an RX1 scale or other current devices. Excessive wiper current can cause output errors or damage. Zero side load is recommended to achieve maximum performance.
### TECHNICAL SPECIFICATIONS

#### MECHANICAL

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Case Diameter</th>
<th>Total Mechanical Travel</th>
<th>Starting Torque</th>
<th>Radial Play (max)</th>
<th>Shaft Runout (max)</th>
<th>End Play (max)</th>
<th>Backlash</th>
<th>Operating Speed (max)</th>
<th>Temperature Range</th>
<th>Life</th>
<th>Vibration</th>
<th>Shock</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-09</td>
<td>7/8” (22mm)</td>
<td>Continuous degrees</td>
<td>0.4 oz. in.</td>
<td>0.001 in.</td>
<td>0.001 in.</td>
<td>0.005 in.</td>
<td>0.01”</td>
<td>10,000°/sec</td>
<td>-55° to 125°C</td>
<td>One billion dither operations</td>
<td>10 Hz to 2 KHz @ 20 g Per MIL-R-39023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-11</td>
<td>1 1/16” (27mm)</td>
<td></td>
<td>0.4 oz. in.</td>
<td>0.001 in.</td>
<td>0.001 in.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5 oz (14.7g)</td>
<td>100g 6 ms</td>
</tr>
<tr>
<td>45-13</td>
<td>1 7/16” (36mm)</td>
<td></td>
<td>0.8 oz. in.</td>
<td>0.001 in.</td>
<td>0.001 in.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.6 oz (18.13g)</td>
<td>100g 6 ms</td>
</tr>
<tr>
<td>65-20</td>
<td>2” (51mm)</td>
<td></td>
<td>1 oz. in.</td>
<td>0.001 in.</td>
<td>0.001 in.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.8 oz (51.01g)</td>
<td>2.5 oz (70.85g)</td>
</tr>
</tbody>
</table>

#### ELECTRICAL

<table>
<thead>
<tr>
<th>Theoretical Electrical Travel</th>
<th>Independent Linearity*</th>
<th>Total Resistance</th>
<th>Resistance Tolerance</th>
<th>Resistance Temperature Characteristic (max)</th>
<th>Resolution</th>
<th>Dielectric Strength</th>
<th>Insulation Resistance</th>
<th>Power Rating</th>
<th>Output Smoothness</th>
<th>Wiper Current (max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>340°</td>
<td>±0.1%</td>
<td>5 KΩ</td>
<td>±20%</td>
<td>±5%</td>
<td>Infinite</td>
<td>750 V rms</td>
<td>1000 MΩ @ 500 Vdc</td>
<td>1.5 Watts</td>
<td>0.03%</td>
<td>&lt;1 µA</td>
</tr>
<tr>
<td>345°</td>
<td>±0.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>750 V rms</td>
<td></td>
<td>1.5 Watts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>350°</td>
<td>±0.075%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1000 V rms</td>
<td></td>
<td>2.0 Watts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>353°</td>
<td>±0.075%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1000 V rms</td>
<td></td>
<td>3.0 Watts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: Do not test using an Ohmeter on Rx 1 scale or other current devices. Excessive wiper current can cause output errors or damage. Zero side load is recommended to achieve maximum performance.

---

**DIMENSIONS**

- **WPM 18-09**
- **WPM 25-11**
- **WPM 45-13**
- **WPM 65-20**

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230 Ryan Way, South San Francisco, CA 94080-6370  
Main Office: (650) 588-9200  
Outside Local Area: (800) 258-9200  
www.stevenengineering.com
AQMLT • HARSH DUTY POSITION TRANSUDER

The AQMLT is a shaftless waterproof linear potentiometer designed to operate in wet/washdown and in-tank environments.

The AQ series features an external actuator magnetically coupled to a position feedback element. The magnetic actuator replaces the shaft found in traditional linear transducers and eliminates the need for additional stroke length mounting space.

Precious metal dual wipers, MystR® proprietary conductive plastics, and anodized aluminum housings assure long life and reliable operation in numerous applications.

Intrinsically Safe for Class I, II, and III Division 1, Groups A, B, C, D, E, F and G for Hazardous (indoor/outdoor) NEMA 4 locations.

V max = 30 V, I max = 100 mA,
Ci = 0, uF, Li = 0 mH.

APPLICATIONS

• IN-TANK LEVEL SENSING
• ROBOTIC MOTION CONTROL
• WOODWORKING GUIDES
• SEISMOLOGY
• PACKAGING AND PROCESSING EQUIPMENT
• ANIMATED CHARACTERS
• MARINE STEERING SYSTEMS
• OFF-ROAD VEHICLES
• SEMICONDUCTOR PROCESS EQUIPMENT
• MEDICAL EQUIPMENT

FEATURES

• 3/8 inch diameter
• Multiple finger wiper design
• Extruded wiper block guides
• MystR plastic element
• Anodized extruded aluminum housing
• Sealed construction - IP68 rated
• Precious metal contact
• Absolute continuous measurement

BENEFIT

• Fits into tight spaces, clamps easily to cylinders
• Improves shock and vibration performance
• Smooth quiet motion; extends operating life
• Tested up to one billion dither operations
• Tolerates clamping loads
• Full performance in hostile environments
• Low noise level over entire life
• Accurate position at power up

HOW TO ORDER

<table>
<thead>
<tr>
<th>AQMLT</th>
<th>R5</th>
<th>N</th>
<th>00750</th>
<th>F</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical Travel*</td>
<td>R5 = 00750</td>
<td>01 = 01500</td>
<td>03 = 04500</td>
<td>06 = 09000</td>
<td>09 = 13500</td>
</tr>
</tbody>
</table>

Unit of Measure

N = Inches

Termination

C = Cable

Linearity

F = 1.0%

Total Resistance*

0750, 1500, 3000, 4500, 6000, 7500, 9000

Note: Not all combinations are available. Minimum quantity orders apply. Contact the factory for more details.

* Note: The Electrical Travel correlates to the Total Resistance (Ohms).
MECHANICAL

Total Mechanical Travel 0.6 to 12.1 in (min)
(15.2 TO 307.3 mm) (min)
Starting Forces 1.0 oz
Shock 50g 1 ms half sine
Vibration 20g rms 5Hz to 2kHz
Life One Billion dither operations

ELECTRICAL

Theoretical Electrical Travel 0.5 to 12 in.
(12.7 to 304.8 mm)
Independent Linearity* ± 1.0%
Total Resistance 1500 W per inch of electrical travel
Resistance Tolerance ± 20%
Operating Temperature -40° to 80° C
(-40° to 176° F)
Resolution Infinite
Insulation Resistance 500m W @ 500Vdc
Dielectric Strength 250 V rms
Maximum Applied Voltage 30 Vdc
Recommended Wiper Current † <1mA

* 5-95% of Theoretical Electrical Travel
† Do not test using an Ohmmeter on Rx 1 scale or other current devices. Excessive wiper current can cause output errors or damage. Zero side load is recommended to achieve maximum life.

DIMENSIONS

AREA AVAILABLE FOR CLAMPING WITHOUT RESTRICTING ELECTRICAL OR MECHANICAL TRAVEL

ELECTRICAL TRAVEL PLUS 1.5 (38.1) MAX
3 WIRE JACKETED CABLE, φ0.14 (φ 3.57)
#28 AWG CONDUCTOR
10 FEET LONG [3.05 METERS]
COLOR CODED PER SCHEMATIC

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is Buyer’s sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Item # 1123800 M.G. 10/01
**FEATURES**
- Vibration damped element
- Extended side bearing
- Extruded wiper carrier guides
- Rugged ribbed housing
- Precious metal wipers
- MystR® plastic elements
- High DC level output
- High performance bearings
- Absolute continuous measurement

**BENEFIT**
- No wiper bounce in high vibration environments
- Improved life under high misalignment
- Smooth operation under large misalignment
- For industrial environment
- Insures high performance, low noise, no oxidation
- Tested up to 1 billion operations
- Works with simple controllers
- Long life even under side-load conditions
- Accurate position at power-up

**APPLICATIONS**
- INJECTION MOLDING MACHINES
- PRINTING PRESSES
- MEAT PACKING EQUIPMENT
- DRILL PRESSES
- WOODWORKING MACHINES
- CRANES
- FRONT-END LOADERS
- SCALES
- SEMI CONDUCTOR PROCESSING

**DuraStar • Rodless Linear Position Transducer**

The DuraStar™ rodless linear position transducer incorporates over fifty years of MystR® technology into the longest lasting factory-rugged potentiometer. It allows for a large misalignment of shafts and housing, while providing whisper-quiet operation and smooth, clean signal output. MystR provides the DuraStar excellent durability, especially in dither life which is so often the determining factor in a potentiometer’s life. It is the perfect replacement unit to reduce maintenance operations.

The rodless side-sealed DuraStar can also be used to replace a rodded potentiometer in contaminated applications. As a replacement unit, it will improve performance while providing long life.

Intrinsically Safe for Class I, II, and III Division 1, Groups A, B, C, D, E, F and G for Hazardous (indoor/outdoor) NEMA 4 locations. V max = 30 V, I max = 100 mA, Ci = 0, uF, Li, = 0 mH.

**HOW TO ORDER**

<table>
<thead>
<tr>
<th>Model</th>
<th>DR 04 N 02K B 7 G</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>G = Hirschmann GDM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shaft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M5 x 0.8 Thread</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Linearity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B = 0.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Resistance* (Ohms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000, 5000, 10000</td>
</tr>
</tbody>
</table>

**Electrical Travel**
- 04 = 2000
- 05 = 2000
- 06 = 5000
- 08 = 5000
- 09 = 5000
- 12 = 5000
- 14 = 5000
- 16 = 5000

**Unit of Measure**
- N = Inches

---

*Note: Not all combinations are available. Minimum quantity orders apply. Contact the factory for more details.*

*Note: The Electrical Travel correlates to the Total Resistance (Ohms).*

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**MECHANICAL**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Mechanical Travel</td>
<td>4.2 to 50.2 in. (106 to 1275 mm)</td>
</tr>
<tr>
<td>Starting Force</td>
<td>1.0 lb (0.45 kg)</td>
</tr>
<tr>
<td>Total Weight</td>
<td>0.8 to 4.9 lb (0.36 to 2.2 kg)</td>
</tr>
<tr>
<td>Vibration</td>
<td>20 g rms 0.75 mm</td>
</tr>
<tr>
<td>Shock</td>
<td>50 g 11 ms half sine</td>
</tr>
<tr>
<td>Backlash</td>
<td>0.001 in. (0.025 mm)</td>
</tr>
<tr>
<td>Life</td>
<td>One Billion dither operations</td>
</tr>
</tbody>
</table>

**ELECTRICAL**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical Electrical Travel</td>
<td>4.0 to 50 in. (101.6 to 1270 mm)</td>
</tr>
<tr>
<td>Independent Linearity</td>
<td>0.1% from 0 to 100% (of Theoretical Electrical Travel)</td>
</tr>
<tr>
<td>Total Resistance</td>
<td>See How To Order</td>
</tr>
<tr>
<td>Resistance Tolerance</td>
<td>±20%</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>1000 M Ohms @ 500 Vdc</td>
</tr>
<tr>
<td>Dielectric Strength</td>
<td>1000 Vrms</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-65° to 105°C (-85° to 221°F)</td>
</tr>
<tr>
<td>Resolution</td>
<td>Infinite</td>
</tr>
<tr>
<td>Max Applied Voltage</td>
<td>75.0 Vdc</td>
</tr>
<tr>
<td>Recommended Wiper Current</td>
<td>&lt;1 μA</td>
</tr>
<tr>
<td>Electrical Connection</td>
<td>DIN 43650 Connector or equivalent</td>
</tr>
</tbody>
</table>

Caution: Do not test on an Ohm Meter on the Rx 1 scale or other current devices.  
Caution: Excessive Wiper Current can cause Output errors or damage.  
Caution: Zero shaft side load is recommended to achieve maximum life.

<table>
<thead>
<tr>
<th>Model</th>
<th>Body Length ‘L’ in inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR04</td>
<td>9.84</td>
</tr>
<tr>
<td>DR05</td>
<td>11.02</td>
</tr>
<tr>
<td>DR06</td>
<td>11.81</td>
</tr>
<tr>
<td>DR08</td>
<td>13.86</td>
</tr>
<tr>
<td>DR09</td>
<td>14.80</td>
</tr>
<tr>
<td>DR12</td>
<td>17.80</td>
</tr>
<tr>
<td>DR14</td>
<td>20.24</td>
</tr>
<tr>
<td>DR16</td>
<td>21.81</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Body Length ‘L’ in inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR18</td>
<td>23.82</td>
</tr>
<tr>
<td>DR20</td>
<td>25.83</td>
</tr>
<tr>
<td>DR24</td>
<td>29.84</td>
</tr>
<tr>
<td>DR30</td>
<td>35.83</td>
</tr>
<tr>
<td>DR36</td>
<td>41.83</td>
</tr>
<tr>
<td>DR40</td>
<td>46.83</td>
</tr>
<tr>
<td>DR50</td>
<td>55.83</td>
</tr>
</tbody>
</table>

**WARRANTY/REMEDY**

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While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.
**LONGFELLOW II • LINEAR POSITION TRANSDUCER**

The new Longfellow II has a rugged long-life design featuring greater resistance to vibration and a smooth high quality signal. It has a solid stainless steel shaft, longer front-end bearings, a vibration-free damped element, a spring-loaded ball joint and a high precision precious metal wiper. Carrier guides extrude the full length of the housing insure smooth operation even under severe side load conditions.

The Longfellow II is a direct drop-in replacement for existing Waters, Data Instruments, Novotechnik, Gefran or Sfernice units. The newly designed internal components provide improvements which were developed after worldwide testing and field experience.

Intrinsically Safe for Class I, II, and III Division 1, Groups A, B, C, D, E, F and G for Hazardous (indoor/outdoor) NEMA 4 locations. V max = 30 V, I max = 100 mA, Ci = 0, uF, Li = 0 mH.

**FEATURES**

- Vibration damped element
- Spring-loaded ball joint assembly
- Extruded wiper carrier guides
- Precious metal wipers
- MystR® plastic elements
- High DC level output
- High performance bearings
- Absolute continuous measurement
- Shaft seals
- LF2W

**BENEFIT**

- No wiper bounce in high vibration Environments
- Operation under high side loads
- Smooth operation under large misalignment
- Insures high performance, low noise, no oxidation
- Tested up to one billion operations
- Works with simple controllers
- Long life under side load conditions
- Accurate position at power-up
- Protect internal components from environments
- NEMA 4 and water resistant

**APPLICATIONS**

- INJECTION MOLDING MACHINES
- PRINTING PRESSES
- MEAT PACKING EQUIPMENT
- DRILL PRESSES
- WOODWORKING MACHINES
- CRANES
- FRONT-END LOADERS
- SCALES
- SEMI CONDUCTOR PROCESSING

**HOW TO ORDER**

<table>
<thead>
<tr>
<th>Model</th>
<th>LF2S</th>
<th>06</th>
<th>N</th>
<th>5K</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF2S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LF2W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical Travel</th>
<th>06, 09, 12, 14, 18, 24, 30, 36, 48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit of Measure</td>
<td>N = Inches</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Termination</th>
<th>A = Binder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaft</td>
<td>6 = 1/4 - 28 Thread</td>
</tr>
<tr>
<td>Linearity</td>
<td>B = 0.1%</td>
</tr>
<tr>
<td>Total Resistance</td>
<td>5K = 5000 Ohms</td>
</tr>
</tbody>
</table>

Note: Not all combinations are available. Minimum quantity orders apply. Contact the factory for more details.

Courtesy of Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com
TECHNICAL SPECIFICATIONS

MECHANICAL
Total Mechanical Travel 6 to 48 in. (150 to 1200 mm)
Starting Forces* 1.0 lb (0.45 kg)
Total Weight 0.8 to 4.9 lb (0.36 to 2 kg)
Vibration** 20 g rms/0.75 mm 5-2 Hz
Shock 50 g, 11 ms half sine
Backlash 0.001 in. (0.025 mm)
Life One Billion Dither Operations

ELECTRICAL
Theoretical Electrical Travel 6.0 to 48.0 in. (150 to 1200 mm)
Independent Resolution Infinite
Linearity 0.1% over Theoretical Electrical Travel
Total Resistance 5000 Ohms
Resistance Tolerance 20%
Operating Temperature -65° C to 105° C (-85° to 221° F)
Resolution
Insulation Resistance 1000 M Ohms @ 500 Vdc
Dielectric Strength 1000 V rms
Recommended Wiper Current <1 μA
Electrical Connection Binder Series 681
Connection Connector or Equivalent
Maximum Applied Voltage 30 Vdc

* Starting force for LFIIW 5 lbs. MAX
** For vibration levels up to 50 g rms and higher additional housing clamps are required

Caution: Do not test on an Ohm Meter on the Rx 1 scale or other current devices.
Caution: Excessive Wiper Current can cause Output errors or damage.
Caution: Zero shaft side load is recommended to achieve maximum life.

SPECIALS AND ACCESSORIES
• Other Electrical Travels
• Other Resistance Values
• Rod-end Bearings
• Ball Joint Assembly
• Dual Element
• DIN 43650 Connector
• Optional Linearity Values
• M6 x 1 Metric Thread

WARRANTY/REMEDY
Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is Buyer’s sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.
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Item # 1102800 M.G. 10/01

www.honeywell.com/sensing/products/di
**SHORT LONGFELLOW SERIES • LINEAR POSITION TRANSDUCER**

The Short Longfellow is frequently used for measuring linear position or displacement up to 6 inches on a wide variety of manufacturing and process equipment. The mechanical design of the unit’s front and rear bearings, anodized extruded aluminum housing, stainless steel shaft and precious metal wipers are suitable for a factory’s harsh environment.

Based on the proprietary MystR® conductive plastic film, it provides a high resolution, absolute position measurement without external signal conditioners.

Intrinsically Safe for Class I, II, and III Division 1, Groups A, B, C, D, E, F and G for Hazardous (indoor/outdoor) NEMA 4 locations. V max = 30 V, I max = 100 mA, C i = 0, uF, L i = 0 mH.

**APPLICATIONS**
- INJECTION MOLDING MACHINES
- PRINTING PRESSES
- MEAT PACKING EQUIPMENT
- WEATHER INSTRUMENTS
- DRILL PRESSES
- WOODWORKING MACHINES
- CRANES
- FRONT-END LOADERS
- SCALERS
- SEMI CONDUCTOR PROCESSING

**FEATURES**
- Precious metal wipers
- 0.081 inch thick housing with 0.25 inch shaft
- Shaft seals
- MystR® plastic element
- Absolute continuous measurement
- High performance bearings
- High level DC output

**BENEFIT**
- Insures high performance, low noise
- Rugged construction for manufacturing environment
- Protects internal components from factory environment
- Tested up to 1 billion operations
- Accurate position at power up
- Long life even with side load conditions
- Works with simple controls

**HOW TO ORDER**

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
</table>
| Model | SLF = Standard  
SLW = Water Resistant |
| Electrical Travel | 01 = 1500  
02 = 3000  
03 = 4500  
04 = 6000  
05 = 9000 |
| Unit of Measure | N = Inches |
| Termination | 1500  
F = Binder |
| Shaft | 6 = 1/4 - 28 Thread |
| Linearity | 6 = 1.0%  
B = 0.1% |
| Total Resistance | 1500, 3000, 4500, 6000, 9000 |

Note: Not all combinations are available. Minimum quantity orders apply. Contact the factory for more details.

Note: The Total Resistance is determined by Electrical Travel, at 1500 Ohms per inch.

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TECHNICAL SPECIFICATIONS

MECHANICAL
Total Mechanical Travel  See table below
Starting Force*  1 lb
Total Weight  0.26 to 0.49 lb
Vibration  20 g / 0.75 mm (rms)  5-2 kHz
Shock  50 g, 11 ms half sine
Backlash  0.001 in.
Life  One Billion operations

ELECTRICAL
Theoretical Electrical Travel  See table below
Independent Linearity**  ±1.0% or ±0.1%
Total Resistance  1500 Ohms per inch theoretical electrical travel
Resistance Tolerance  ±20%
Operating Temperature  -65° to 105° C
Resolution  Infinite
Maximum Applied Voltage  40 Vdc
Recommended Wiper Current  <1 µA
Electrical Connection  Binder Series 681 Connector or equivalent

* Starting Force for SLW 5 lbs. (2.3 kg)
** 5-95% of Theoretical Electrical Travel

Caution: Do not test on an Ohm Meter on the Rx 1 scale or other current devices.
Caution: Excessive Wiper Current can cause Output errors or damage.
Caution: Zero shaft side load is recommended to achieve maximum life.

<table>
<thead>
<tr>
<th>Model</th>
<th>Electrical Travel in inches</th>
<th>Mechanical Travel in inches</th>
<th>Total Resistance in Ohms</th>
<th>Body Length 'X' in inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLF01 or SLW01</td>
<td>1.0</td>
<td>1.20</td>
<td>1500</td>
<td>4.05</td>
</tr>
<tr>
<td>SLF02 or SLW02</td>
<td>2.0</td>
<td>2.20</td>
<td>3000</td>
<td>5.05</td>
</tr>
<tr>
<td>SLF03 or SLW03</td>
<td>3.0</td>
<td>3.15</td>
<td>4500</td>
<td>5.95</td>
</tr>
<tr>
<td>SLF04 or SLW04</td>
<td>4.0</td>
<td>4.15</td>
<td>6000</td>
<td>6.95</td>
</tr>
<tr>
<td>SLF06 or SLW06</td>
<td>6.0</td>
<td>6.15</td>
<td>9000</td>
<td>8.95</td>
</tr>
</tbody>
</table>

SPECIALS AND ACCESSORIES
• Other Mechanical Travels
• Other Electrical Travels
• Other Resistance Values
• Rod and Bearings
• Ball Joint Assembly
• Other Linearity Values

WARRANTY/REMEDY
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Item # 1098800 M.G. 10/01

Sensing and Control
Honeywell
100 Discovery Way
Acton, MA 01720 USA
Tel: (877) 384-1300; Fax: (978) 263-0630

www.honeywell.com/sensing/products/di

Courtesy of Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com
**APPLICATIONS**
- Medical Equipment
- Hospital Beds
- Linear Actuators
- Animated Characters
- Gauging
- Woodworking Guides
- Fluid Flow Meters
- Seismology
- Semi Conductor Processing

**LT • HALF INCH DIAMETER LINEAR POSITION TRANSDUCER**

The Model LT is a small diameter linear position transducer that is rugged enough to withstand the hostile environment of the factory. Using a proprietary dual wiper and the MystR® conductive plastic film the LT provides usable output at high vibration levels for long periods. The LT transducers use precious metal wipers to further enhance reliability. The LT can be provided with shaft seals for spray of hose.

Intrinsically Safe for Class I, II, and III Division 1, Groups A, B, C, D, E, F and G for Hazardous (indoor/outdoor) NEMA 4 locations. V max = 30 V, I max = 100 mA, C i = 0, μF, L i = 0 mH.

**FEATURES**
- 0.50 inch diameter
- Dual wiper design
- Extruded wiper block guides
- MystR® plastic element
- Anodized extruded aluminum housing
- Stainless steel shaft
- Precious metal contact
- Absolute continuous measurement

**BENEFIT**
- Fits into tight spaces, clamps easily to cylinders
- Improves shock and vibration performance
- Smooth quiet motion; extends operating life
- Tested up to one billion operations
- Tolerates clamping loads
- Full performance in hostile environments
- Low noise level over entire life
- Accurate position at power up

**HOW TO ORDER**

<table>
<thead>
<tr>
<th>Model</th>
<th>LTS</th>
<th>05</th>
<th>N</th>
<th>05K</th>
<th>F</th>
<th>5</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTS = Standard</td>
<td>LTW = Water Resistant</td>
<td>Shaft</td>
<td>Linearity</td>
<td>Total Resistance*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td>Travel*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTS 05 N 05K F 5 C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01 = 1000</td>
<td>06 = 6000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02 = 2000</td>
<td>07 = 7000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03 = 3000</td>
<td>08 = 8000</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>04 = 4000</td>
<td>09 = 9000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05 = 5000</td>
<td>10 = 10000</td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Termination**

- C = Cable

**Shaft**

- 5 = 4-40 Thread

**Linearity**

- B = 0.1%
- F = 1.0%

**Total Resistance**

- 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, 10000

Note: Not all combinations are available. Minimum quantity orders apply. Contact the factory for more details.

*Note: The Electrical Travel correlates to the Total Resistance (Ohms).*
MODELS LT • HALF INCH DIAMETER LINEAR POSITION TRANSDUCER

TECHNICAL SPECIFICATIONS

MECHANICAL
Total Mechanical Travel 1.05 to 10.05 in. (min)
26.7 to 255.3 mm (min)
Starting Force 1.0 oz (max)*
Shock 50 g 11 ms half sine
Vibration 20 g rms 5 Hz to 2 KHz
Life One Billion dither operations

ELECTRICAL
Electrical Travel 1 to 10 in.
(1 inch increments) (25.4 to 254.0 mm)
Independent Linearity ** ±1.0%
Total Resistance 1000 Ohms per inch electrical travel
Resistance Tolerance ±20%
Operating Temperature -40° to 80°C
(-40° to 176°F)
Resolution Infinite
Insulation Resistance 500 M Ohms @ 500 Vdc
Dielectric Strength 1000 V rms
Max. Applied Voltage 30 Vdc
Backlash 0.0002 in. max
Recommended Wiper Current <1 µA

* 12 oz. max. for 'LTW' models rated at IPX5
** From 5% to 95% of theoretical electrical travel

Caution: Do not test on an Ohm Meter on the Rx 1 scale or other current devices.
Caution: Excessive Wiper Current can cause Output errors or damage.
Caution: Zero shaft side load is recommended to achieve maximum life.

DIMENSIONS
xx.xx = inches
(xx.x) = mm

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SPECIALS AND ACCESSORIES

- Other Mechanical Travels
- Other Electrical Travels
- Other Resistance Values
- Rod-end Bearing
- Metric Shaft Adapter

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**APPLICATIONS**
- Medical Equipment
- Hospital Beds
- Linear Actuators
- Animated Characters
- Gauging
- Woodworking Guides
- Fluid Flow Meters
- Seismology
- Semiconductor Processing

**MLT • 3/8 INCH DIAMETER LINEAR POSITION TRANSDUCER**

The Models MLT are small diameter linear position transducers rugged enough to withstand the hostile environment of the factory. Using a proprietary dual wiper, internal ball joint and the MystR® conductive plastic film the MLT provides usable output at high vibration levels for long periods. MLT Transducers use precious metal wipers to further enhance reliability.

Intrinsically Safe for Class I, II, and III Division 1, Groups A, B, C, D, E, F and G for Hazardous (indoor/outdoor) NEMA 4 locations. V max = 30 V. I max = 100 mA. C i = 0. uF. L i = 0 mH.

**FEATURES**
- 0.375 inch diameter
- Dual wiper design
- Extruded wiper block guides
- MystR® plastic element
- Internal spring loaded ball joint
- Anodized extruded aluminum housing
- Stainless steel shaft
- Precious metal contact
- Absolute continuous measurement

**BENEFIT**
- Fits into tight spaces, clamps easily to cylinders
- Improves shock and vibration performance
- Smooth quiet motion; extends operating life
- Tested up to one billion operations
- Less error from shaft misalignment
- Tolerates clamping loads
- Full performance in hostile environments
- Low noise level over entire life
- Accurate position at power up

**HOW TO ORDER**

<table>
<thead>
<tr>
<th>Model</th>
<th>MLT</th>
<th>0R5</th>
<th>N</th>
<th>0750</th>
<th>F</th>
<th>5</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Travel*</td>
<td>0R5 = 750</td>
<td>001 = 1500</td>
<td>002 = 3000</td>
<td>003 = 4500</td>
<td>004 = 6000</td>
<td>005 = 7500</td>
<td>006 = 9000</td>
</tr>
<tr>
<td>Unit of Measure</td>
<td>N = Inches</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Resistance*</td>
<td>0750, 1500, 3000, 4500, 6000, 7500, 9000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Termination</td>
<td>C = Cable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shaft</td>
<td>5 = 4-40 Thread</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>B = 0.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>F = 1.0% (Best possible on 0.5 in. device)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D = 0.25% (Best possible on 1.0 in. device)</td>
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<td></td>
</tr>
</tbody>
</table>

*Note: Not all combinations are available. Minimum quantity orders apply. Contact the factory for more details.

*Note: The Electrical Travel correlates to the Total Resistance (Ohms).
TECHNICAL SPECIFICATIONS

MECHANICAL

Total Mechanical Travel  0.55 to 6.05 in. (min)
13.9 to 153.7 mm (min)

Starting Force  1.0 oz (max)

Shock  50 g 11 ms half sine

Vibration  20 g rms 5 Hz to 2 KHz

Life  One Billion dither operations

ELECTRICAL

Theoretical Electrical Travel (1 inch increments)  0.5 to 6 in.
(12.7 to 152.4 mm)

Independent Linearity  See How to Order

Total Resistance  1500 Ohms per inch electrical travel

Resistance Tolerance  ±20%

Operating Temperature  -40° to 80°C
(-40° to 176°F)

Resolution  Infinite

Insulation Resistance  500 M Ohms @ 500 Vdc

Dielectric Strength  1000 V rms

Max. Applied Voltage  30 Vdc

Backlash  0.0005 in. max

Recommended Wiper Current  <1 µA

Caution: Do not test on an Ohm Meter on the Rx 1 scale or other current devices.
Caution: Excessive Wiper Current can cause Output errors or damage.
Caution: Zero shaft side load is recommended to achieve maximum life.

SPECIALS AND ACCESSORIES

• Other Mechanical Travels
• Other Electrical Travels
• Other Resistance Values
• Rod-end bearing
• Metric Shaft Adapter

DIMENSIONS

xx.xx = inches
( xx.x) = mm

Model | Electrical Travel in inches | Total Resistance Ohms | Housing Length ‘X’ in inches | Weight in grams
--- | --- | --- | --- | ---
MLT005 | 0.5 | 750 | 1.7 | 11
MLT001 | 1.0 | 1500 | 2.2 | 14
MLT002 | 2.0 | 3000 | 3.2 | 20
MLT003 | 3.0 | 4500 | 4.2 | 23
MLT004 | 4.0 | 6000 | 5.2 | 28
MLT005 | 5.0 | 7500 | 6.2 | 30
MLT006 | 6.0 | 9000 | 7.2 | 31

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