

Model 400 Series

Linear Actuation Conductive Plastic Precision Potentiometer / Position Sensor



MODEL STYLES AVAILABLE

| Model # | Body Style | Termination Style | Weight (grams) |
|---------|----------------------------------|-----------------------|-------------------------------|
| 423 | Round | Wire Leads | 28 + (16 x mechanical travel) |
| 424 | Round | Gold Plated Terminals | 28 + (16 x mechanical travel) |
| 432 | Round with Mounting Flange | Wire Leads | 38 + (16 x mechanical travel) |
| 434 | Round with Mounting Flange | Gold Plated Terminals | 38 + (16 x mechanical travel) |
| 472 | Rectangular | Wire Leads | 21 + (12 x mechanical travel) |
| 474 | Rectangular | Gold Plated Terminals | 21 + (12 x mechanical travel) |
| 482 | Rectangular with Mounting Flange | Wire Leads | 23 + (12 x mechanical travel) |
| 484 | Rectangular with Mounting Flange | Gold Plated Terminals | 23 + (12 x mechanical travel) |

ELECTRICAL¹

| | |
|--|---|
| Resistance Range | see Table 1 |
| Standard Resistance Tolerance | ±10% |
| Minimum Practical Resistance Tolerance | ±5% |
| Independent Linearity ² | see Table 1 |
| Minimum Practical Independent Linearity | see Table 1 |
| Input Voltage | 400 VDC maximum, not to exceed power rating |
| Power Rating | see Table 1 for Watts at 70°C, derating to 0 at 125°C |
| Dielectric Strength | 1,000 V rms |
| Insulation Resistance | 1,000 Megohms minimum |
| Output smoothness | 0.1% maximum at 10" to 18" per minute |
| Actual Electrical Travel | see Table 1 |
| Electrical Continuity Travel | within mechanical travel |
| End Voltage | maximum 0.5% of input voltage |
| Resolution | essentially infinite |
| Temperature Coefficient of Resistance ³ | -400 ppm/°C typical |
| Temperature Coefficient of Output Voltage ⁴ | ±10 ppm/°C typical |

MECHANICAL

| | |
|-------------------------|----------------|
| Total Mechanical Travel | see Table 1 |
| Actuating Force | 10 oz. maximum |
| Shaft Rotation | continuous |
| Backlash | 0.003" maximum |
| Static Stop Strength | 10 lb. minimum |

¹ Specifications subject to change without notice.

² Linearity is measured between 1% and 99% of input voltage.

³ Special TCR available to ±100 ppm/°C.

⁴ Measured with 10 VDC CW to CCW and slider at 50% of electrical travel.

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ENVIRONMENTAL (MIL-PRF-39023)

Operating Temperature Range

-40°C to +125°C dynamic, -55°C to +125°C static

Load Life

10 million shaft actuations at rated power & 70°C, maximum 10% ΔR

ORDERING INFORMATION

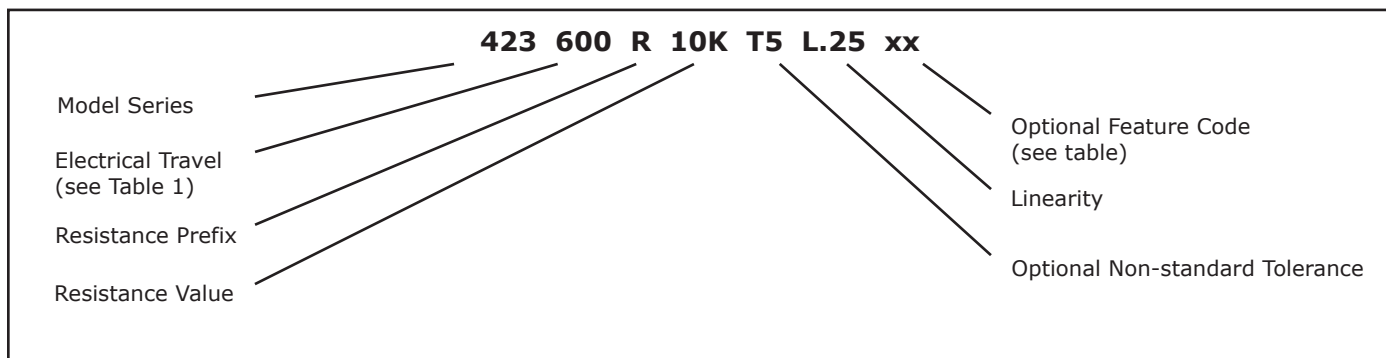


Table 1

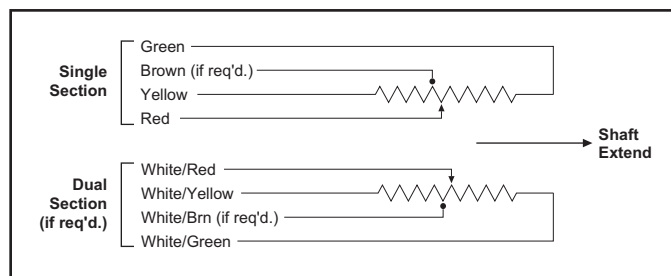
| Electrical Travel (Inches) | 0.5" | 1.0" | 2.0" | 3.0" |
|---|------------|------------|------------|------------|
| Ordering # | 050 | 100 | 200 | 300 |
| Standard Resistance Range (Ohms) | 1K to 150K | 2K to 300K | 4K to 600K | 8K to 900K |
| Standard Independent Linearity | ±1.0% | ±0.75% | ±0.5% | ±0.5% |
| Minimum Practical Independent Linearity | 0.5% | 0.25% | 0.25% | 0.25% |
| Power Rating (Watts) | 0.5 | 0.75 | 1.0 | 1.5 |
| Mechanical Travel (Inches) | 0.6" | 1.1" | 2.1" | 3.1" |

| Electrical Travel (Inches) | 4.0" | 5.0" | 6.0" |
|---|--------------|----------------|--------------|
| Ordering # | 400 | 500 | 600 |
| Standard Resistance Range (Ohms) | 1.2K to 1Meg | 1.5K to 1.3Meg | 2K to 1.5Meg |
| Standard Independent Linearity | ±0.5% | ±0.5% | ±0.25% |
| Minimum Practical Independent Linearity | 0.25% | 0.25% | 0.15% |
| Power Rating (Watts) | 2.0 | 2.5 | 3.0 |
| Mechanical Travel (Inches) | 4.1" | 5.1" | 6.1" |

FEATURE CODES

| | |
|--------------------------|----|
| Center Tap | CT |
| Linearity Tape | LT |
| Two Gangs (dual section) | 2G |

CIRCUIT DIAGRAM



BI Technologies Corporation

4200 Bonita Place, Fullerton, CA 92835 USA

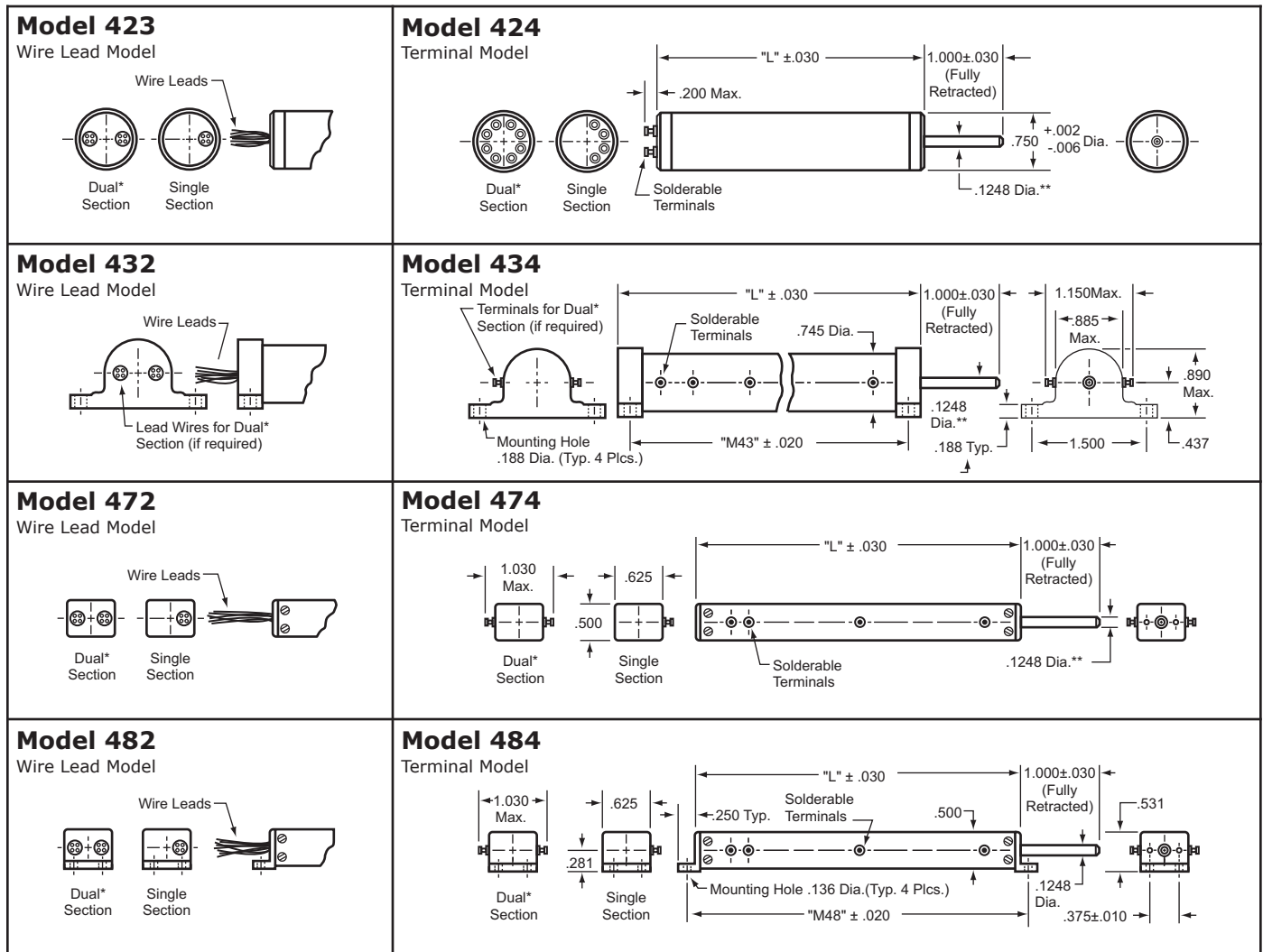
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OUTLINE DRAWINGS



| Model Number | Elect. Travel Inch±0.015 | Mech. Travel Inch±0.030 | Dim "L" Inch±0.030 | Dim "M43" Inch±0.020 | Dim "M48" Inch±0.020 |
|--------------|--------------------------|-------------------------|--------------------|----------------------|----------------------|
| 4XX-050 | 0.500 | 0.560 | 1.500 | 1.188 | 1.750 |
| 4XX-100 | 1.000 | 1.060 | 2.000 | 1.688 | 2.250 |
| 4XX-200 | 2.000 | 2.060 | 3.000 | 2.688 | 3.250 |
| 4XX-300 | 3.000 | 3.060 | 4.000 | 3.688 | 4.250 |
| 4XX-400 | 4.000 | 4.100 | 5.000 | 4.688 | 5.250 |
| 4XX-500 | 5.000 | 5.100 | 6.000 | 5.688 | 6.250 |
| 4XX-600 | 6.000 | 6.100 | 7.000 | 6.688 | 7.250 |

Notes:

* Dual sections and Center Tap are available on special order only

** Diameter is 0.1248" +0.0000" / -0.0003"

Unspecified tolerances are ±0.005"

Dimensions for "Wire Lead" models are the same as "Terminal" models except as indicated.

Housings, brackets, and caps are anodized aluminum.

Wire leads are #26 wire, 12 inch minimum length, meets MIL-C-16878C.

Shafts are stainless steel, chamfer is 0.015" x 45°.

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