## DWSP101 - String Potentiometer

Absolute Linear Position Feedback

Range: 0-4000mm

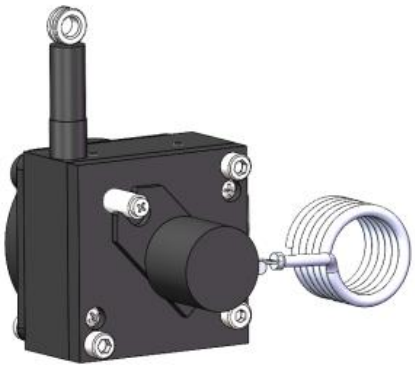
Compact Design

Anodized Aluminum Enclosure

IP50 / NEMA 1 · Automation and Test Applications

# DWSP101

Industrial Grade ·
Voltage Divider Output



## SPECIFICATIONS

**SUMMARY**

| | |
|---|---|
| Full Stroke Range | 0-4000 mm |
| Output Signal | voltage divider (potentiometer) |
| Accuracy | see ordering information |
| Repeatability | ±0.02% full stroke |
| Resolution | essentially infinite |
| Standard Cable Tension | 0.48mm dia. nylon-coated stainless |
| Enclosure Material | anodized aluminum |
| Sensor | plastic-hybrid precision potentiometer |
| Pot. Cycle Life | see ordering information |
| Max. Cable Accel. | see ordering information |
| Weight | 908 g (2 lb.) max. |

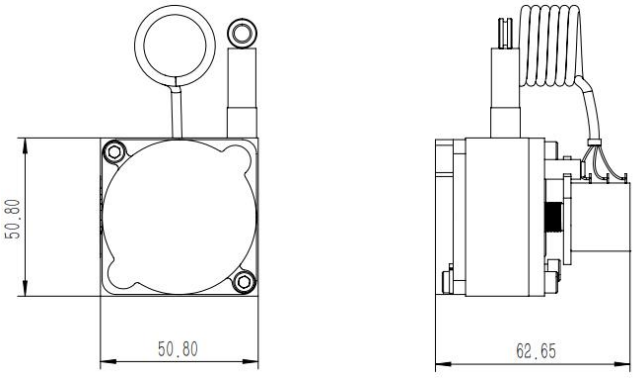
**ELECTRICAL**

| | |
|---|---|
| Input Resistance | 500, 1K, 5K, 10K ohms, see ordering information |
| Max. Input Voltage | see ordering information |
| Rated Power | see ordering information |
| Output Change Over Full Stroke | 94% ±4% of input voltage |

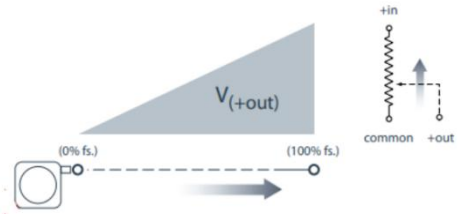
**ENVIRONMENTAL**

| | |
|---|---|
| Enclosure | IP50·NEMA 1 |
| Temperature Coefficient of Sensing Element | 88 PPM/ºF |
| Humidity | 100%RH@90°F(32°C) |
| Operating Temperature | -40° to 200°F (-40° to 90°C) |
| Vibration | up to 10 g to 2000 Hz max. |

The DWSP101 is a low-cost, compact and easy-to-use string potentiometer with a measuring range from 0-4000mm. It is recommended for applications where space and budget are limited. The voltage feedback signal is proportional to the linear motion of the moving stainless steel cable. Simply mount the sensor body to a fixed surface and attach the cable to the moving object.




**Output Signal**

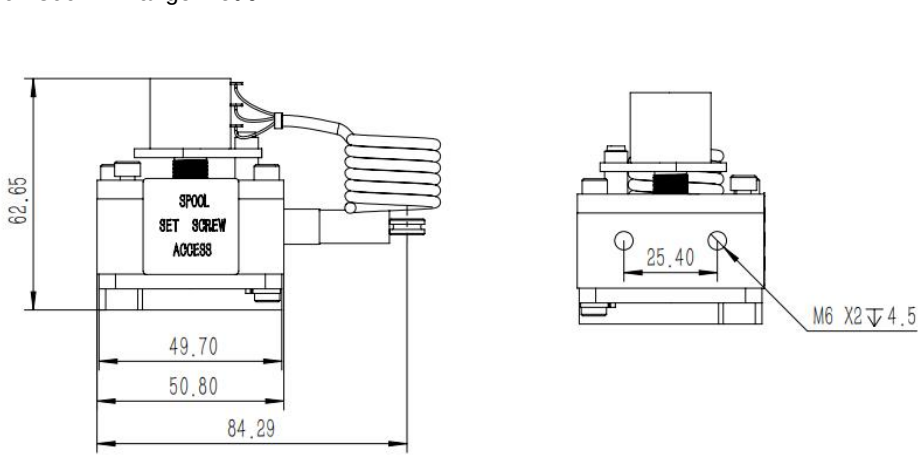



Note: drawing shows the 50-1300 mm range; see outline drawing for other ranges.

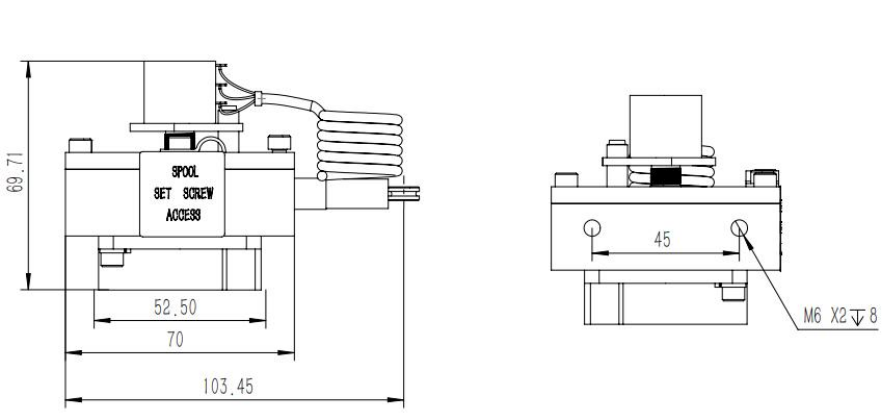
## DWSP101 - String Potentiometer

### Outline Drawing:

50-1300 mm range model:




1800 mm range model:




**Sample Model Number:**

**DWSP101 - 1000 - 1 - 1 - 3 - 1 - 0**
Ⓡ Ⓐ Ⓑ Ⓒ Ⓓ

Ⓡ 1000 = 1000 mm stroke
Ⓐ 1 = standard 6 oz. cable tension
Ⓑ 1 = M6 x 6.4 mm threaded holes
Ⓒ 3 = 5000 ohms output
Ⓓ 0 = 3 m shielded instrument cable

### Model Number:

**DWSP101 - R Range · A Cable Tension · B Mounting Holes**
**C Output Signal · D Electrical Connection**

### Range:

| R order code | 50 | 100 | 150 | 250 | 400 | 500 | 750 | 1000 | 1300 | 1500 | 1800 | 2500 | 4000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stroke (mm) | 50 | 100 | 150 | 250 | 400 | 500 | 750 | 1000 | 1300 | 1500 | 1800 | 2500 | 4000 |
| Accuracy (f.s. of Full Stroke) | 0.25% | 0.25% | 0.25% | 0.15% | 0.15% | 0.10% | 0.10% | 0.10% | 0.10% | 0.10% | 0.10% | 0.10% | 0.10% |
| Cycle Life (10,000 cycles)* | 250 | 250 | 250 | 50 | 50 | 50 | 50 | 25 | 25 | 25 | 25 | 25 | 25 |

* 1 cycle is defined as the cable travelling from fully retracted to fully extended and back

# DWSP101 - String Potentiometer

## Cable Tension:

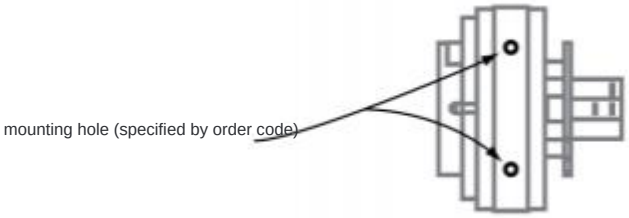
**A order code:** 1 H

| | Standard Tension | | High Tension | |
|---|---|---|---|---|
| Full Stroke Range | tension (±20%) (oz.) | Max. Acceleration | tension (±40%) (oz.) | Max. Acceleration |
| 50,250mm | 12 | 11 | 48 | 44 |
| 100,500,1000mm | 6 | 4 | 24 | 16 |
| 150,750,1500mm | 4 | 3 | 16 | 12 |
| 400mm | 13 | 5 | 52 | 20 |
| 1250mm | 5 | 4 | 20 | 16 |
| 1800mm | 10 | 3 | 40 | 12 |
| 2500mm | 7 | 5 | 28 | 20 |
| 4000mm | 4 | 3 | 16 | 12 |

## Mounting Holes:

**B** order code: 1 2

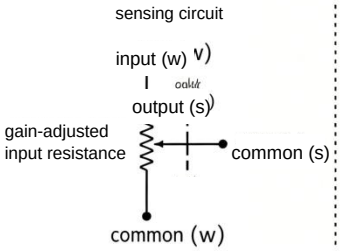
Mounting Holes: 8-32 threaded holes M6 threaded holes




## Output Signal:

**C order code:** 1 2 3 4

500 ohms* 1000 ohms* 5000 ohms* 10,000 ohms*




500 ohms
1k - 10k ohms

Max. Input Voltage & Power Rating

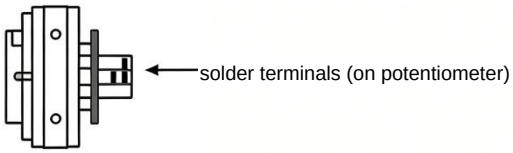
| 50-125 mm range | 250-2550 mm range |
|---|---|
| 20 V AC/DC (1 W) | 30 V AC/DC (2 W) |
| 30 V AC/DC (1 W) | 30 V AC/DC (2 W) |

## Electrical Connection:

**D order code:** 0 1

**Tolerance = +/-10%*

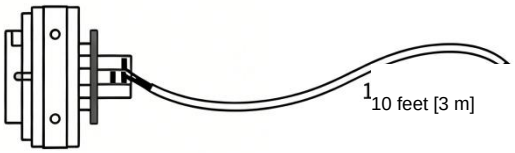
solder terminals




| Pin | Signal |
|---|---|
| CCW | +input |
| CW | common |
| S | +output |

24 AWG

3 m shielded instrument cable




| Color Code | Pin | Signal |
|---|---|---|
| RED | CCW | +input |
| BLACK | CW | common |
| GREEN | S | +output |