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*Instruction Manual*  
**Model RB-100**  
**Potentiometer Readout**



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## **1. GENERAL DESCRIPTION**

The RB-100 Readout Box is designed to read linear potentiometers manufactured by Geokon and others. The unit utilizes a high precision 4½ digit LCD digital voltmeter with circuitry to power and readout a potentiometer. A three-wire ratiometric system is used to minimize errors caused by long lead lengths and varying temperatures.

In use, a regulated voltage is applied to the ends of the potentiometer resistance element and the position of the wiper that is connected to the potentiometer actuating shaft, and rides along the resistance element is determined by the voltage output measured at this point along the element.

A six-channel switch and 15 pin input connector allows the readout of up to six different potentiometers (as used in extensometers). A range switch configures the readout box for different ranges of potentiometers, including 50 mm, 100 mm, 150 mm (2", 4", 6").

The output voltage is displayed on an LCD display to a resolution of one millivolt.

A three-pin connector allows the connection of a single potentiometer. The battery is recharged by connecting to an external power supply of 105-125 VAC.

A shoulder strap is provided so that the unit can be carried conveniently.

## **2. OPERATING INSTRUCTIONS**

The operating instructions appear inside the lid of the readout box, they read as follows:

- 1) Connect the potentiometer to either the single input connector or to the multiple input connector
- 2) Switch the unit on and wait 15 seconds for the unit to warm up.
- 3) Set the range selector to the stroke of the potentiometer in use.
- 4) For a multiple input, turn the position switch to the desired potentiometer or extensometer point.
- 5) Check the battery voltage by setting the range switch to the 'BATT' position. If the voltage drops below 4.5 volts recharge the batteries for not more than eight hours.
- 6) Switch the unit off when not in use.

### **3. MAINTENANCE**

The RB-100 Readout Box is designed for use in wet, dirty humid environments. Keep the box in a warm dry place when not in use. Wipe dirt and moisture from the faceplate.

It is very important to let the battery deep discharge before charging – only charge the battery if its output voltage is below 4.9 volts. Charge the battery for no more than eight hours. **DO NOT OVERCHARGE.**

The faceplate is fully sealed and a desiccant pack is included inside the box. This pack should be changed at intervals in humid environments. To replace the desiccant pack, remove the 10 seal screws that hold down the faceplate. Carefully remove the faceplate by prying up on the edge. Once the desiccant pack has been replaced, reinstall the faceplate, taking care not to pinch the rubber gasket beneath. To maximize water resistance, tighten the screws a little at a time, in a star like pattern, this will avoid overtightening any one side, which may not allow the opposite side to seat properly.

### **4. SPECIFICATIONS**

<b>Range</b>	50 mm, 100 mm, 150 mm (2", 4", 6")
<b>Display</b>	4 ½ digits LCD panel Meter with 0.5" high figures
<b>Resolution</b>	1 millivolt equal to 0.001"
<b>Accuracy</b>	1.0% FS
<b>Temperature Stability</b>	Of the Zero: Auto zeroed to $\pm 1$ count 0 to 50 degrees °C Of the Gain: $\pm 50$ ppm of the reading / °C
<b>Temperature Range</b>	Potentiometers: -30 to +80 °C Readout Box: 0 to 50 degrees °C
<b>Potentiometer Excitation</b>	1 volt
<b>Geokon Potentiometers</b>	Standard Resistance = 1500 Ohms /inch stroke Diameter = 3/4" Length = Stroke plus 2" Body and shaft constructed from stainless steel.
<b>Power (Internal Batteries)</b>	5 Volts from four rechargeable AA Ni-cad cells. Approximate life = 100 hours between charges.
<b>Battery Charger (External Power)</b>	105 to 125 VAC Output = 5.8 volts at 85mA.
<b>Charging Time</b>	8 hours
<b>Case</b>	Aluminum, epoxy painted, spray and dust tight.
<b>Case Dimensions</b>	102 × 165 × 232 mm (4" × 6.5" × 9.1")
<b>Weight</b>	1.8 kg (4 lb.)

# 5. WIRING DIAGRAM

## RB - 100 READOUT BOX SCHEMATIC

