Rev. 12112024

BPK-RDL

Shaft Voltage Data Logger User Manual

BPK-RDL INSTRUCTIONS **HELWIGCARBON.COM/SHAFT GROUNDING**

What's In The Box

1. BPK-RDL Shaft Voltage Data Logger
   A. Pre-formatted SD card comes installed
2. BPK-S
3. BNC Breakout Cable
   A. Ring terminal for ground connection
   B. Female spade terminal for connection to BPK-S
4. USB Type A 5V/1A Power Adapter
5. 10ft USB A to USB Micro B Cable (not pictured)
6. 15ft BNC Cable (not pictured)
7. VHB Tape Rectangles
8. Hot swapable SD card (not pictured)

1.

4.

3.

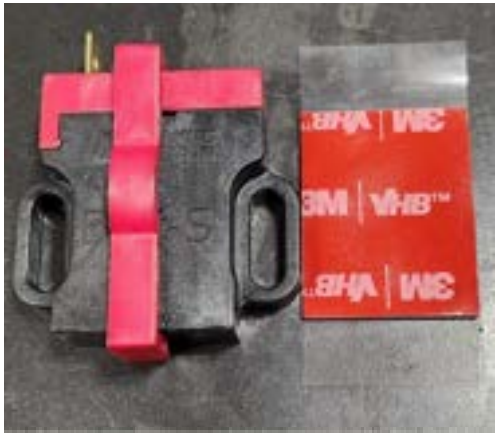
2.

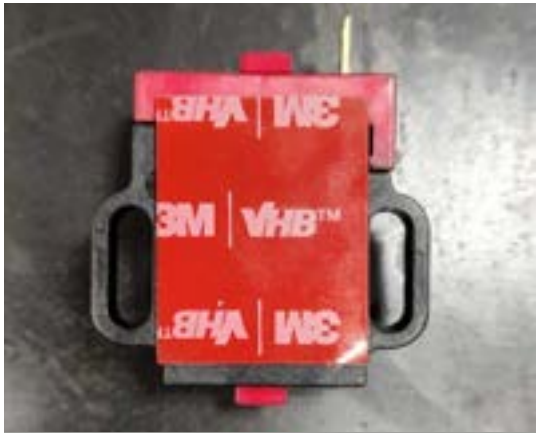
7.

BPK-RDL INSTRUCTIONS **HELWIGCARBON.COM/SHAFT GROUNDING**

Preparing BPK-S

1. Remove one side of VHB Tape Rectangle
2. Apply to back side of BPK-S
3. Press tape firmly to back of BPK-S to ensure a good bond



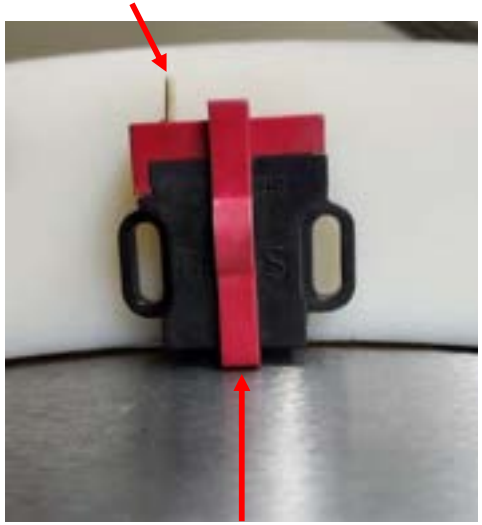


- Additional BPK-S's can be purchased through the following link: https://www.helwigcarbon.com/shop/bpk-s/
- Other mounting options are available: https://www.helwigcarbon.com/shaft-grounding/multifit-ez-brackets/

Mounting BPK-S

1. Dry fit the BPK-S location
   A. Mounting surface should be flat with access to clean, smooth and continuous rotating/sliding surface.
   B. Red retaining clip should be touching the surface with light pressure
2. After finding a suitable location, clean the mounting surface
   A. Surface should be free of oil, dirt or other debris
3. Remove the VHB tape backing
4. Press the red retainer clip lightly against the surface and press the BPK-S firmly against the clean surface

Brass Spade Connector

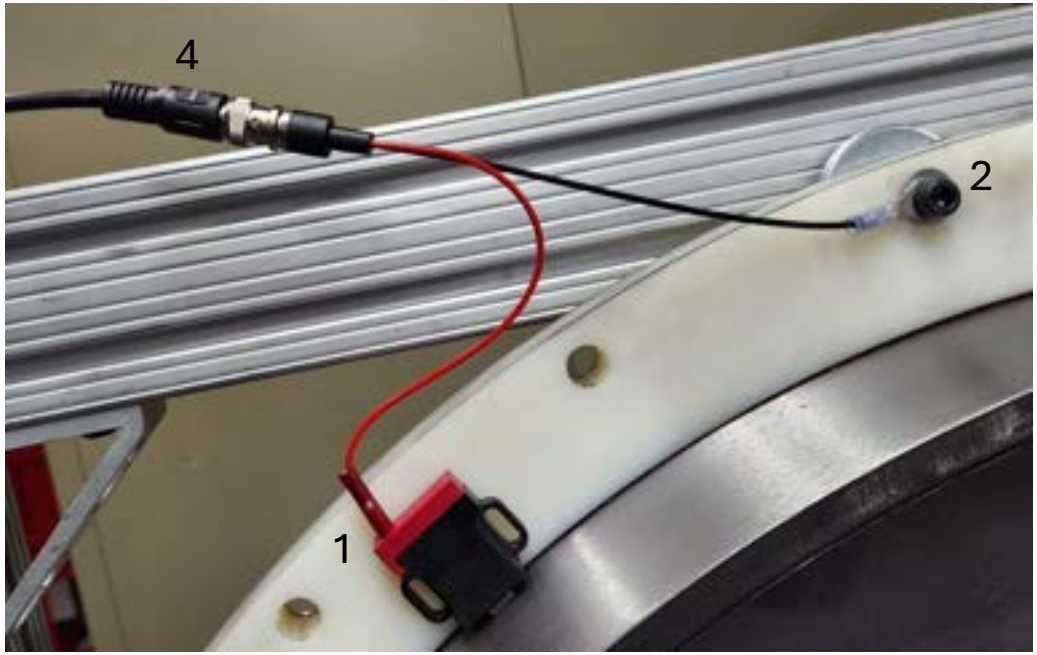


Red Retaining Clip

VHB tape resource: https://www.3m.com/3M/en_US/vhb-tapes-us/resources/applying-3m-vhb-tapes/

Connecting Breakout Cable

1. Connect the female spade connector to the brass spade on the top of the BPK-S
2. Connect the ring terminal to a suitable ground source
3. Remove the red retaining clip (not shown)
4. Connect supplied BNC cable



Connection Verification

(Optional)

1. Multimeter with continuity function is required for this verification
2. Test on BNC end that isn't connected to breakout cable
3. Isolate brush from running surface with paper or thin plastic shim
4. Touch the isolated brush and center pin of BNC cable
    1. Meter will beep if continuity has been achieved
5. Touch the ring terminal or ground source and the outside surface of the BNC cable
    1. Meter will beep if continuity has been achieved
6. Touching the meter between the brush and outside of BNC or ground and center pin should not be continuous and therefore should not beep on the meter

Ground Connection

BNC Cable

Isolated Brush

Setting Up Data Logger (SD Card)

1. Locate RDL in suitable location
2. Plug power adapter in or use suitable battery bank*
3. Connect USB cable to power adapter and plug opposite end into the RDL
4. Green LED will blink if powered on successfully
5. Blinking green light indicates samples are being taken
6. If green LED does not blink, unplug the cable and then reinsert it
7. **If unit loses power, USB cable must be removed and inserted again to power the unit back on**
8. Remove BNC cover and connect BNC cable from breakout cable to BNC input on the RDL
9. Peak voltage is saved to SD card text file every 15 minute with a UTC time and date stamp

*Amp draw of the RDL is very low. Some battery banks may not supply continuous power to the unit.

LED-Off

LED-On

Setting Up Data Logger
(0-3V Output)

1. Locate RDL in suitable location
2. Plug power adapter in or use suitable battery bank*
3. Connect USB cable to power adapter and plug opposite end into the RDL
4. Green light will blink if powered on successfully
5. Blinking green light indicates samples are being taken
6. If green LED does not blink, unplug the cable and then reinsert it
7. Connect twisted pair of wires from terminal block to data acquisition system (not supplied)
8. 0-3V value output approximately every 4 seconds
9. Formula to convert analog signal to measured voltage
   A. Peak Voltage = $7.04*V_{out} + 1.24$
10. **If unit loses power, USB cable must be removed and insert again to power the unit back on**

*Amp draw of the RDL is very low. Some battery banks may not supply continuous power to the unit.

SD Card Contents

1. Excel file for visualizing Voltage vs Time
2. Text File with raw data
3. Troubleshooting instructions

Text File Data Sample

Excel Data Sample

Excel Graph Sample