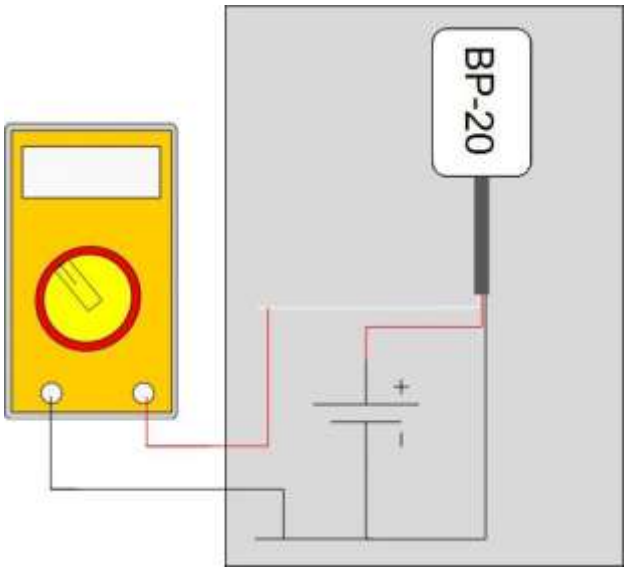
Testing the BP20 Barometric Pressure Sensor

INTRODUCTION

The NRG BP-20 barometric pressure sensor uses an absolute pressure transducer. By checking the voltage output and current draw of the sensor its health can be determined. The BP-20 will run on an excitation voltage from 7 to 35 V DC and will draw approximately 8mA.

TOOLS REQUIRED

- 7 V DC to 35 V DC source (12 V nominal, battery recommended; consider using an iPackGPS internal battery)
- Digital Voltmeter (DVM) set to 20 V DC scale
- Two clip leads



INSTRUCTIONS

1. Disconnect BP-20 from logger
2. Connect DC supply (-) to black wire
3. Connect DC supply (+) to red wire
4. Set DVM to 20 V DC scale
5. Connect DVM (-) to black wire
6. Connect DVM (+) to white wire (***Note**: older units have a both a green wire and white wire. In this case, use the green wire to test the full scale output*)
7. Measure and record output voltage on white wire (typically near 4 Volts)...
8. To determine the absolute pressure as reported by the BP-20 use the following:

$$kPa = (21.79 \times \mathbf{Vout}) + 10.55$$

Performance Comparison

- Connect sensor to a Symphonie data logger and confirm that the calculated value matches the reading from the logger.
- Check this value against another absolute barometer to confirm reading is correct.
  ***Note:** many pressure sensors record station pressure, which is different from absolute pressure.*

Example:

- BP-20 voltage output is measured to be 4.123 V DC with DVM
- Pressure (kPa) = (21.79 X **4.123**) + 10.55
- Pressure (kPa) = 100.4