

Testing BP-20 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:

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

Performance Comparison:

- Connect sensor to a Symphonie logger and confirm calculated value matches Symphonie's reading
 - 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 in kPa = $(21.79 \times 4.123) + 10.55$
- pressure in kPa = 100.4

