

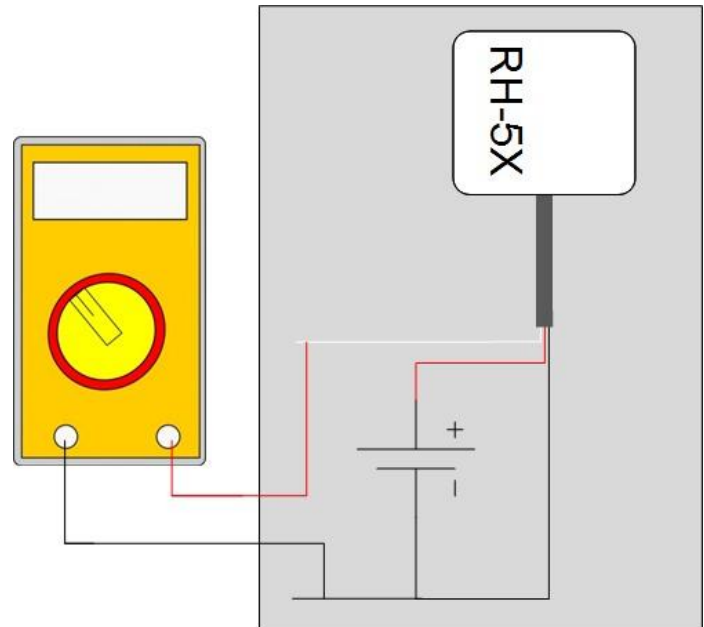
Testing RH-5X Relative Humidity Sensor

Introduction

The RNRG RH-5X sensor uses a polymer resistor sensor to measure relative humidity. By checking the voltage output and current draw of the sensor its health can be determined. The RH-5X will run on excitation voltage from 10 to 30 V DC, and will draw approximately 3mA of current.

Tools Required:

- 10 V DC to 30 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) Current Check:
 - a) Connect a 12V battery in series with a current meter to power the RH-5X black (-) and red (+) leads. If the current is higher than 3mA, something is wrong and the sensor should be replaced.
- 2) Signal Output Check:
 - a) Power the RH-5X with the 12 V battery connected to the black (-) and red (+) leads.
 - b) Read the output voltage between the black (-) and signal (clear) leads. The reading must be between 0 and 5 volts. If the reading is greater than 5 volts, there is a problem.
 - c) Allow sufficient settling time (sometimes several minutes are required) for the reference hygrometer and try to place its probe as close as possible to the RH-5X.
 - d) Convert that voltage into a relative humidity (using the formula below) and compare against a reference hygrometer.
 - e) Relative Humidity = $V_{out} \times 20$
 - f) If the RH-5X is within 3 percent of the reference, it is good.

$$\text{Relative Humidity} = \mathbf{V_{out}} \times 20$$

Example:

- An output reading of 3.76 Volts is taken across the black and clear leads.
- Relative Humidity = 3.76×20
- Relative Humidity = 75.2 percent