



Testing RH5X Relative Humidity Sensor

Introduction

The NRG RH5X 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.

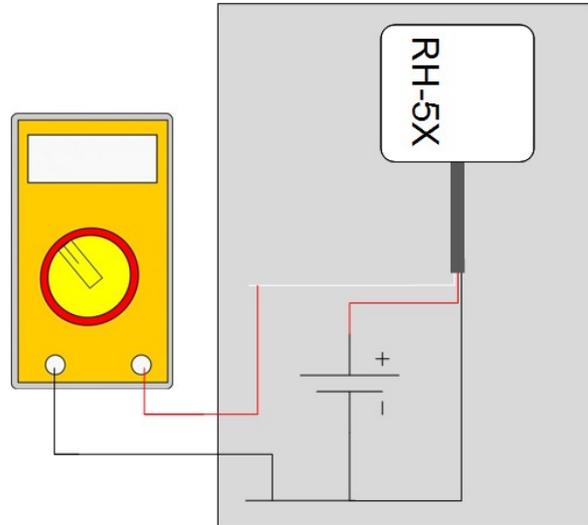
Tools Required

- 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
- (2) Clip leads

Procedure

1. Current Check:

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:

- Power the RH-5X with the 12 V battery connected to the black (-) and red (+) leads.
- 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.
- 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.
- Convert that voltage into a relative humidity (using the formula below) and compare against a reference hygrometer.
- Relative Humidity = V out x 20
- If the RH-5X is within 3 percent of the reference, it is good.

$$\text{Relative Humidity} = \text{Vout} \times 20$$

Example:

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