Connecting a RH Sensor (Vaisala Humitter® 50U/50Y)

Introduction

Accurate and detailed Relative Humidty (RH) data can easily be gathered by connecting an RH sensor to one of the Data Dolphin's precision inputs. For stable and reliable measurement, Optimum Instruments recommends the Vaisala Humitter® 50U/50Y Integrated Humidity and Temperature transmitter. This tech note covers the connection of the Vaisala Humitter® to the Optimum Instruments Dolphin Datalogger.

Does the Humitter need any special signal conditioning to connect to the Data Dolphin?

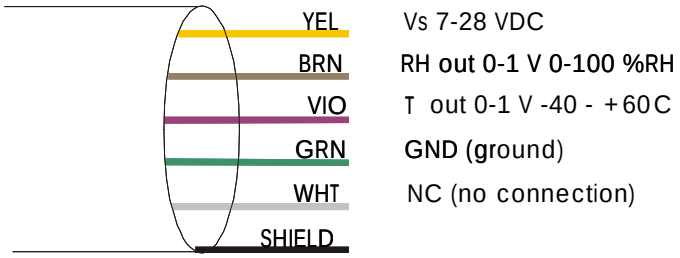
The Humitter needs no special signal conditioning to connect to the Data Dolphin. It simply requires a stable 7-28VDC power source to produce a 0-1V output signal. This output signal will be directly proportional to the current RH and/or temperature (i.e. 10mV equals 1%RH or 1°C).

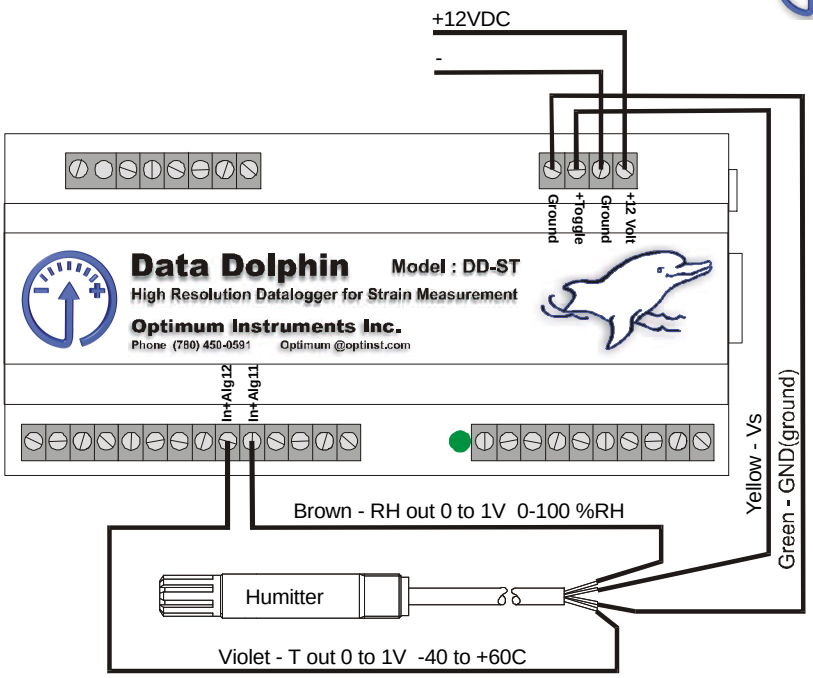
How Is The Humitter Connected To The Data Dolphin?

The Humitter has 5 basic wire connections, each color coded for convenience. Each of the wire connections are shown connected to the Data Dolphin's screw type terminal blocks in the figure on the reverse side of this document. The yellow wire (marked "YEL" in the figure below) connects to "+ Toggle" output on the datalogger's green terminal block. This wire is the power input of the Humitter. The Humitter's RH output signal (brown wire marked "BRN") connects to one of the datalogger's precision inputs, namely inputs 11 through 18. If the Humitter is equipped with a temperature sensor, its output will be marked with a violet (marked "VIO") colored wire. This will be connected to another one of the datalogger's precision inputs if temperature recording is desired. Lastly, the green ground wire of the Humitter (marked "GRN") connects to a "-Ground" terminal on the datalogger's green terminal block.

The Humitter requires a voltage of 7-28 volts on its "Vs" input in order to take a reading. This power comes from the datalogger's toggle output, which in turn receives it from a stable battery or AC power source. This toggle output is enabled by the datalogger just prior to it taking a reading from the Humitter's output.

Cable connections





How Do I Configure The Data Dolphin?

Once you have ensured that the Humitter is wired correctly to the Data Dolphin, you will want to enable and configure the inputs that the Humitter is connected to by using the Data Dolphin software. As an example, precision inputs 11 and 12 below have been correctly configured to read from the Humitter in the figure below. Note that each of the inputs was first enabled by checking the “On” checkboxes. In this example, Input 11 has been configured to read the relative humidity, and input 12 to read the temperature. Choose “Linear Equation” as the scaling type. Once you have chosen this type of scaling, you will be required to enter a slope (m) and offset (b) value. Enter the values for these coefficients exactly as shown in the figure below. The names and units entered in the name and unit textboxes are only suggested; you may enter more descriptive names if so desired.