

Vaisala HMP44 Humidity and Temperature Probe

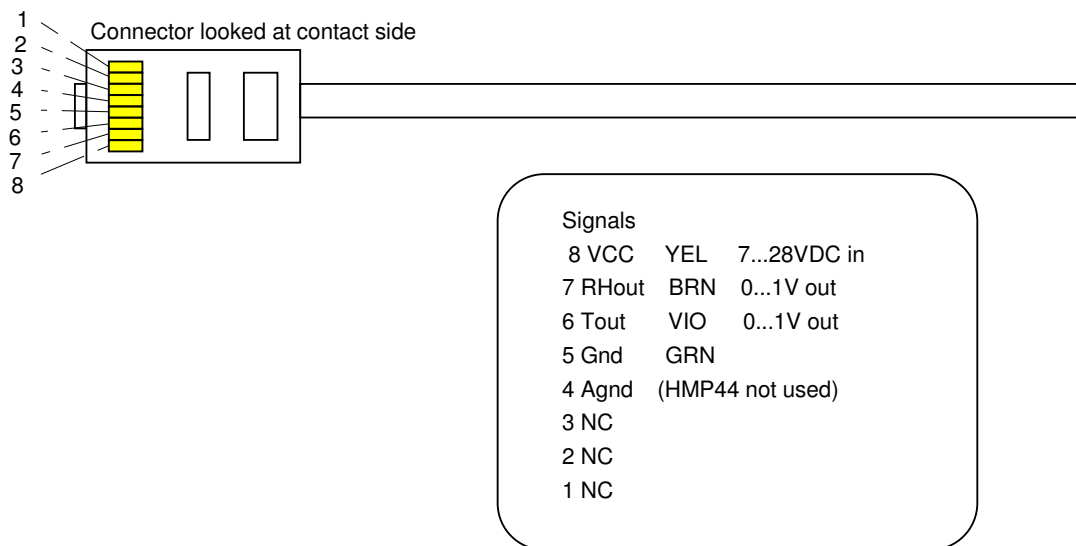
Sensor Application Note #7

Overview

This Sensor Application Note provides additional information to wire and configure the Vaisala HMP44 Humidity and Temperature Probe.

Wiring

The HMP44 is fitted with an RJ45 connector, wired as follows:



Note: Remember to reverse the order of wiring when connecting the mating RJ45 plug.

Description	HMP44	Non-MultiSensor	MultiSensor
T Output	Pin 6 (VIOLET)	1H1/1H	1H1/1H
RH Output	Pin 7 (BROWN)	1L1/1L	1L1/1L
Power Supply + (12V)	Pin 8 (YELLOW)	1H2/2H	1H2/2H
Power Supply – (G)	Pin 5 (GREEN)	1L2/2L	1L2/2L

Note: The power supply is 12VDC. If lead lengths are excessive, greater than 1000', it may be recommended to use 24VDC.

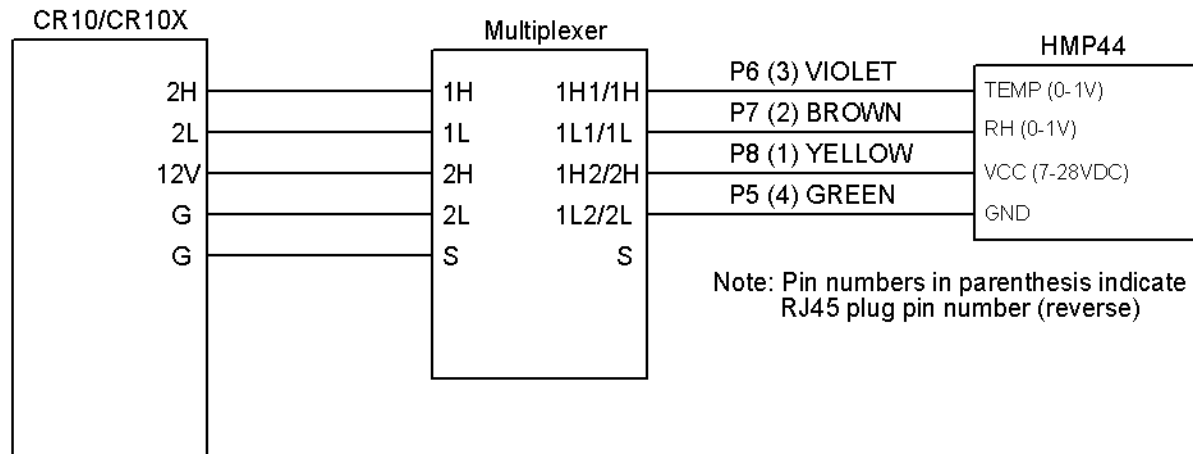
Configuration

Type	Make	Model	Instruction File	Description	Output Units
Humidity	Vaisala	HMP44	Hmp44.ins	Model HMP44 RH	0-100, %RH

To read the temperature output of the Vaisala HMP44 use the Upper Channel types **Vaisala-°C** and **Vaisala-°F**, to temperature in units of Celsius and Fahrenheit, respectively.

The HMP44 sensor configurations are included in shipments of MultiLogger beginning with v2.1.5. Contact Canary Systems if you require assistance configuring them with older versions of the software.

Non-MultiSensor Multiplexer Wiring



Channel Configuration

The HMP44 includes a unique Offset and Gain value supplied by the manufacturer for each sensor. These correction values must be entered into the channel configuration for HMP44 connected to the system.

Note: The HMP44 instruction file uses a fifth order linearization to convert from voltage output to RH. The formula follows this form:

First scaling Voltage output:

$$RH'' = 100 \times URH, \text{ where } URH = \text{measured RH channel voltage} / \text{Volts}$$

Then calculating fifth order linearization,

$$RH' = A0 + RH'' \times (A1 + RH'' \times (A2 + RH'' \times (A3 + RH'' \times (A4 + RH'' \times A5))))$$

Symbols are;

RH'' = measured voltage from HMP44(L) RH-output

A0:	-3.37E+00
A1:	1.04E+00
A2:	7.34E-04
A3:	-1.32E-04
A4:	2.03E-06
A5:	-8.65E-09

Individual calibration correction, as entered in the Gage Factor and Offset edits of the channel configuration, converts to corrected RH, expressed as a percentage.

$$\text{Corrected RH} = (RH' \times \text{Gage Factor}) + \text{Offset}$$

This conversion method provides improved accuracy over the linear conversion method.