



## Using the Vaisala HMP155 (0 to 1V out) on SymphoniePRO Loggers

### INTRODUCTION

This application note describes how to use the Vaisala Humidity and Temperature Probe model HMP155 on a SymphoniePRO logger. The HMP155 has two outputs: one for temperature in Degrees C and one for relative humidity in %RH. The sensor comes in both passive and active temperature circuit versions and this application note covers the active electronics version with an analog 0-1 V output for both temperature and humidity. In addition to the SymphoniePRO logger and iPack, also required are two item #9383 P-SCM cards which are equipped with differential inputs.

### CONFIGURATION AND SCALING

The HMP155 requires a 12 V DC excitation voltage which is provided by the logger; the logger channel supplying the excitation needs to be set to “constant 12 V”. The Temperature signal is a linear output with 0 V representing -80 Degrees C and full scale of 1 V representing +60 Degrees C. The scale factor for the temperature output when used with SymphoniePRO is 140 C per Volt, and the offset is -80 C. The temperature signal has a linear output where  $\text{Deg. C} = (140 \times \text{V}) - 80$ . For the relative humidity output, the scale factor is 100 % RH per Volt and the offset 0 % RH. The RH signal also has a linear output where  $\%RH = (100 \times \text{V}) - 0$ .

To connect the HMP155 to your logger you will need two available analog P-SCM channels (CH 20-26), and two item #9383 P-SCM cards [#9383, (0 to 5) V, Diff Input, Constant 12V EXC]. In this note we use the example where temperature is connected to channel 20 and relative humidity to channel 21. The power supply + and – only need to be connected to one of the two logger channels, while the signal outputs will each connect to two channels. In the SymphoniePRO Desktop Software “Channels” Tab, select CH 20 and choose the “NRG RH5X Humidity” and then edit the Description, Scale Factor, and Offset to look as shown in the screen shot below.



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Note that the sensor will properly collect data with the item #9383 P-SCM cards installed even though the P-SCM drop-down is set to [#9132, (0 to 5) V, SE Input, Constant 12V EXC].

▲ Analog (P-SCM)

20 Statistics Analog HMP155 Temperature 2.00m 180.0° (S)

Data Logging Mode Load From Defaults Statistics

Channel Type Analog

A channel of type Analog records the following statistical information:

- Average
- Standard Deviation
- Min
- Max

Description

Serial Number

Height  Meters

Boom Bearing  Degrees ⓘ

Scale Factor  C per V

Offset  C

Units

SymphoniePRO Signal Conditioning Module (P-SCM)

The same should be done for CH 21 to handle the relative humidity.

21 Statistics Analog HMP155 Temperature 2.00m 180.0° (S)

Data Logging Mode Load From Defaults Statistics

Channel Type Analog

A channel of type Analog records the following statistical information:

- Average
- Standard Deviation
- Min
- Max

Description

Serial Number

Height  Meters

Boom Bearing  Degrees ⓘ

Scale Factor  %RH per V

Offset  %RH

Units

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### CONNECTIONS

The HMP155 is provided with an 8 pin M12 connector and cable where 5 wires plus a shield need to be connected to the logger as shown in the table below. Note the Campbell version has a different wire color scheme, and both versions are covered in the tables below.

#### Connections: Vaisala Version

Vaisala M12 connector pin	Sensor Wire	Sensor Signal Output	Logger Input Terminal
1	white	V <sub>OUT1</sub> (Deg C)	CH20 SIG +
2	brown	RS-485-B	No Connect
3	green	AGND	CH20 SIG - and CH21 SIG - (jumper required)
4	yellow	V <sub>OUT2</sub> (% RH)	CH21 SIG +
5	-	-	-
6	pink	RS-485-A	No Connect
7	blue	V <sub>CC</sub>	CH20 EXC
8	red	GND	CH20 GND
-	SHIELD	shield	CH20 SHD

#### Connections: Campbell Version

Campbell Sensor Wire	Sensor Signal Output	Logger Input Terminal
yellow	Temperature signal (Deg. C)	CH20 SIG +
white	Signal reference	CH20 SIG - and CH21 SIG - (jumper required)
blue	Relative humidity signal (% RH)	CH21 SIG +
red	Power	CH20 EXC
black	Power GND	CH20 GND
clear	shield	CH20 SHD