**Vaisala PTU300 & HMT330**

The Vaiasala PTU300 and HMT330 measure basic meteorology. The ASFS are each equipped with one PTU300 and the tower is equipped with a PTU300 at the lowest level and two HMT330s at higher levels. The difference between the models is that the PTU300 measures pressure, temperature and humidity while the HMT330 only measured temperature and humidity. The pressure measurement is actually made inside the electronics box and air pressure is sampled using the clear tube that extends into the flying saucer. The humidity measurement is a dewpoint temperature collected from a heated probe mounted inside the downward facing housing a one end of the t-bar. The ambient temperature measurement is made using a probe installed in the beehive radiation shield housing (unventilated).

**Turning the system on/off:**

Connect/disconnect power source.

Fused 1A 12 VDC.

**Communications & Settings:**

The Vaisala is connected to the RS485 terminal block. Refer to the wiring diagram for details.

The Vaisala measurements are collected using a digital protocol, RS485. All data are polled. The instrument address is 3. The communications settings are as follows:

Baud: 19200

Parity: Even

Stop bits: 1

Data bits: 8

A new out-of-box sensor needs to be wired, and configured to be in RS485 mode, assigned serial settings and MODBUS address. Instructions are as follows:

1. You need a USB->Cat5 cable. These come with the instruments and we have several.
2. Power the device and open the case. Connect the CAT5 to the service port and the USB to a computer.
3. Open a terminal on the computer. Choose the COM port for the Vaisala USB driver (driver was installed with the software, check device manager for the COM#). The serial settings for the service port are 19200,8,N,1.
4. Enter the following commands into the terminal at prompt > (the instrument should respond). See also page 143 of the manual.
   1. smode modbus
      1. responds “Serial mode: MODBUS”
   2. seri 19200 E 8 1
      1. responds “Baud P D S : 19200 E 8 1”
   3. addr 3
      1. responds “Address : 3”

**Variables:**

Variables are reported in the “slow” data table file (1 min), the “fast” data table (5 sec) and at the tower (1 sec). Pressure (PTU300), temperature, dewpoint and relative humidity are recorded.

**Post Processing:**

Hopefully minimal. Basic quality control.

**Daily Data Checks:**

* Make sure that data is coming through.
* Check for normal data.
  + 0 < RH < 100 (expect ~ 80-100%)
  + Td <= T
  + Pressure 1000 mb +/- 50 mb
* If you can see the sensor housings in images, check for ice.

**ASFS Visit Checks:**

* Level is not important for any of these instruments
* Make sure that the t-bar structure and housings are secure
* Check for ice/snow in and around housings. Brush it away if there is any

**Things to consider:**