

0.10 Campbell Kh2O Krypton

Quick Reference

Description:

The Krypton is a fast response humidity sensor

Wiring:

Signal / Wire	Kh2o Connector	PAM Amp-9
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+ Signal (white)	C	1
- Signal (black)	D	2
Shield (bare)	open	3
+12 (red)	A	8
Gnd (black)	B	7

Setup Precaution:

The Detector Tube (shorter tube) must be pointing away from the Sun, ie normally to the north or down, to minimize solar radiation errors.

Cleaning the Windows:

Dust can be a maintenance problem in some situations (for example, high winds after rain) but Scaling is the more common problem. Note that scaling only affects the bias of the instrument - not the gain - so fluxes are not affected (until the signal level gets so low that noise in the data system dominates).

The windows usually need to be cleaned every 2-4 weeks, depending on conditions. Usually when the voltage output drops below 0.5 V, they should be cleaned within 1-2 days.

Scaling grows faster in high humidity and cleaning may be needed on the order of every several hours for a tropical experiment with humidity ~25 g/m3.

Effects of Elevation:

We have found essentially the same calibration in Boulder (5288') as in Logan Utah (Campbell Factory at 4454'). We have applied these calibrations to data down to sea level. The krypton measures molecules in the path and thus measures water vapor density (g/m3) directly. The only effect of pressure might be to "broaden" the optical absorption, however that is small for "line" absorption that the krypton uses. Of course, pressure is needed when converting to specific humidity.