



LOGBOX / DATAHOG2 Configuring for Kipp & Zonen Pyranometers

Kipp & Zonen pyranometers such as the CM3, CM6, CM11, CM21 etc are all compatible with the LOGBOX / DataHog2 logger. Their voltage output can be connected to either a single ended voltage DataHog socket (sometimes labelled 0-2V) or a differential voltage socket. We recommend the differential voltage option, although either is possible.

WIRING INSTRUCTIONS

Differential Voltage Input

<i>DataHog socket</i>	<i>Function</i>	<i>Pyranometer Connector</i>
Pin 1	+5V power supply	not connected
Pin 2	not used	not connected
Pin 3	Negative signal input	Negative output
Pin 4	Positive signal input	Positive output
Pin 5	Ground	Cable screen

Link pins
3 & 5

LOGBOX / DATAHOG2 CONFIGURATION

Before configuration of a LOGBOX / DataHog2 differential voltage channel for a pyranometer, you will first need to calculate the logger's Full Scale Value and Zero Offset values as shown in the DataHog manual, Chapter 3.2.10 and Technical Notes 2.0.

Example: Pyranometer CM11 with a sensitivity of $15 \mu\text{V}/\text{Wm}^{-2}$ (or 66.67 Wm^{-2} per mV)
These sensors do not have a zero offset.
In this example the maximum pyranometer output at 1200 Wm^{-2} is 18 mV
So the DataHog range required is 0-20 mV, i.e. a gain of 100, Gain Code 2

$$\begin{aligned}\text{DataHog Full Scale} &= [\text{Sensitivity (Wm}^{-2} \text{ per mV)} / \text{Gain}] * 2000 \\ &= [66.67 / 100] * 2000 \\ &= \mathbf{1333.4}\end{aligned}$$

$$\begin{aligned}\text{DataHog Zero Offset} &= \text{Sensor offset (mV)} * \text{Gain} * 9.5 \\ &= 0 * 100 * 9.5 \\ &= \mathbf{+0000}\end{aligned}$$

Enter these calculated values as follows:

1. Wake up the LOGBOX / DataHog2 as usual, to reveal the Main Menu of the logger
2. Press '9' to choose 'Option 9 - Set Ax+B calibration factors'
 - a) Enter the software channel you wish to configure (e.g. 00 or 01 etc.)
 - b) Enter the Full Scale Value for the pyranometer associated with that software channel (e.g. 1333.3 as in example above). You must use the format of 5 digits plus a decimal point, with no leading zeros.

- c) Enter the Offset Count for the pyranometer (e.g. 0000 as above)
- d) Enter the Offset Sign + or - of the Offset Count (e.g. + as above)
- e) The figures you have just entered will be displayed for you to confirm. If OK, press 'Y' and you will return to the Main Menu.
- f) Repeat steps a) to e) for each differential voltage input to be configured.
3. Make sure that this software channel is set up with the correct Gain Code as used in the calculation for the Full Scale Value.
 - a) Choose Option A - Set channel configuration.
 - b) Enter the software channel and hardware channel (from the logger's Hardware Configuration Certificate)
 - c) Enter the Gain Code (e.g. 2 in the above example)
 - d) Enter the Scale Code - choose 1 for Ax+B scaling
 - e) If correct, type Y to accept.
4. It is advisable to check that the changes you have just made are in place before returning the DataHog 2 to logging mode.
 - a) From the Main Menu, choose Option 1 to display the current setup.
 - b) Choose sub-menu '3' to check the Ax+B Scaling Factors. The software channels will be displayed with Full Scale Value and Zero Offsets you have entered.
 - c) Choose sub-menu '0' to check the Gain Code and Scale Code for the software channel you have reconfigured.
 - d) Choose '6' to return to Main Menu
5. If no more changes are to be made, then press ESCAPE to return the LOGBOX /DataHog to logging mode.
6. Write the new Full Scale Values and Zero Offset counts on the Hardware Configuration Certificate for your future record.

EXAMPLE

Software Channel	Hardware Channel	Configured for Input Type	Gain Code	Termination Code	Scale Code	Full Scale	Zero Offset
00	02	Differential Voltage	02	00	01	1333.3	+0000