DATALOGGERS

Setting up Scaling for an Indoor Lux sensor

Unless otherwise informed at the time of order, Skye assume all light sensors are to be used outdoors and so DataHog loggers are configured to measure full daylight conditions, up to 150 klux. If the lux sensor is required to measure lower light levels at a higher resolution, then the scaling factors can be changecd as follows:

1. Decide what is the maximimum (Full Scale) lux lighting level you wish to measure. Please note the sensor is likely to over-range in light levels above this maximum. (If preferred, two or more Software Channels can be set up for one Hardware Channel (one lux sensor), each configured with a different scaling factor for different light levels. Please note that this will limit memory space during datalogging.)
2. Refer to calibration certificate of the light sensor and note the number of microamps per unit of light (e.g. Micromol/m²/s, watt/m² or lux etc

   (For example sensor SKL 310/I 26080 has a calibrtion figure of 0.1253 microamp/klux or 0.0001253 microamp per lux)

3. Work out the Full Scale Value that needs to be entered in the DataHog logger - see chapters 3.2.10 and 3.2.11 of the manual.
   a) Choose the Gain for this channel according to an output at the maximum required light level
      (E.g. If you wish the lux sensor to measure a maximum of 10,000 lux, in the above example this light level is equivalent to an output around 1.2 microamps. Gain Code 5 will give a range of 0-2 microamps)
   b) Look at the DataHog logger's Hardware Calibration Certificate to find the Feedback resistor value (in megaohms) associated with this Gain.
      (E.g. Gain Code 5 for DataHog 26079 is associated with a resistor of 0.9947 megaohms)
   c) Calculate - Full Scale Value = 2.000 / (microamps per light unit) * (Feed back resistor in megaohms)
      (E.g. 1 following the above examples FS = 2 / (0.0001253 x 0.9947) = 16047.lux

      (E.g. 2 For a maximum light level scale of 1000 lux, the sensor outpu will be around 0.1253 microamps or 125.3 nanoamps. Gain Code 7 will give a range of 0-200 nanoamps and for DataHog 26079 is associated with a resistor of 10.139 megaohms.

      So in this case FS = 2 / (0.0001253 x 10.139) = 1574.3 lux)

4. Enter a Full Scale Value, Zero Offset and Gain Code into the DataHog as described in the instructions SETTING UP A CURRENT CHANNEL FOR A LIGHT SENSOR.
   Remember to check your changes in Option 1 of the Main Menu, and to press ESCAPE to return the logger to Log Mode when finished.

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