Using Delta-T Theta Probes Ml2x with DataHog2

1. These sensors require a 1 second 'Warm-up' period before measurements are taken. To achieve a 1 second warm-up period on a DataHog 2, at least four voltage or current software channels must precede the channel that requires the 1 second warm-up time. If real software channels do not exist, then 'dummy' channels may be set up, these software channels may be either current or voltage channels and it does not matter if they exist in reality or not. You may as well use four channels that do exist see example below.

EXAMPLE

Software channel	Hardware Channel	Gain	Termination	Scalecode
00	02	01	00	01
01	02	01	00	01
02	02	01	00	01
03	02	01	00	01
04	02	01	00	01
05	05	01	00	01

The first four Software channels above are 'dummy' channels and they are reading from hardware channel 02. Software channel 04 is reading hardware 02 as a 'real' channel and channel 05 is your second 'real' channel. (Ignore the readings from software channels 00 to 03 as these are taken before the probe has 'warmed up')

2. It is permissible to use one or two Delta-T ML2x Theta probes on a DataHog2 directly, providing there are no other sensors also powered by the DataHog connected along with them. For more than 2 ML2x's we would strongly recommend that a slave relay is used to initiate an external power supply. This will ensure that the Hog's 5V regulator does not have to pass the 80mA + of current required, this being far above our limits stated in the manual and may lead to premature regulator and/or associated electronics failure.

3. A most suitable 'slave' Reed relay (with integral diode 'For back E.M.F suppression') is Farnell part number. 515-942. The coil is connected between Pins 2 & 5 of the DataHog 5 pin voltage socket and then the contact, switches an external power source through to the sensors.

4. The external power source should be connected to pin 4 of the DataHog's RS232 socket, and Pin 3 used as the Ground connection.

5. The DataHog2 has a simple Ax + B linear scaling of sensor calibration factor. The Theta probe's calibration is not linear and changes for different soil types. So some approximations have to made in the DataHog, resulting in less accurate soil moisture readings.

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6. To avoid null readings if 'dummy' channels are used, use the Log Below Threshold feature (Option D from the Main menu). If software channels 00 to 03 are set up as dummy channels and a threshold of zero is used, then the logger will only record values below zero on these channels. Use Option D and sub menu 03, and enter the threshold as +00000. The logger will now power up and read from these channels, but will not store a reading in memory unless the Theta probe reads below zero (which should never happen!).