'CR1000 Series Datalogger

'date: Sept 22, 2008
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Const GS3_Num = 2
   'change this constant for the number of MPS-2 probes you are reading
   '4 is the maximum number of MPS-2 probes readable without a multiplexer

'full output string from sensor
Public GS3_out(4,1) As String *32
   'numeric output array of 3 probe values
Public GS3_data(GS3_Num,3) As Float

Dim i,j,k
Public Eb(GS3_Num) As Float
Public Temp(GS3_Num) As Float
Public EC(GS3_Num) As Float
Public VWCm(GS3_Num) As Float
Public VWCsoilless(GS3_Num) As Float

Units Temp = deg_C
Units EC = dS/m

'PROBE WIRING

'CR1000                     GS-3

'SW12V     ALL WHITE (EXCITATION) WIRES
'C2        GS-3 #1 OUTPUT (RED) WIRE
'C4        GS-3 #2 OUTPUT (RED) WIRE
'C6        GS-3 #3 OUTPUT (RED) WIRE
'C8        GS-3 #4 OUTPUT (RED) WIRE
'GND       ALL BARE (GND) WIRES

'Define Data Tables
'   Please setup data output to suit individual needs. You may want to save raw data (Eb) as
'   well as calculated values
DataTable (GS3Data,1,-1)
  DateInterval (0,1,Min,0)
  'Select which variables you would like saved in your datatable
  'Sample (GS3_Num,GS3_out,String)
  'Sample (GS3_Num,Eb(),FP2)
  Sample (GS3_Num,Temp(),FP2)
  Sample (GS3_Num,EC(),FP2)
  Sample (GS3_Num,VWCsoilless(),FP2)
  'sample (GS3_Num,VWCm(),FP2)
EndTable

SequentialMode
'Main Program

BeginProg
  serialopen (Com1,1200,19,0,10000)
  serialopen(com2,1200,19,0,10000)
  serialopen(com3,1200,19,0,10000)
  serialopen(Com4,1200,19,0,10000)
  Scan (10,Sec,0,0)
    'PanelTemp (PTemp,250)
    'Battery (Batt_volt)
  'bring in the serial data string from the Com ports
  SerialFlush (Com1)
  serialflush (Com2)
  Serialflush(Com3)
  serialflush(Com4)
  Delay (0,1,Sec)
  PortSet (9,1)

    SerialIn (GS3_out(1),Com1,100,0,22)
    SerialIn (GS3_out(2),Com2,100,0,22)
    SerialIn (GS3_out(3),Com3,100,0,22)
    SerialIn (GS3_out(4),Com4,100,0,22)

    'Parse the serial data string into it's numeric components
    For i = 1 To GS3_Num
      SplitStr (GS3_data(i,1),GS3_out(i)," ",3,0)
    Next i

    'allocate to final location
For j = 1 To GS3_Num
    Eb(j) = GS3_data(j,1)
    Temp(j) = GS3_data(j,2)
    EC(j) = GS3_data(j,3)
Next j

'Apply desired calibration to bulk dielectric (Eb)
For k = 1 To GS3_Num
    VWCSoilless(k) = 1.18*SQR(Eb(k)) - 0.117 'calibration for soilless substrates
    VWCM(k) = 5.89E-6 * Eb(k)^3 - 7.62E-4*Eb(k)^2 + 3.67E-2*Eb(k) - 7.53E-2 'calibration for mineral soil
Next k

PortSet(9,0)
CallTable (GS3Data)
NextScan
EndProg