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'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
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```
DataTable (GS3Data,1,-1)
	DataInterval (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
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```
        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
```