Remote_humid_single_sensor.dch  - Tiny84 reads Capactive humidity sensor using Analog compare also uses thermister for temperature

Reports data via serial or RS485

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I also offer custom design services  206-601-2985

VARCAP (HCH-1000-002)
C2

VARRES (ERT-J0EG103FA)
VR1

ALT Power
J1
2

REG1.LT1121CZ-3.3
IN    OUT
REG1.2
3V
GND
C3 0.10uf
VDD

J4.SIP4

GND

VDD

GND

J7.SIP4

ground
power
RS485-A
RS485-B

1
2
3
4

DB9#2
DB9#3
DB9#5

J2
1
2
3

R3
100K

R5
22K

R6
10K

GND

C1  2.2uf

R1
100K

R4
100K

R7
22.1K 1%

VDD

IC1
1   Vcc                                         GND   14
2   PB0(PCINT8/XTAL1)            PA0(ADC0/AREF/PCINT0)   13
3   PB1(PCINT9/XTAL2)            PA1(ADC1/AIN0/PCINT1)   12
4   PB3(PCINT11/RESET/dW)        PA2(ADC2/AIN1/PCINT2)   11
5   PB2(PCINT10/INT0/OC0A/CKOUT) PA3(ADC3/T0/PCINT3)     10
6   PA7(PCINT7/ICP/OC0B/ADC7)    PA4(ADC4/USCK/SCL/T1/PCINT4)  9
7   PA6(PCINT6/OC1A/SDA/MOSI/ADC6) PA5(AD5/DO/MISO/OC1B/PCINT5)  8
ATTINY84_PDIP

D1.1
R8
1M 1%

Serial Data to  AVR

AVR US Write Enable

Serial Data From AVR

U6.STM345ECN
1  RO    Vcc  8
2  RE     B   7
3  DE     A   6
4  DI    GND  5

200 Ohm Termination
R2

GND

J3  ISP-C
MISO  1   2  VCC
SCK   3   4  MOSI
RST   5   6  GND

VDD

U6, J7, R2 can be omitted if RS485 is not needed
J3  ISP-C can be omitted if CPU are pre-programmed
J1, J2, R3, R5, R6 - SIP connector can be omitted if only RS-485 will be used
Serial I/O data can be sent either direct to PC to through RS485 to remote processor
When connecting RS485 do not apply power on J1
5V regulator can be used in liue of 3.3V but software will need new calibration for thermister

Addition of RS485 to the AVR Tiny CPU and
cap sensor increased power consumption by
from 3.5 Ma to 20mA

See:  ert-j0EG103FA-resistance-and-mv-calcs-v2.1.xls for resistance calculations for thermister

See:  remote_humid_single_sensor.bas for source code
See:  rs485-to-rs232-bridge.pdf for other end of RS485