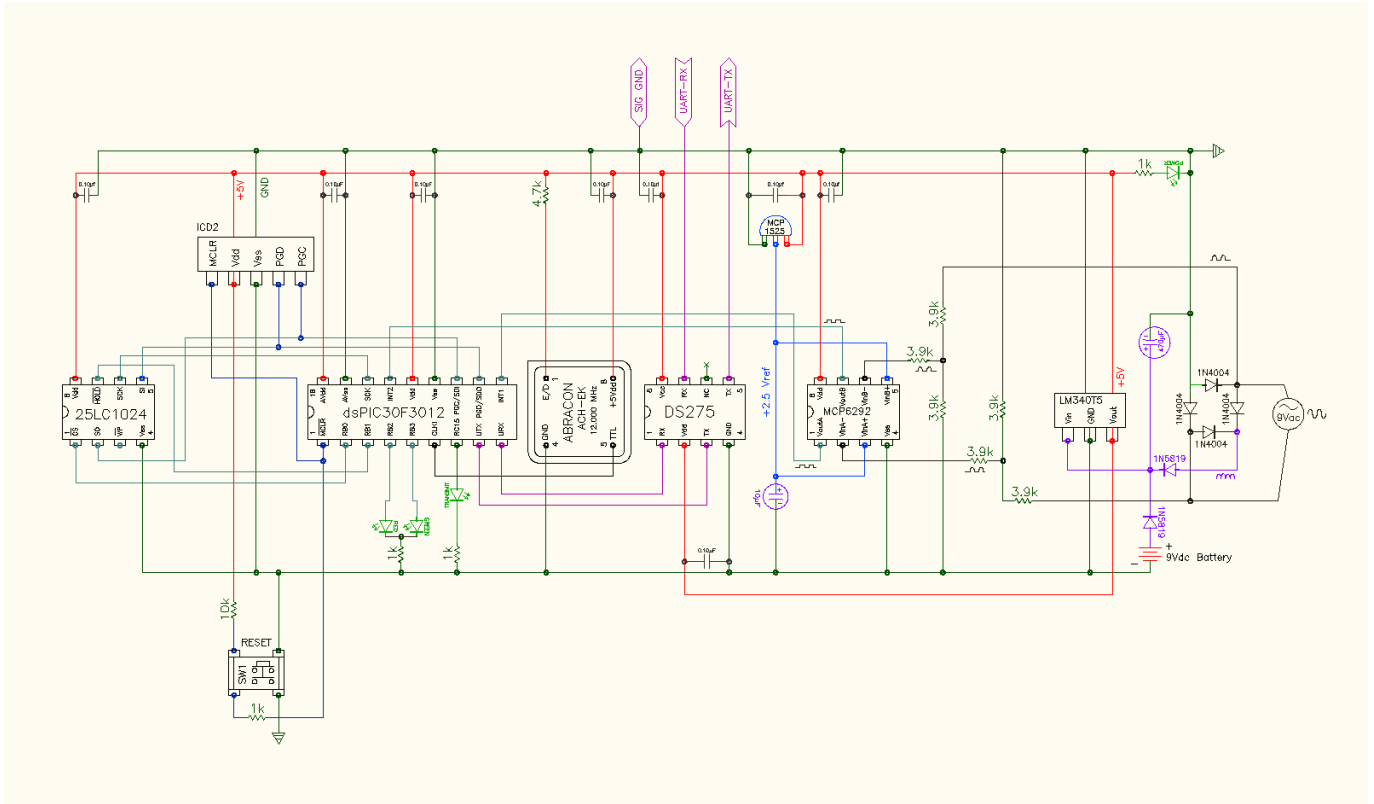


PHzMonitor Sensor Model 9A



The following links connect you to the most up to date source code and documentation for the PHzMonitor Project.

Model 9 Work In Progress Documentation and Source Code

http://www.energyhz.net/wiki/index.php/PHzMonitor_Model_9

The PHzMonitor Project Home Page

<http://www.phzmonitor.com>

The EnergyHz Wiki

<http://wiki.EnergyHz.net/wiki>

Sensor Components

dsPIC30F3012 – Microchip Micro Controller

MCP6292 – Mircochip Dual Channel Operational Amplifier (10MHz 0,+ 5V rail-to-rail)

12.000 MHz TTL compatible oscillator

DS275 – Maxim/Dallas RS232 Transceiver

LM340T5 – LM7805 or equivalent 5Vdc Regulator

25LC1024 – Optional External EEPROM

MCP1525 – 2.5V reference or use a resistor voltage divider for desired reference voltage level.

Arnold Stadlin

PHzMonitor

121 W. Earleigh Heights Rd.

Severna Park, MD 21146

PHzMonitor Sensor Model 8C to Model 9 Update

Model 8C to Model 9A Update Components

1 - dsPIC30F3012

8 - 3.9K 1% resistors. 6 used for two signal voltage dividers. Optional: 2 used for Vref divider.

2 - 1K 1% resistors. Optional: 2 used for Vref divider. (not needed if MCP1525 is used). May be combined with 3.9K resistors for alternate Vref levels.

1 - Red/Green LED

1 - Blue LED (high intensity if 330 ohm load resistor is used)

2 - 1K load resistor for LEDs

Update Procedure

1. Add a second signal voltage divider. Each channel has a voltage divider consisting of three 3.9K 1% resistors. Feed complimentary signals from the inputs to the bridge rectifier.

Two of these; one each side of the rectifier to each Vin- of the OpAmp:

Rectifier Input Half Wave → 3.9K → 3.9K → OpAmp Vin-
→ 3.9K → Ground

2. Connect the 2.5Vref to both Vin+

A. If you don't have the MCP1525 Vref IC, use a resistor voltage divider using 1K 1% or 3.9K 1% resistors:

+ 5V → 1K → OpAmp Vin+
→ OpAmp Vin+
→ 1K → Ground

3. Connect dsPIC30F3012 Pin #10, INT1 to MCP6292 OpAmp Pin #1, VoutA

A. Pin #10 is now an Input in the Model 9. Disconnect any Model 8 LED or PWM output devices.

4. Connect dsPIC30F3012 Pin #15, INT2 to MCP6292 OpAmp Pin #7, VoutB

5. Connect dsPIC30F3012 Pins #4 and #5 to the outside pins of the Red/Green 3 wire LED.

A. Connect the center LED to Ground using a 1K resistor

B. Note, one of the outside LED leads has a squared off "shoulder". This lead connects to Pin #4

6. Disconnect dsPIC30F3012 Pins #2, #3, #11, #12, #16 unless using the optional 25LC1024 EEPROM or ICD2.

A. Do not connect these pins directly to ground or Vcc.

B. If you want to ground them, then use a 4.7K resistor.

C. Although you can keep the 25LC1024 in the circuit while using the ICD2 device programmer, it will not work while the ICD2 is plugged in; and how well the ICD2 works with the 25LC1024 plugged in is unknown. Best to leave out the EEPROM until the system is programmed.

7. Optional Blue LED for Activity on dsPIC30F3012 Pin #7

8. Please send old versions back for re-programming. If you want NEW ICs, please procure and send them and I will program them for you and return them.

Arnold Stadlin - PHzMonitor
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Severna Park, MD 21146

Disclaimer

PHzMonitor is a research project. I will not accept responsibility, warranty, or liability for use or misuse of the design or components. I simply wish you the best of luck with your projects!