“Micro-Pac” Sensor Unit

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APPLICATION OPERATION

This application note describes a method to allow a PIC12C672 to monitor and report via a 2x16 LCD display the following environmental conditions:

1. Relative Humidity 0-100%.
2. Barometric Pressure 0-15 PSIA.
3. Ambient Temperature -67°F to +257°F.
4. Light Sensor that is highly programmable.

Care was taken to choose transducers that required a minimum of support components and also parts that directly handle temperature and voltage compensation that would normally require additional components or programming to correct.
Sensor Interface

Block Diagram:

Flow Chart:
Graphical Hardware Representation:

- NJM78L05A
- +5V
- +9V
- IN
- OUT
- COM

- 2 x 16 Serial LCD Module
- Scott Edwards Electronics
- +5V
- Signal
- 0.4 - 4.9V
- 50μF
- 51K

- PIC12C672
- 50μF
- 4

- Motorol Barometric Pressure
- MPX54100A
- 2
- 3
- 4
- 5

- DS1820
- 1 wire digital thermometer
- -67°F to 257°F
- 0.9°F increments
- +5

- TLC555
- 1
- 3
- 6
- 2
- General Eastern
- G-CAP
- Relative Humidity
- 0 - 100%
- 10μF

- Texas Instruments programmable light-to-frequency converter
- TSL230
- 6
- 7
- 8
- 1
- 2
- 3
- 4

- 100 Hz
- (divide by)
- 0.1μF

- 13 to 15 KHz
- 0 to 100% RH