iLOAD MINI LOAD CELL APPLICATION NOTE

Line	Color	Description
5V	Red	Power Requirement: 5V +/- 5% at 5mA.
CTRL	White	When CTRL = High, FREQ = *Cx* When CTRL = Low, FREQ = *Cr*
FREQ	Green	Frequency Output.
GND	Black	Ground.

CTRL line acts as a switch. The FREQ line outputs the *Cx* frequency when the CTRL line is High, whereas the FREQ line outputs the *Cr* frequency when the CTRL line is Low.

The measuring device should have a buffered output CTRL and a buffered input FREQ as shown in the above block diagram.

Cx is sensor frequency and varies with load. *Cr* is reference frequency used for environmental compensation. K is a constant defined as Cx/Cr.

Cc is the Corrected Capacitance as defined below:

$$Cc = 5E6 - [10*(Cx - K*Cr)]$$

The formula for measuring the load (in lbs) is:

$$Load = qA*Cc^2 + qB*Cc + qC$$

With no load, calculate Load(0) using the above formula. Put a known weight on the sensor and calculate Load(x). The actual weight is the difference between the 2 loads:

$$Weight = Load(x) - Load(0)$$

Loadstar Sensors will provide the following constants for calibrated sensors:

Constant	Description
K	Environmental Compensation.
qA	Quadratic A.
qB	Quadratic B.
qC	Quadratic C.

For the devices shipped to you the parameters are:

S/N M080800675	
Constant	**Value**
K	3.836219E-01
qA	-1.482872E-12
qB	2.851277E-05
qC	-8.474381E+01