Load cell sensor 24 bit ADC - HX711

Category : Load cell sensor

Overview:

Weight sensor, Loadcell interfacing, Digitizer, Sensing Bridge to digital interfacing.

Detailed Description:

The Load Cell Amplifier and ADC Module is a small breakout board for the **HX711** IC that allows you to easily read load cells to measure weight. By connecting the module to your microcontroller you will be able to read the changes in the resistance of the load cell and with some calibration you'll be able to get very accurate weight measurements. This can be handy for creating your own industrial scale, process control, or simple presence detection.

The **HX711** uses a two wire interface (Clock and Data) for communication. Any microcontroller's GPIO pins should work and numerous libraries have been written making it easy to read data from the HX711. Check the hookup guide below for more information.

Load cells use a four wire wheatstone bridge to connect to the HX711. These are commonly colored RED, BLK, WHT, GRN, and YLW. **Each color corresponds to the conventional color coding of load cells:**

- Red (Excitation+ or VCC)
- Black (Excitation- or GND)
- White (Amplifier+, Signal+, or Output+)
- Green (A-, S-, or O-)
- Yellow (Shield)

Datasheet :

https://cdn.sparkfun.com/datasheets/Sensors/ForceFlex/hx711_english.pdf

Applications:

HX711 is a precision 24-bit analog- to-digital converter (ADC) designed for weigh scales and industrial control applications to interface directly with a bridge sensor, load cell & strain guages. It Interface with simple digital I/O to any controller.

Instructions/Manuals/Technical details

- Differential input voltage: ±40mV (Full-scale differential input voltage is ± 40mV)
- Data accuracy: 24 bit (24 bit A / D converter chip.)
- Refresh frequency: 10/80 Hz
- Operating Voltage: 2.7V to 5VDC
- Operating current: <10 mA

Key Features:

- Two selectable differential input channels
- On-chip active low noise PGA with selectable gain of 32, 64 and 128
- On-chip power supply regulator for load-cell and ADC analog power supply
- On-chip oscillator requiring no external component with optional external crystal
- On-chip power-on-reset
- Simple digital control and serial interface: pin-driven controls, no programming needed
- Measurement Resolution: 24 bit

- Selectable 10SPS or 80SPS output data rate
- Simultaneous 50 and 60Hz supply rejection
- Current consumption including on-chip analog power supply regulator:
- normal operation < 1.5mA,
- power down < 1uA
- Operation supply voltage range: 2.7V ~ 5.5V
- Operation temperature range: -40 ~ +85

Kit Includes :

- On Board components only.

Accessories :

- Multi meter for testing, load cell.