HX-711
24-BIT ADC CONVERTER FOR WEIGH SCALES

Technical Manual Rev 1r0

Features:

- Two selectable differential input channels
- Simple digital control and serial interface: pin-driven controls, no programming needed
- On-chip oscillator requiring no external component with optional external crystal
- On-chip power supply regulator for load-cell and ADC analog power supply
- Arduino Compatible

24-Bit Analog-to-Digital Converter (ADC) for Weigh Scales

Description based on Avia Semiconductor’s patented technology, 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. The input multiplexer selects either Channel A or B differential input to the low-noise programmable gain amplifier (PGA). Channel A can be programmed with a gain of 128 or 64, corresponding to a full-scale differential input voltage of ±20mV or ±40mV respectively, when a 5V supply is connected to AVDD analog power supply pin. Channel B has a fixed gain of 32. On-chip power supply regulator eliminates the need for an external supply regulator to provide analog power for the ADC and the sensor. Clock input is flexible. It can be from an external clock source, a crystal, or the on-chip oscillator that does not require any external component. On-chip power-on-reset circuitry simplifies digital interface initialization.

General Specifications:

- Input Supply Voltage: 2.7V to 5VDC
- Operating Current: <10mA
- Data Accuracy: 24-bit ADC chip
- Refresh frequency: 10/80Hz
- Differential input voltage: +/-40mV (Full-scale)
- PCB Dimensions: 24mm x 16mm
Figure 1. Major parts presentation of HX-711 Weigh Sensor

Figure 2. Schematic Diagram
Table 1. Pinouts Descriptions

<table>
<thead>
<tr>
<th>NAME</th>
<th>PIN IC NAME</th>
<th>DESCRIPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>DT</td>
<td>DOUT</td>
<td>Serial data output</td>
</tr>
<tr>
<td>SCK</td>
<td>PD_SCK</td>
<td>Power down control (high active) and serial clock input</td>
</tr>
<tr>
<td>VCC</td>
<td>DVDD</td>
<td>Digital supply: 2.6 ~ 5.5V</td>
</tr>
<tr>
<td>E+</td>
<td>AVDD</td>
<td>Analog Supply: 2.6 ~ 5.5V</td>
</tr>
<tr>
<td>E-</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>A-</td>
<td>INNA</td>
<td>Channel A negative input</td>
</tr>
<tr>
<td>A+</td>
<td>INPA</td>
<td>Channel A positive input</td>
</tr>
</tbody>
</table>
Figure 3. Sample Connections with gizDuino PLUS

Add HX-711 library to > My documents>Arduino>libraries
Example code: HX711Serial.ino