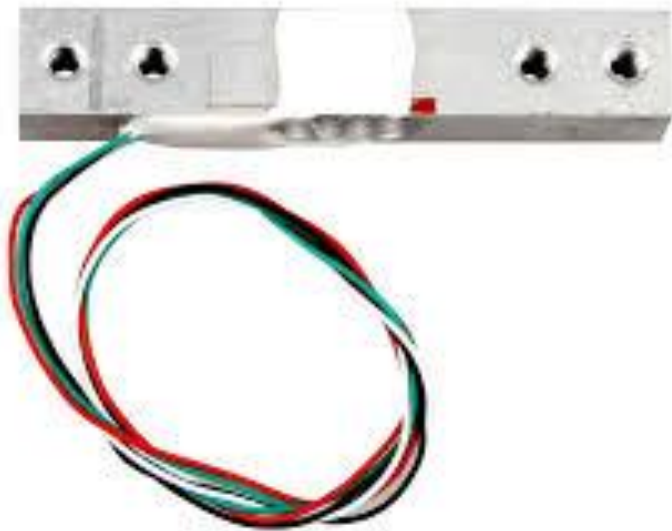


# Load Cell 1kg – Straight Bar Weight Sensor for Accurate Measurement

The **Load Cell 1kg – Straight Bar Weight Sensor** is a **high-precision sensor** designed to measure weight and force in **electronic weighing systems, industrial applications, and DIY electronics projects**. With a **1kg capacity**, this straight bar load cell provides **accurate and reliable measurements**, making it ideal for **Arduino, Raspberry Pi, and microcontroller-based projects**.

Perfect for **hobbyists, engineers, and students**, this load cell is widely used in **digital scales, kitchen scales, robotic force sensing, and scientific experiments**. Its **compact design, durable construction, and high sensitivity** ensure consistent performance in a variety of applications.



## Key Features

- **Weight Capacity:** 1kg maximum measurement for precise small-scale applications.
- **High Precision:** Accurate and stable output for reliable measurement.
- **Straight Bar Design:** Compact and easy to mount for various projects.
- **Material:** Durable alloy steel for long-term use and stability.
- **Easy Integration:** Works with Arduino, Raspberry Pi, and other microcontroller systems.
- **Compact Size:** Space-saving design suitable for small platforms and embedded projects.
- **Low Hysteresis & High Sensitivity:** Provides precise readings with minimal error.



## Technical Specifications

- **Model:** Load Cell 1kg – Straight Bar
- **Capacity:** 1 kilogram
- **Material:** Alloy steel
- **Output Type:** mV/V analog signal
- **Excitation Voltage:** 5–10V DC (typical 5V)
- **Non-Linearity:**  $\pm 0.03\%$  F.S.
- **Hysteresis:**  $\pm 0.03\%$  F.S.
- **Operating Temperature:**  $-10^{\circ}\text{C}$  to  $40^{\circ}\text{C}$
- **Connection Wires:** Red (+Exc), Black (-Exc), Green (+Signal), White (-Signal)
- **Dimensions:** Compact straight bar design suitable for small projects



## Advantages of the 1kg Straight Bar Load Cell

1. **High Accuracy:** Provides precise weight measurement with minimal deviation.
2. **Durable & Reliable:** Alloy steel construction ensures long-lasting performance.
3. **Compact & Easy to Mount:** Straight bar design allows simple installation on small platforms.
4. **Low Power Consumption:** Operates efficiently with standard microcontroller systems.
5. **Wide Applications:** Suitable for electronic scales, robotics, industrial monitoring, and DIY projects.

## Applications

The **Load Cell 1kg – Straight Bar Weight Sensor** is widely used in:

- **Digital Scales:** Ideal for small kitchen scales, lab scales, and electronic weighing devices.
- **Robotics:** Detect force, weight, or pressure in robotic arms or automated systems.
- **Industrial Monitoring:** Measure load in small machines, conveyors, or production setups.

- **DIY Electronics Projects:** Integrate with Arduino, Raspberry Pi, or other microcontrollers for smart weighing systems.
  - **Educational Kits:** Teach students about sensors, electronics, and force measurement.
  - **Scientific Experiments:** Precise weight measurement for lab and research purposes.
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## How It Works

The straight bar load cell uses a **strain gauge principle**. When a weight or force is applied to the sensor, the **strain gauge deforms slightly**, changing its electrical resistance. This change produces a **millivolt-level analog signal proportional to the applied load**, which can be amplified and read by microcontrollers such as Arduino or Raspberry Pi using an **HX711 amplifier module**.

The sensor is calibrated to provide **accurate readings for weights up to 1kg**, with minimal hysteresis and high linearity. Its **compact and robust design** ensures stable performance even in repetitive or continuous measurement applications.

## Example Project

A typical application is a **smart kitchen scale**. The load cell measures the weight of ingredients, and an Arduino or Raspberry Pi reads the signal via an HX711 amplifier to **display accurate weight on an LCD or touchscreen**.

Another example is a **robotic gripper force sensor**, where the load cell detects the gripping force applied to objects, ensuring delicate handling. It can also be used in **DIY vending machines, automated packaging systems, and laboratory experiments**.

## Why Choose the 1kg Straight Bar Load Cell

The **Load Cell 1kg – Straight Bar Weight Sensor** is **precise, durable, and easy to integrate**. Its **compact design, high accuracy, and wide compatibility** make it ideal for a range of applications—from hobbyist projects to professional systems.

Whether for **digital scales, robotic force detection, or educational experiments**, this load cell ensures **reliable, consistent, and accurate weight measurement**.

## Conclusion

The **Load Cell 1kg – Straight Bar Weight Sensor** is a **high-performance, versatile sensor** suitable for **Arduino, Raspberry Pi, and industrial applications**. With its **precise measurement, durable alloy steel construction, and compact design**, it is perfect for **digital weighing, robotics, and scientific projects**.

Upgrade your project with this **1kg straight bar load cell** for **accurate, reliable, and easy-to-integrate weight measurement**.