

Load Cell 10kg – Straight Bar Weight Sensor for Accurate Force Measurement

The **Load Cell 10kg – Straight Bar Weight Sensor** is a **high-precision sensor** designed for **measuring weight and force in industrial, laboratory, and DIY electronics projects**. With a **10kg capacity**, this straight bar load cell provides **accurate and reliable readings**, making it perfect for **Arduino, Raspberry Pi, and other microcontroller-based projects**.

Ideal for **engineers, hobbyists, and students**, this load cell is commonly used in **digital weighing scales, industrial load monitoring, robotic force detection, and scientific experiments**. Its **robust design, high sensitivity, and compact form factor** ensure **consistent and precise performance** across a variety of applications.



Key Features

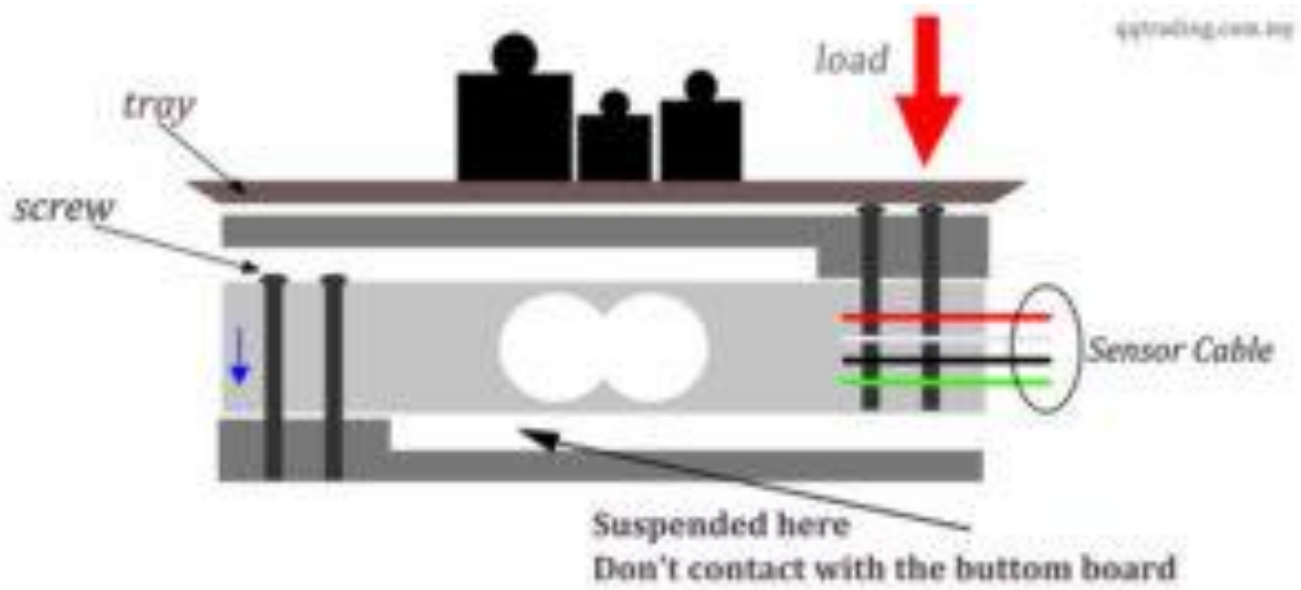
- **Weight Capacity:** 10kg for medium-scale weight measurement projects.
- **High Precision:** Provides accurate and stable outputs for reliable measurement.
- **Straight Bar Design:** Compact and easy to mount for different setups.

- **Durable Material:** Alloy steel construction for long-lasting stability and reliability.
- **Easy Integration:** Compatible with Arduino, Raspberry Pi, and other microcontrollers.
- **Compact & Lightweight:** Space-efficient design suitable for small or embedded systems.
- **Low Hysteresis & High Linearity:** Minimizes error for precise readings.

Technical Specifications

- **Model:** Load Cell 10kg – Straight Bar
- **Capacity:** 10 kilograms
- **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°C to 40°C

- **Connection Wires:** Red (+Exc), Black (-Exc), Green (+Signal), White (-Signal)
- **Dimensions:** Compact straight bar suitable for medium-weight applications



Advantages of the 10kg Straight Bar Load Cell

1. **High Accuracy:** Offers precise weight measurement for up to 10kg.
2. **Durable & Reliable:** Alloy steel construction ensures longevity and consistent readings.
3. **Compact Design:** Easy to mount in small platforms, weighing devices, and embedded systems.
4. **Low Power Operation:** Efficient performance for Arduino and microcontroller systems.
5. **Versatile Applications:** Suitable for digital scales, robotics, industrial monitoring, and educational projects.

Applications

The **Load Cell 10kg – Straight Bar Weight Sensor** is widely used in:

- **Digital Weighing Scales:** Perfect for kitchen scales, industrial scales, or lab scales requiring up to 10kg measurement.
- **Robotic Force Sensing:** Detect applied forces or weights for robotic arms and automated systems.
- **Industrial Monitoring:** Measure load in machinery, conveyor belts, or packaging systems.
- **DIY Electronics Projects:** Integrate with Arduino, Raspberry Pi, or other microcontrollers for smart weighing solutions.

- **Educational Kits:** Ideal for teaching students about sensors, electronics, and load measurement.
- **Scientific Experiments:** Provides accurate weight readings for laboratory and research applications.

How It Works

The straight bar load cell uses a **strain gauge mechanism**. When a weight or force is applied, the strain gauge **slightly deforms**, changing its electrical resistance. This produces a **millivolt-level analog signal proportional to the applied load**, which can be read and processed using a microcontroller with an **HX711 amplifier module**.

The sensor's design ensures **linear response with minimal hysteresis**, providing stable and precise measurements for weights up to 10kg. Its **robust alloy steel construction** ensures reliability in repeated or continuous measurement applications.

Example Project

A typical project is a **smart digital scale**. The load cell measures weight, and an Arduino or Raspberry Pi reads the signal via an HX711 amplifier, displaying the **accurate weight on an LCD or touchscreen**.

Another example is a **robotic gripper** where the load cell detects the gripping force applied to objects, ensuring **safe handling of medium-weight items**. It is also ideal for **industrial conveyor monitoring or automated packaging systems**.

Why Choose the 10kg Straight Bar Load Cell

The Load Cell 10kg – Straight Bar Weight Sensor is **precise, durable, and easy to integrate**. Its **compact design, high accuracy, and wide compatibility** make it perfect for **digital weighing, robotics, and educational projects**.

Whether for **industrial monitoring, lab experiments, or DIY electronics**, this load cell ensures **reliable and consistent weight measurement** for medium-weight applications.

Conclusion

The Load Cell 10kg – Straight Bar Weight Sensor is a **versatile and high-performance sensor** for Arduino, Raspberry Pi, and professional applications. With **accurate readings, durable alloy steel construction, and compact design**, it is ideal for **digital scales, robotic force detection, and laboratory experiments**.

Upgrade your project with this **10kg straight bar load cell** for **accurate, reliable, and easy-to-integrate weight measurement**.

