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› Bestol YZC-133 Aluminum Alloy Electronic Scale Weighing Load Cell Sensor 10kg User Manual

Bestol YZC-133

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1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Bestol YZC-133 Aluminum Alloy Electronic Scale Weighing Load Cell Sensor. Designed for precision measurement, this 10kg capacity load cell is ideal for various electronic weighing applications, including integration with microcontrollers like Arduino.

2. PRODUCT OVERVIEW

The YZC-133 load cell is a robust, single-point sensor constructed from aluminum alloy, offering reliable performance for static and dynamic weighing. It features a compact design with pre-attached wiring for easy integration.

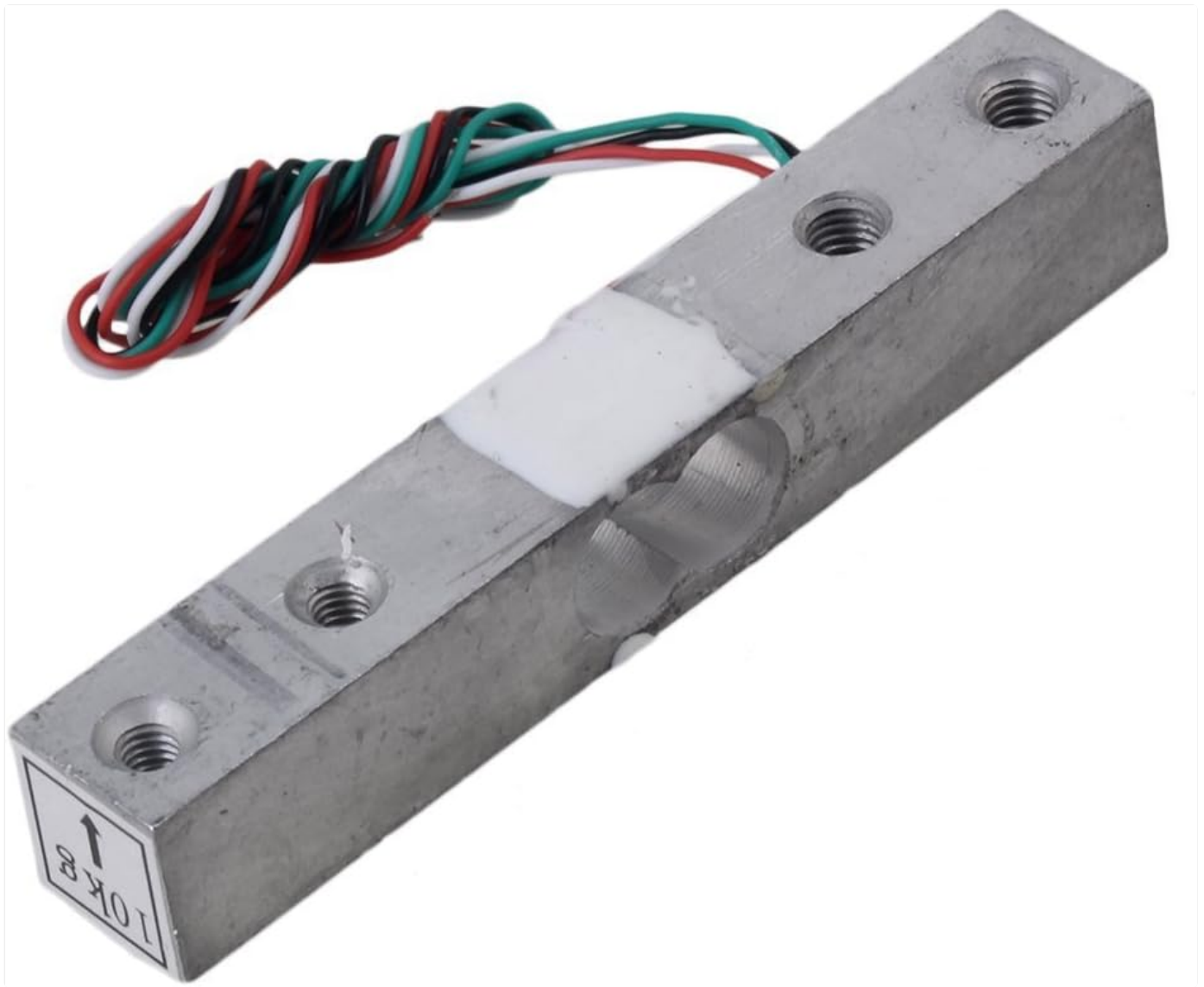


Figure 2.1: Overall view of the Bestol YZC-133 load cell, showing its aluminum alloy body and multi-colored wiring harness.

2.1. Components

- **Load Cell Body:** Aluminum alloy construction for durability and stability.
- **Mounting Holes:** Threaded holes for secure attachment to a weighing platform or structure.
- **Wiring Harness:** Four-wire configuration for signal output and power input.



Figure 2.2: Detailed view of the wiring connections on the YZC-133 load cell. The wires are typically color-coded for easy identification of excitation and signal lines.

2.2. Wiring Color Code (Typical)

While specific color codes can vary, the standard configuration for this type of load cell is:

- **Red:** Excitation+ (E+)
- **Black:** Excitation- (E-)
- **Green:** Signal+ (S+)
- **White:** Signal- (S-)

Always verify the wiring diagram provided with your specific load cell or amplifier module, as variations may exist.



Figure 2.3: Close-up of the load cell's end, showing the "10Kg" capacity label and an arrow indicating the direction of force application. Also visible are the threaded mounting holes.

3. SPECIFICATIONS

Feature	Value
Model	YZC-133
Capacity	10 kg
Material	Aluminum Alloy
Rated Output	1.0 ± 0.1 mV/V

Feature	Value
Non-linearity	± 0.05% F.S.
Hysteresis	± 0.05% F.S.
Repeatability	± 0.05% F.S.
Creep (30 min)	± 0.05% F.S.
Temperature Effect on Zero	± 0.05% F.S./10°C
Temperature Effect on Output	± 0.05% F.S./10°C
Operating Temperature Range	-10°C to +50°C
Input Impedance	1000 ± 20 Ω
Output Impedance	1000 ± 20 Ω
Insulation Resistance	≥ 2000 MΩ (50V DC)
Recommended Excitation Voltage	5-10V DC
Maximum Excitation Voltage	15V DC

4. SETUP AND INSTALLATION

Proper installation is crucial for accurate measurements. This load cell is designed for single-point parallel beam applications.

4.1. Mounting

1. Identify the mounting points on your weighing platform and base structure. The load cell has threaded holes on both ends.
2. Securely attach one end of the load cell to the fixed base using appropriate screws. Ensure a flat, rigid mounting surface.
3. Attach the other end of the load cell to the movable weighing platform. The arrow on the load cell (see Figure 2.3) indicates the direction of the applied load. Ensure the load is applied vertically and centrally to the sensor.
4. Avoid any side loads, twisting, or bending forces on the load cell, as this can lead to inaccurate readings and damage.

4.2. Electrical Connection

The load cell requires an external amplifier module (e.g., HX711) to convert its small analog signal into a digital format readable by a microcontroller.

1. Connect the load cell wires to your amplifier module according to the typical color code (Red to E+, Black to E-, Green to S+, White to S-). Refer to the amplifier module's documentation for specific pin assignments.
2. Connect the amplifier module to your microcontroller (e.g., Arduino) for power and data communication.
3. Ensure all connections are secure and insulated to prevent short circuits.

5. OPERATING INSTRUCTIONS

Once physically and electrically connected, the load cell system needs calibration for accurate weight measurements.

5.1. Calibration

- 1. Zero Calibration:** With no weight on the platform, take a reading from your amplifier/microcontroller setup. This establishes the "zero" point.
- 2. Span Calibration:** Place a known reference weight (e.g., 1kg, 5kg) on the platform. Take a reading. Use this reading and the known weight to calculate the calibration factor (e.g., units per gram or units per kilogram).
- 3. Verification:** Remove the known weight and re-check the zero. Then place the known weight again to verify the accuracy of your calibration. Repeat with different known weights if possible.

5.2. Measurement

After calibration, place the object to be weighed on the platform. The microcontroller will read the amplified signal, apply the calibration factor, and display the weight. Ensure the object is placed centrally and gently to avoid impact loads.

6. MAINTENANCE

The YZC-133 load cell is designed for long-term reliability with minimal maintenance.

- Cleaning:** Keep the load cell and surrounding area clean and free from dust, dirt, and debris. Use a soft, dry cloth for cleaning. Avoid harsh chemicals or abrasive materials.
- Environmental Protection:** While robust, protect the load cell from excessive moisture, extreme temperatures, and corrosive environments.
- Physical Inspection:** Periodically inspect the load cell and its mounting for any signs of damage, loose connections, or corrosion.
- Overload Prevention:** Do not exceed the rated capacity of 10kg. Overloading can permanently damage the sensor.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
No reading or unstable readings	Loose wiring, incorrect connections, faulty amplifier, electrical noise.	Check all wiring connections. Verify correct wiring color code. Ensure amplifier module is powered and functioning. Shield signal wires if experiencing significant noise.
Inaccurate weight measurements	Improper calibration, non-level surface, side loads, damaged load cell.	Recalibrate the system. Ensure the weighing platform is level. Check for any mechanical obstructions or side forces. Inspect load cell for physical damage.
Load cell not responding to weight	Completely disconnected, severely damaged, amplifier failure.	Verify power to amplifier and load cell. Check for continuity in load cell wires. If suspected damage, replace the load cell.

8. WARRANTY AND SUPPORT

This Bestol YZC-133 Load Cell is manufactured to high-quality standards. For technical support or warranty inquiries, please refer to the retailer or distributor from whom the product was purchased. Keep your proof of purchase for warranty claims.

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Example: How do I reset this device or fix this error?

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Model number, symptoms, what you tried, or the section of the manual you are using.

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