

# Button Load Cell (0-50kg) – CZL204E



## Product Description

A load cell is a force sensing module – a carefully designed metal structure, with small elements called strain gauges mounted in precise locations on the structure. Load cells are designed to measure a specific force, and ignore other forces being applied. The electrical signal output by the load cell is very small and requires specialized amplification. Fortunately, the 1046 PhidgetBridge will perform all the amplification and measurement of the electrical output.

This Button Load Cell is used in applications that require a thin form factor. The bottom of the load cell is bolted, and force applied to the button on the top. By loading only the button, which is slightly rounded, the load cell is less sensitive to errors resulting from the load not pushing down exactly straight on the load cell.

## Product Specifications

### Sensor Properties

|                              |                       |
|------------------------------|-----------------------|
| Sensor Type                  | Compression Load Cell |
| Weight Capacity Max          | 50 kg                 |
| Maximum Overload             | 60 kg                 |
| Creep                        | 20 g/hr               |
| Zero Balance                 | $\pm 500$ g           |
| Cell Repeatability Error Max | $\pm 100$ g           |
| Cell Non-Linearity Max       | 100 g                 |
| Temperature Effect on Span   | 2.5 g/°C              |
| Temperature Effect on Zero   | 2.5 g/°C              |

### Electrical Properties

|              |        |
|--------------|--------|
| Rated Output | 1 mV/V |
|--------------|--------|

|                        |              |
|------------------------|--------------|
| Rated Output Error Max | 40 $\mu$ V/V |
| Output Impedance       | 350 $\Omega$ |
| Supply Voltage Max     | 5 V DC       |

## Physical Properties

|                             |                               |
|-----------------------------|-------------------------------|
| Compensated Temperature Min | -10 $^{\circ}$ C              |
| Compensated Temperature Max | 40 $^{\circ}$ C               |
| Operating Temperature Min   | -20 $^{\circ}$ C              |
| Operating Temperature Max   | 55 $^{\circ}$ C               |
| Cable Length                | 3 m                           |
| Cable Gauge                 | 30 AWG                        |
| Material                    | Aluminium Alloy & Alloy Steel |
| Screw Thread Size           | M3x0.5                        |

## Resources

The Data Sheet below has a comprehensive glossary that describes in practical terms the meaning and usefulness of the specifications.

- [Load Cell Primer](#)
- [Mechanical Drawing](#)

## Warning



Make sure to calibrate your load cell before using it. You can find information on how to calibrate the cell in the Load Cell Primer. You should also look at the 1046 – PhidgetBridge User Guide.

## Connection

The 3136 connects to a bridge on the 1046 – PhidgetBridge 4-Input

The following table shows how to connect the Load Cell Wires to the bridge connectors.

| Wire Color       | Red | Green | White | Black/Yellow |
|------------------|-----|-------|-------|--------------|
| Bridge Connector | 5V  | +     | —     | GND          |

