

## Model 31 Load Cell Installation Instructions

### Introduction

Model 31 load cells (order code AL311) with low-range capacity (range codes AJ through AR) require some care in handling and installation to avoid permanent damage to the load cell.

### Installation

1. The Model 31 load cell is shipped with the active threaded stud removed. The active threaded stud has threads on both ends and should be finger tightened into the load cell body.
2. The threaded stud on the base of the load cell is machined as an integral part of the load cell. The base can be threaded into the customer's part by grasping the main body of the load cell, rotating load cell and cable assembly until finger-tight.
3. Caution should be used when attaching the active threaded stud to the customer's fixture. The customer's fixture should not be threaded below the shoulder at the bottom of the active threaded stud. No wrenches should be used in assembling these parts.

#### CAUTION

The customer's fixture should not be tightened more than 0.9 N m [8 in lb] which is about finger-tight.

**Failure to comply with these instructions may result in product damage.**

4. The tension or compression force to be measured must be applied as much as possible in a vertical direction along the center line of the mounting studs.

#### CAUTION

Bending moment or torsion forces in excess of 0.35 N m [3 in lb] could cause permanent damage to the load cell.

**Failure to comply with these instructions may result in product damage.**

### Overload Stops

The Model 31 load cell is available with optional mechanical overload stops for both tension and compression. The mechanical stops will usually protect the load cell from forces in the tension and compression direction, however, the load cell may be damaged by either a bending moment or excessive torque during installation. The optional mechanical overload stops will not protect the cell from bending moments due to excessive torque of the threads.

### Excessive Zero Balance

The Model 31 load cell may be damaged by either a bending moment or excessive torque during installation. The most obvious result of damage to the load cell is the residual unbalance of the strain-gage bridge. The strain-gage bridge is balanced at the factory to within two percent of the full rated output in millivolts. The addition of the customer's fixture will change the zero balance depending upon the weight of the fixture. Excessive unbalance can be attributed to damage resulting from excess torque or bending moment.

### Off-Axis Loading

The Model 31 load cell has two welded stainless-steel diaphragms on the top and

bottom side of the active element to protect the load cell from the effects of off-axis loading. For example, a 100% full-scale load applied at 90 degrees to the base of the active stud would create a maximum error of only 2%. A 100% full-scale bending moment load applied at 90 degrees to the vertical axis of the load cell and two inches above the surface of the load cell would create a maximum error of only 3%.

### **CAUTION**

The above specifications are to be used as guidelines only and the loads specified are static loads. Damage may occur from shock loads or dynamic loads that never exceed the above limits.

**Failure to comply with these instructions may result in product damage.**

Each application is different and it is recommended that external mechanical overload stop options be used as much as possible to avoid unintentional overload damage.

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## **Warranty**

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is the Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

While we provide applications assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

### **WARNING PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices, or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

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