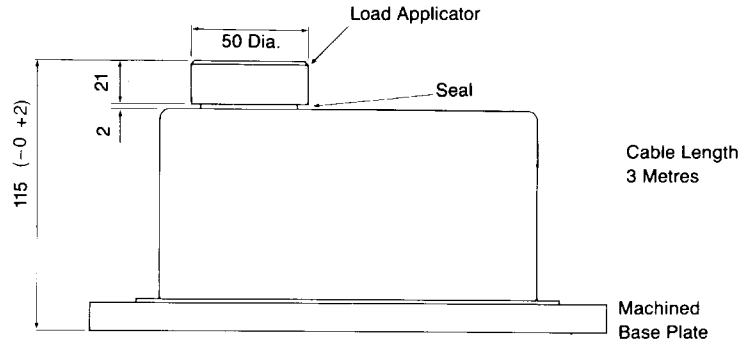
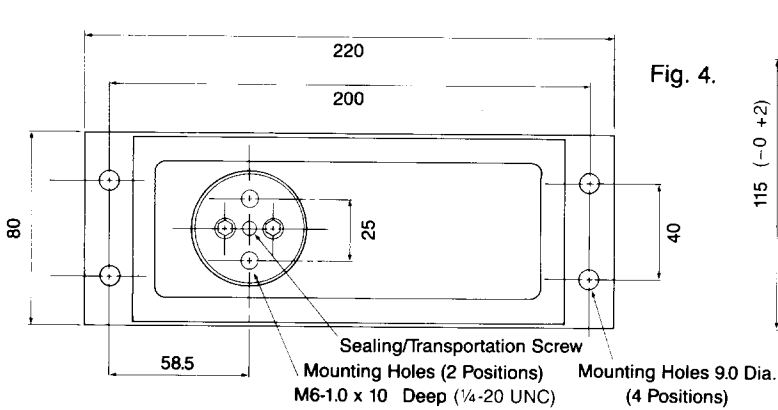


# SPECIFICATION MODEL 240



**NOTE** All dimensions are in mm and are nominal for information only.

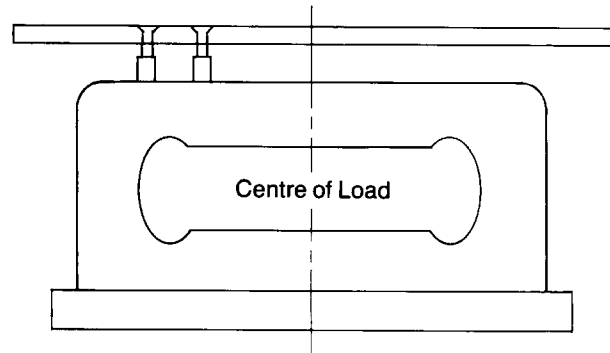
### NOMINAL CAPACITIES

2 Kg	4.4 lbs	15 Kg	33 lbs
5 Kg	11 lbs	20 Kg	44 lbs
7 Kg	15 lbs	30 Kg	66 lbs
10 Kg	22 lbs	50 Kg	110 lbs

All load cell calibrated in Kg.

### GENERAL SPECIFICATION

Recommended Excitation	10 Vdc
Maximum Excitation	15 Vdc
Output at Rate Load	2mV/V $\pm$ 10%
Zero Balance	$\pm$ 5% of Rated Load
Input Impedance	415 $\pm$ 15 ohms
Output Impedance	350 $\pm$ 3 ohms
Insulation	10 <sup>9</sup> ohms
Storage Temp Range	-15 to +45°C (+5 to +113°F)
Operating Temp Range	0 to +50°C (+32 to +122°F)
Safe Overload	150% of Rated Load
Ultimate Overload	300% of Rated Load
Deflection	< 0.5mm (0.02") at Rated Load
Cable Type	6 Core Shielded Blue Polyurethane
Cable Length	To Suit
Sealing	IP66
Barometric Effect	None

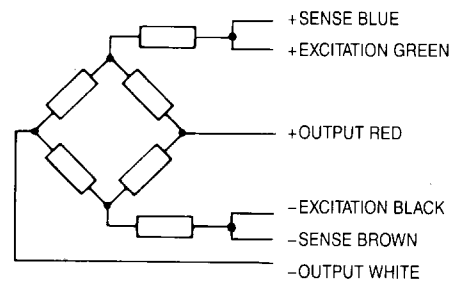


**NOTE 1** Cables are fully shielded with no connection to load cell body.

**NOTE 2** Wiring schematics above configured for compression use.

Ideal for checkweighing and other high speed weighing applications where washdown protection is a requirement.

### WIRING SCHEMATIC



**Due to Huntleigh's policy of continuous development these specifications are subject to change without notice.**

Huntleigh Technology specialises in the volume production of high quality Load Cells for the weighing and allied industries.

Details of the full range offered are available on request.

To obtain the ultimate performance from Huntleigh Load Cells, it is important that care is taken in their mounting and use. For further guidance consult the Factory Representative.

## HUNTLEIGH TECHNOLOGY

## LOAD CELLS

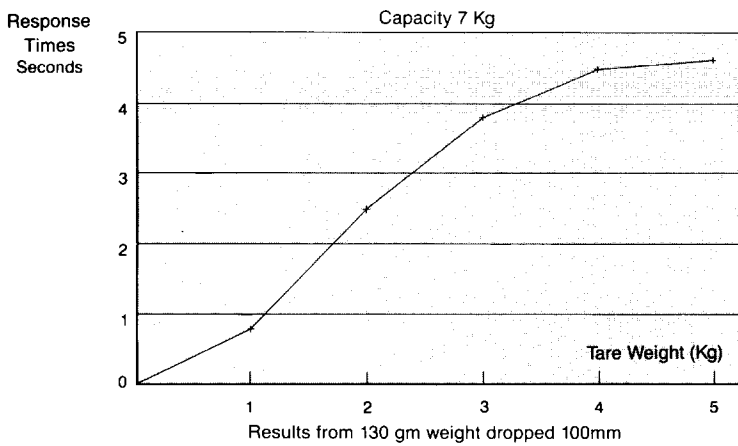
# MODEL 240 – HIGHSPEED PERFORMANCE

**THE 240 LOAD CELL** is one of the most accurate high speed Load Cells in the world. An understanding of its operation will assist with trouble free application.

## PRINCIPLES OF OPERATION

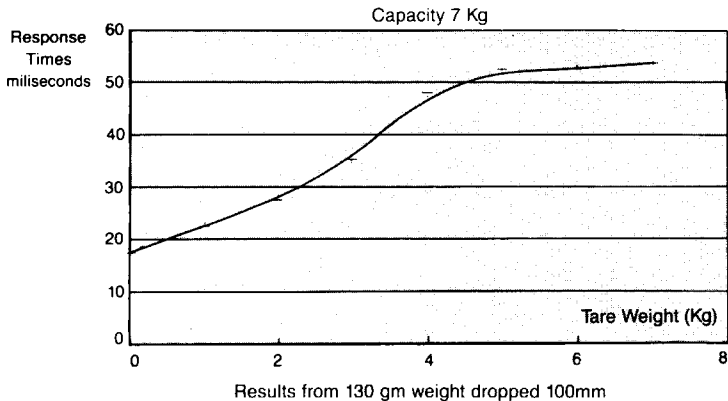
An undamped cantilever Load Cell can behave like a very stiff spring. Consequently when pre-loaded with a weight and shock excited by another weight, the unit "rings" for an appreciable time. A settling time of several seconds may be acceptable in platform scale applications but it is not acceptable for high speed repetitive weighing. (See Fig. 1.)

### RESPONSE TIMES 1010 (UNDAMPED) Fig. 1.



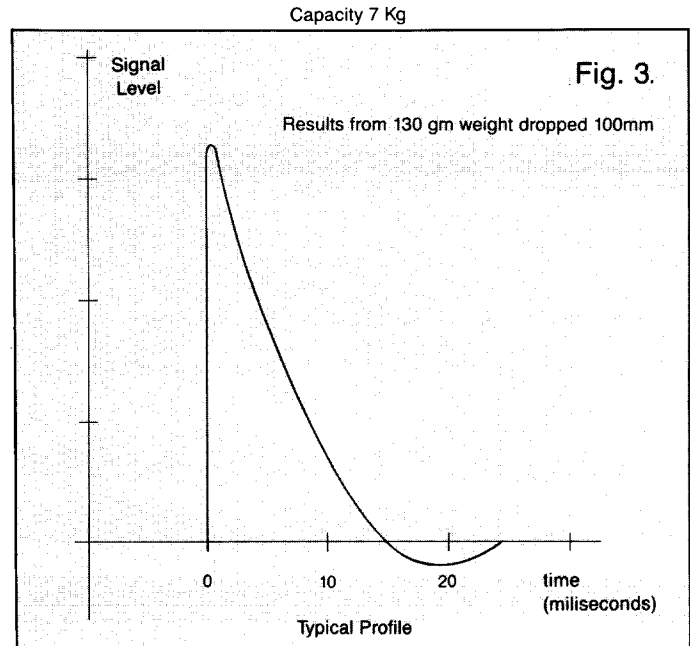
As you can see tare weight increases settling time and should be kept to a minimum.

### RESPONSE TIMES 240 Fig. 2.



With the 240 Damped Load Cell you can see that the settling time is drastically reduced from more than 1 second to less than 100 m/seconds. (See Fig. 2 and 3.)

### RESPONSE CURVE 240



## MOUNTING

The precision obtainable from the 240 can only be realised by careful attention to the mechanical mounting of the unit. It will be appreciated that if the full scale deflection of the Cell is 0.4mm and the scale is divided into 4000 divisions, one division on the scale is the result of a deflection of 0.0001mm. So, any force, from whatever source, which brings about such a deflection will introduce an error into the system. It is for this reason that the baseplate is solid and has a machined surface for mounting. Ensure, therefore that the mounting support is correspondingly flat and rigid. Holding down bolts must be equally torqued to 35-40 Nm (or 25-30 lb ft). Also it is important that the Load Cell be level and that the level should not change significantly when the system is loaded. The initial level should be within 1 degree of the horizontal (check with spirit level) and the deflection under load should not exceed 0.1 degrees.

## PACKAGING TRANSPORT AND STORAGE

The Load Cell is packed in a polystyrene housing for dispatch and should be stored in its original packaging if possible. It is essential to store the Load Cell upright with the transportation screw tight (see installation sheet).

Storage temperatures should not exceed -15°C to +45°C.

Never carry the 240 by the cable.

# NCE – WITH WASHDOWN CAPABILITY

## VIBRATION

It is sometimes assumed that because the Load Cell is damped it is impervious to external vibration. This is not so. It is damped against its own natural vibration when loaded. If however, the Load Cell is oscillated by external forces, such as adjacent vibrating machinery, it may provide output signals corresponding to these forces because heavy structures tend to oscillate at around 0.1 to 10Hz. It is impossible to damp the Load Cell adequately to eliminate these effects and maintain coherent performance. The design aim must therefore be to attach the unit to a firm flat, level base and to ensure that this base is free from vibration. The main sources of vibration are likely to be rotating machinery on the weigh structure, vibration from the floor etc. Each of these must be nullified, preferably by physical separation, but if that is not possible, by shock absorbers, anti-vibration mounts or similar devices.

## APPLYING THE LOAD

The load must be applied via the bearing surface which is uppermost on the load applicator (see Fig. 4). Both holes must be used, evenly torqued to 7 Nm (5lb/fft) so that the load is evenly distributed.

It is usual to use a flat bar or other load spreading member between the applicator and the weigh platform, table or live superstructure. The mating section and the substructure, must be rigid, otherwise the latter will oscillate and superimpose on the Load Cell output, depending on the frequency and amplitude generated. The supporting member must be flat.

The load should be transported on to the weigh platform in such a way that it creates the minimum disturbance. If the load traverses across the platform, it should, if possible, avoid knocking the platform edge (i.e. no step). If the load is lowered on to the platform it should be controlled placement, not a dropped load, if possible. For optimum performance the line of action of the applied load should act as near

as possible to the centre line of the Load Cell – in both horizontal planes – to minimise eccentricity effects.

## EFFECT OF TEMPERATURE

Variations in temperature will affect the viscosity of the damping fluid and consequently the settling time of the Load Cell. The standard unit is damped for ambient working temperatures (around 20°C). Alternative fluids may be specified to give similar characteristics at different working temperatures.

It is recommended that the Load Cell temperature be within 10°C of the specified working temperature if the settling time is to be within 50 milliseconds.

## INSTRUMENTATION

The Load Cell is essentially a strain gauge device of Wheatstone Bridge configuration having input/output signals in millivolts. Normally, standard Load Cell weighing equipment instruments will match satisfactorily but note that the Cell output is offset dependent on platform or container weight. The cable should be clamped in position and should not be continuously flexing.

Note that the Model 240 is supplied in six wire configuration and where possible this should be fully utilised.

## UNSTABLE READING

If the repeated application of a load gives a steady but inconsistent reading, or the readings steady at around, but not quite, zero between weighings, then the Load Cell is probably reflecting some form of mechanical interference or "stiction". Check that the platter is not fouling and that dirt etc. has not accumulated somewhere in the scale mechanism. Remove the source of interference and normal weighing should result. Inspect the Load Cell load applicator: this should not be binding on the cover of the unit. Do not unbolt the base unless absolutely necessary. If this has to be done, be sure to follow the bolting down procedure described earlier.

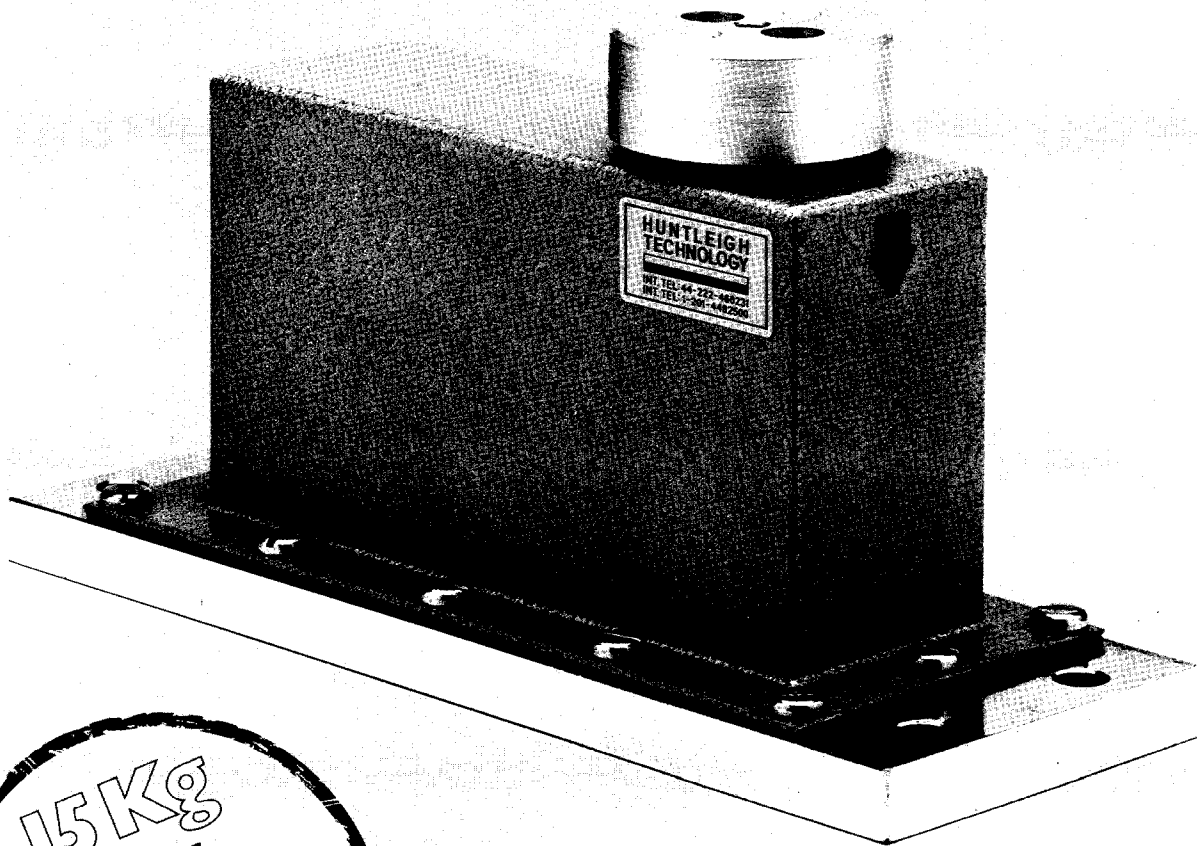
## SEALING

The 240 is protected against the ingress of water by a special diaphragm at the "neck" of the unit. A sophisticated system of filters enables the 240 to overcome barometric pressure effects. It is ideal for wash down conditions in the food industry and other difficult environments.

Protection is designed to pass a 50 day humidity cycle at 95% R.H. and the unit is sealed to IP66. (BS 5490 IEC 529) Cert. No. 2039.

# HUNTLEIGH TECHNOLOGY MODEL 240

SINGLE POINT FLUID DAMPED LOAD CELL  
2 Kg-50 Kg (4.4 lbs-110 lbs)



HUNTLEIGH  
TECHNOLOGY  
**LOAD CELLS**

Ideal for checkweighing and other high speed weighing applications where washdown protection is a requirement.