

LC-4102/4103 Series

SINGLE POINT BEAM LOAD CELL

SET-UP MANUAL

set-up-LC-4102/4103-v.1.a 89.09.20 OYM

SINGLE POINT BEAM LOAD CELL

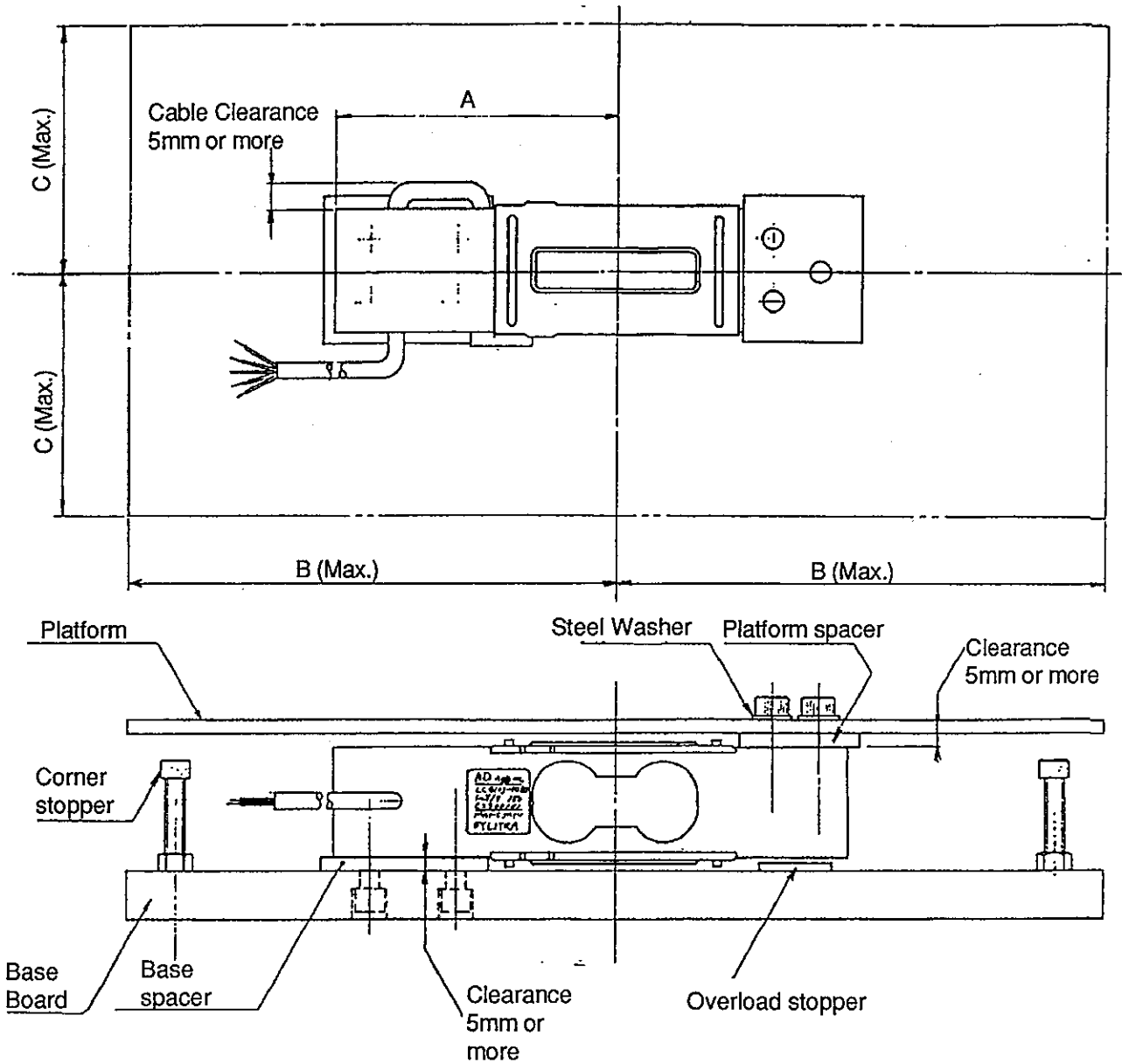
MODEL: LC-4102-K010
LC-4102-K015
LC-4102-K030
LC-4102-K060
LC-4102-K150
LC-4103-K060
LC-4103-K100
LC-4103-K150

1. INTRODUCTION

- (1) The LC4102 and LC4103 series are high precision load cells designed for use with platform scales, hopper scales, and packer scales. Optimum performance is achieved through proper installation and operation.
- (2) To install the load cell properly, the static conditions, as well as the dynamic factors (i.e., shock and vibration) must be considered.

2. INSTALLING ON THE BASE BOARD

- (1) The base board should be rigid to prevent it from slanting or curving under normal operating conditions. (See Figure 1.)
If the base board yields, the platform will bend and adversely affect the load cell.



Dimensions of platform (mm)						Cable color	
	Length	Width	A	B	C		
LC-4102 Series	400	400	75	200	200	Red	Excitation +
						White	Excitation -
LC-4103 Series	600	400	115	300	200	Green	Signal +
						Blue	Signal -
						Yellow	Shield

Figure 1

- (2) Use a rigid base board. The load cell's mounting surface requires a surface finish of 100S. (JIS*) or above. (See Figure 1)
* JIS = Japan Industrial Standard
- (3) Use three hexagon socket head bolts (tensile strength Class 12.9 -JIS or equivalent) to install the load cell on the base board.

Table 1 lists the applicable torque and screw-depth. Do not use the ordinary bolts (of low tensile strength) available on the market.

Table 1

	Bolt diameter	Clamping torque (kg-cm)	Screw-in depth (mm)
LC-4102 Series	M6	150	10 - 13
LC-4103Series	M8	300	15 - 20

- (4) When tightening bolts, hold the cable side of the load cell, then sequentially fix the bolts in the diagonal order, leaving the space of 5mm or more between the load cell and base board.

Be sure to remove all dirt and dust from the mounting surface when using spacers. (See Figure 1.)

3. ATTACHING THE PLATFORM

- (1) Tare weight

When the overall load (including the platform and tare weight) is within 180% of the rated capacity, the load cell will function correctly. The tare weight should be as light as possible to prolong the service life and excellent performance of the load cell.

However, it is not necessary to be too strict about the total load.

- (2) Fixing bolts

Use three hexagon socket head bolts (tensile strength Class 12.9 - JIS or equivalent) or high-tension hexagon head bolts (tensile strength Class 12.9 - JIS or equivalent) to attach the platform to the load cell. Table 1 lists the applicable clamping torque and screw-in depth.

Avoid using ordinary bolts (of low tensile strength) available of the market. For a platform made of aluminum or soft metal, use iron washers to distribute the compressive load of the bolts.

- (3) Attaching method

When tightening the bolts, be careful not to apply unnecessary force (torsion or lateral load) to the load cell. Leaving a clearance of 5mm or more between the load cell and platform.

When using platform spacer, be sure to remove all dirt and dust from the mounting surface.

- (4) Others

For the allowable dimensions of the platform, see Figure 1. Also see the "PRECAUTIONS ON OVERLOAD" below when designing a platform.

4. PRECAUTIONS ON OVERLOAD

(1) Mechanical strength of load cell

When a load is applied to the center of the load cell, the allowable limit of the load is 200% of the rated capacity. However, the allowable load at the corner should be 100% of the rated capacity.

Repeated overloading exceeding the allowable limit may shorten the service life of the load cell, and even destroy it in extreme cases. This also applies to the lateral load.

The actual load at the corner should be less than 50% of the rated capacity.

(2) Overload stopper

If excessive shock force is applied by accidentally dropping the object to be weighed, the load will exceed the allowable limit. Therefore, be sure to attach the overload stopper to the load cell.

Adjust the overload stopper to touch the platform when applying a tare weight (less than 80% of the rated capacity) plus 140% of the rated capacity.

(3) Corner stoppers

Even when the overload stopper is properly adjusted, if excessive shock or an overload is applied to the corners, it may exceed the allowable limit due to the flexibility of the base board. Therefore, attach corner stoppers at the corners of the platform at approximately 100% of the rated capacity. (See Figure 3.)

The clearance between the load cell and corner stoppers varies depending on the platform form or material. Therefore, adjust the corner stoppers according to the actual setup conditions.

(4) In case shock is likely to occur

If excessive shock force is likely to occur, overlay the platform with a shock absorber to reduce the shock applied to the load cell.

5. OVERALL FUNCTION TEST

(1) To make full use of load cell performance, pay attention to the following points.

- ①A stable power supply for the load cell
- ②A stable weighing indicator (No. of digits matching the specified accuracy is needed.)
- ③Installation site subject to minimum changes in temperature
- ④Installation site where the load cell platform remains horizontal
- ⑤Installation site free of external vibration or noise

5.2 After installing the load cell, execute the initial test as follows.

- ①Warm up the machine for approximately 10 minutes.
- ②Apply a load 100 to 150% of the rated capacity 3 to 5 times. Then monitor the loading time and zero point to ensure proper operation.
- ③After applying a load to three times to ensure proper operation, the specified accuracy can be obtained.

6. MAINTENANCE

(1) Remove all dirt and dust from the load cell, and always use it in a clean environment.

(2) Clean the section covered with a rubber sheet without pressing down hard. The dirt and dust on this section can be washed off. Use the load cell only after it dries completely.

(3) Periodically inspect the overload stopper and corner stoppers.

7. OTHER APPLICATIONS

(1) Multiple load cell type

Flexibly set up the load cell by using a ball to prevent unnecessary interference between the load cell and platform. (See Figure 2.)

Scale Equipped with
Multiple Load Cells

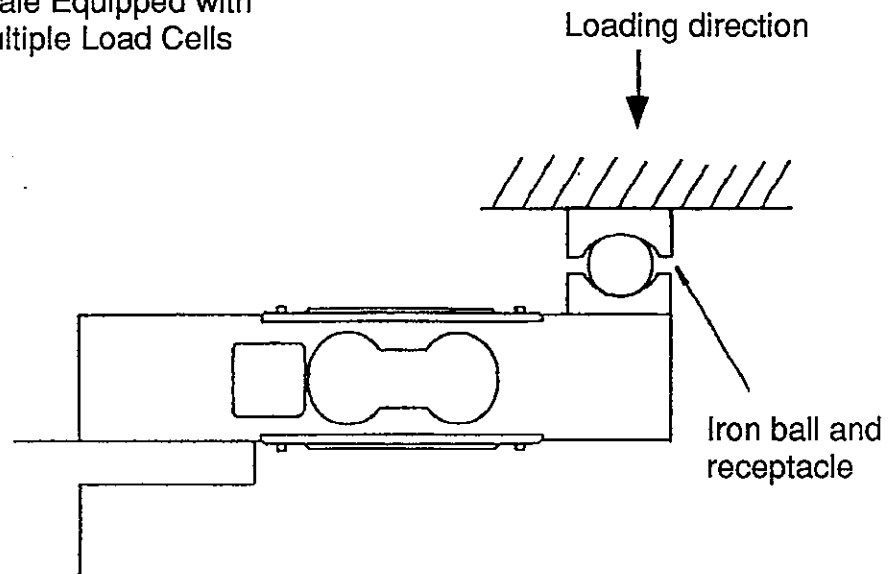


Figure 2

(2) Tension scale and under-the-floor type

Use the load cell for a tension scale or under-the-floor type of scale by using a rod-end bearing as shown in Figure 3.

Tension Scale and Under-the-Floor Scale

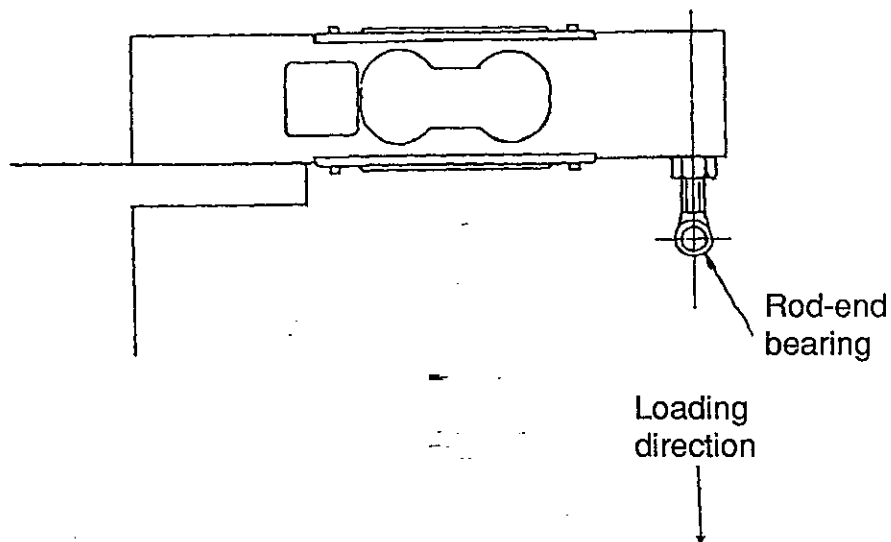


Figure 3