

LC-1205 Series

TENSION LOAD CELL

SET-UP MANUAL

Set-up-LC-1205-v.1.a 90.02.28 JCK

TENSION LOAD CELL

MODELS: LC-1205 - K020
LC-1205 - K050
LC-1205 - K100
LC-1205 - K200
LC-1205 - K500
LC-1205 - T001A
LC-1205 - T002
LC-1205 - T005

1. Installation Reminders

The load cell depends on an even distribution of pressure along its sensors. The LC-1205 Load Cell is very accurate, but its accuracy is dependent on careful installation. An uneven distribution of pressure will prevent the load cell from operating efficiently. The following types of errors are common, so be careful!

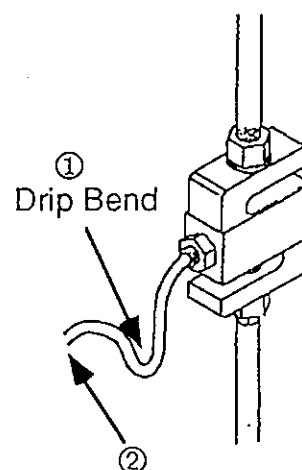
- | | |
|----------------------|---|
| 1) Lateral stress | Stress to one end of the load cell. |
| 2) Twisting | A turning, twisting pressure to the load cell caused by loose fittings. |
| 3) Moment | Buckling, or stress to both ends of the load cell which causes pressure to the middle. |
| 4) Eccentric load | Stress that is caused by pressure that is not centered correctly over or under the load cell. |
| 5) Inclination slope | The pressure on the load cell is angled and not perpendicular. |

Using Flexible Rods and/or Rod-End Bearings should diminish these effects. The longer the flexible rods, the less an influence on the load cell they will have. If the flexible rods are not long enough, or a higher accuracy is needed, use rod-end bearings (only available as options).

2. Proper Mounting

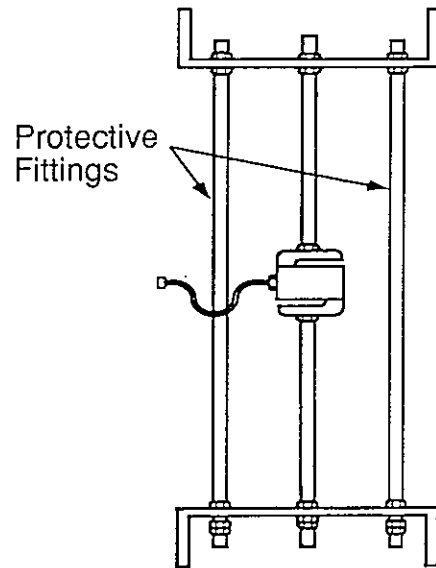
When mounting the load cell, be careful not to directly apply uneven pressure described above in section 1.

As shown in the figure to the right, give a "Drip Bend" to the cable near its connection with the load cell ①. Also, install it so that the cable's empty weight will not affect the load cell's accuracy ②.



3. Protective Fittings

Be sure to mount Protective Fittings to ensure the load cell's safety. Also, mount a Check Rod to prevent lateral stress caused by horizontal vibrations. The Check Rod should be mounted horizontally to the centroid of your device, or close to it, so that the weighing accuracy will not be affected.



4. Precautions

- [1] Since an output signal from the load cell is only 2-30mV, it is necessary to avoid cross-talk interference. Be sure to keep the load cell and its cable 1m or more away from the motor cable or any other electrical sources. Also, remember to use all the wires of multi-core cables (for example, using only 4 core wires of a 6-core cable and leaving 2 core wires unused) to prevent them from acting as conductors.
- [2] If you are installing the load cell in a place exposed to direct sunlight or radiation heat, cover with insulating material to prevent errors caused by a temperature gradient.
- [3] When summing multiple load cells, see to it that the temperature of each load cell is always kept the same.
- [4] The Terminal of the lead wire of the Load Cell Cable can be soldered directly to the Indicator, or to the Terminal Block of the Junction Box. To make it detachable, attach a lugged terminal or a connector. If using a connector, refer to its instruction manual for directions.
- [5] Connecting an extension cable to the load cell reduces the output voltage slightly. This loss of voltage can be attributed to an increase in the Loop Resistance of the input lead wires (red and white). Every time this resistance increases $.1\Omega$, the rated output decreases 0.28%. When it is necessary to eliminate an influence by the extension cable, re-calibrate the actual output of the load cell with the Indicator, or compensate with the Remote Sensing circuit of the Indicator, using a 6-core cable.

- [6] For maintenance work on the load cell, it is recommended to install a Junction Box between the Load Cell and Indicator. A&D's waterproof Junction Box, AD-4380, is available.
- [7] When connecting the load cell to the Indicator for grounding be sure to use a single-point grounding method. A multi-point grounding process forms a loop that results in an unstable condition that is prone to induction. Grounding should be provided independently of the power system.

5. Maintenance

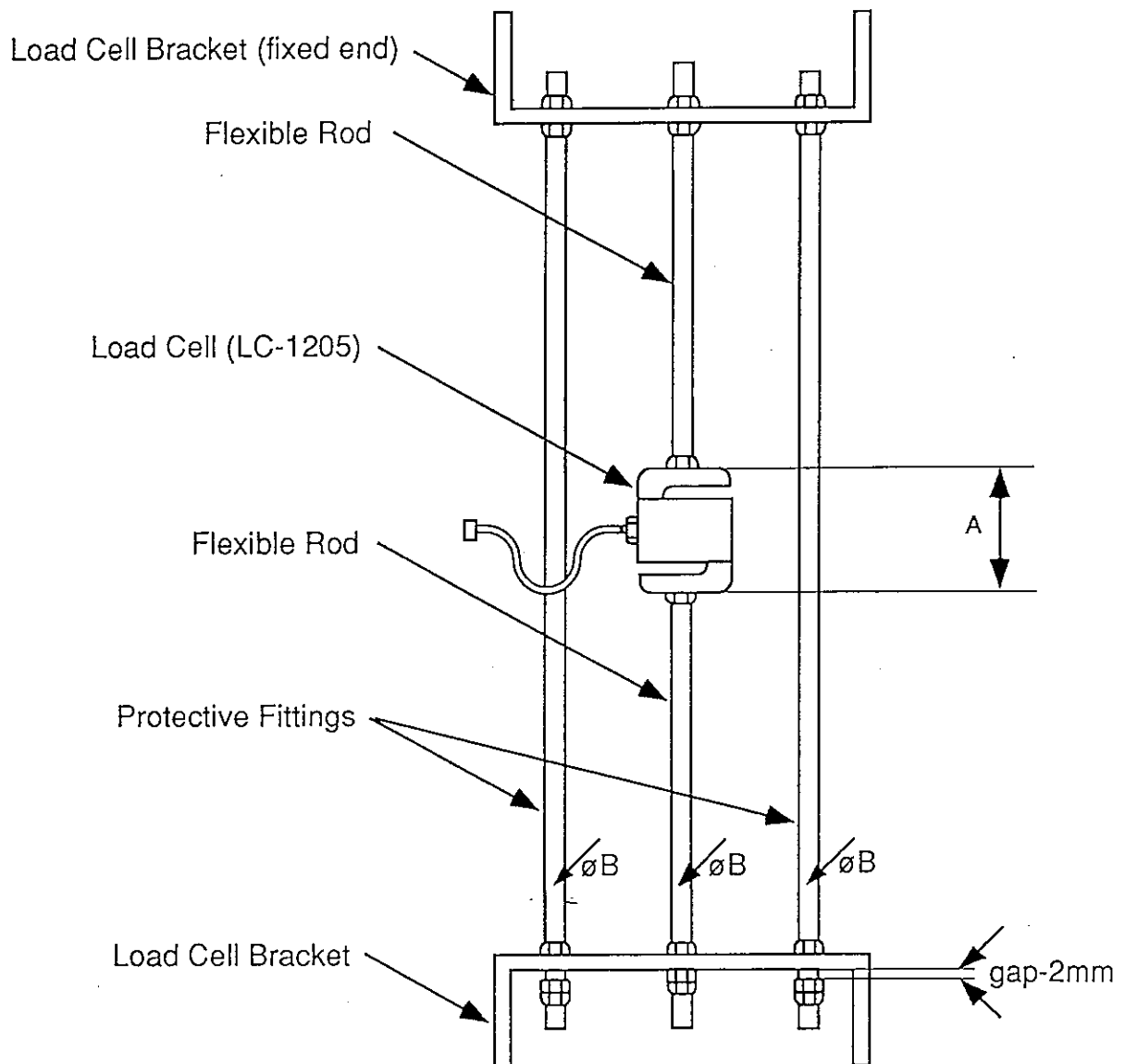
Remove dust, dirt, etc. from the load cell area when needed. Try to keep the Load Cell as clean as possible.

6. Inspection

When errors in the Load Cell occur, or it is operating unstably, follow the following procedure.

- [1] Check the power source and the Indicator's fuse.
- [2] Check the Indicator independently with its own instruction manual.
- [3] Check whether the load cell is correctly connected to the Indicator, and that the connection is tight.
- [4] Check the cable connections between the Indicator, Junction Box, Summing Box and Load Cell for any loose fittings.
- [5] With a 50V DC Megohm Meter, measure the insulation resistance between the lead wire of the same cables checked in #4 above, as well as the grounding wire. The measured values should be 100 M Ω or more each.
- [6] Disconnect the Load Cell cable from the Indicator or Junction Box, and measure the resistance between the input terminals. The measured value of the resistance between the input terminals should be about 400 Ω . Measure the resistance between the output terminals as well. The measured value should be about 350 Ω . Be sure to avoid impressing a voltage of 10V or more to the Load Cell Bridge.
- [7] With a 50V DC megohm meter, measure the insulation resistance between each lead wire and the outer drum. A measured value should be 100 M Ω or more.
- [8] With a 50V DC megohm meter, measure the insulation resistance between each terminal of the load cell and the Shield, as well as the Load Cell Proper. The measured values should be 100 M Ω or more.

Possible Installation Method (1)

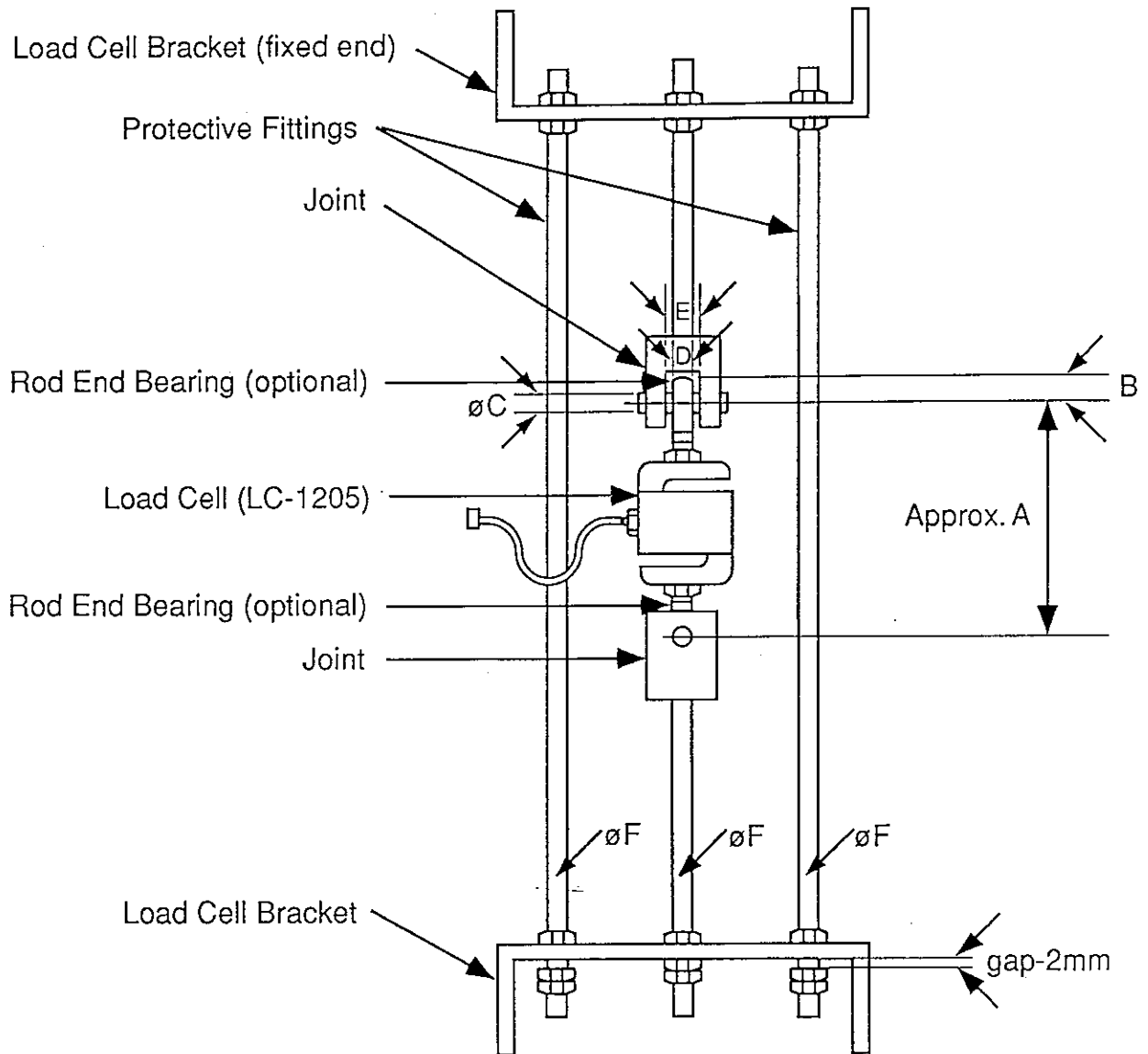


Note: When mounting the flexible rods to the load cell, at least 90% of the threaded ends should be engaged, but do NOT screw the flexible rods TIGHTLY onto the receptors.

Dimensions

LC1205 Model No.	Setscrew	A	$\varnothing B$
K020 / K050 / K100	M6 X 1.0	64	6
K200 / K500	M12 X 1.75	64	12
T001A / T002	M18 X 1.5	100	18
T005	M24 X 2.0	100	24

Possible Installation Method (2)

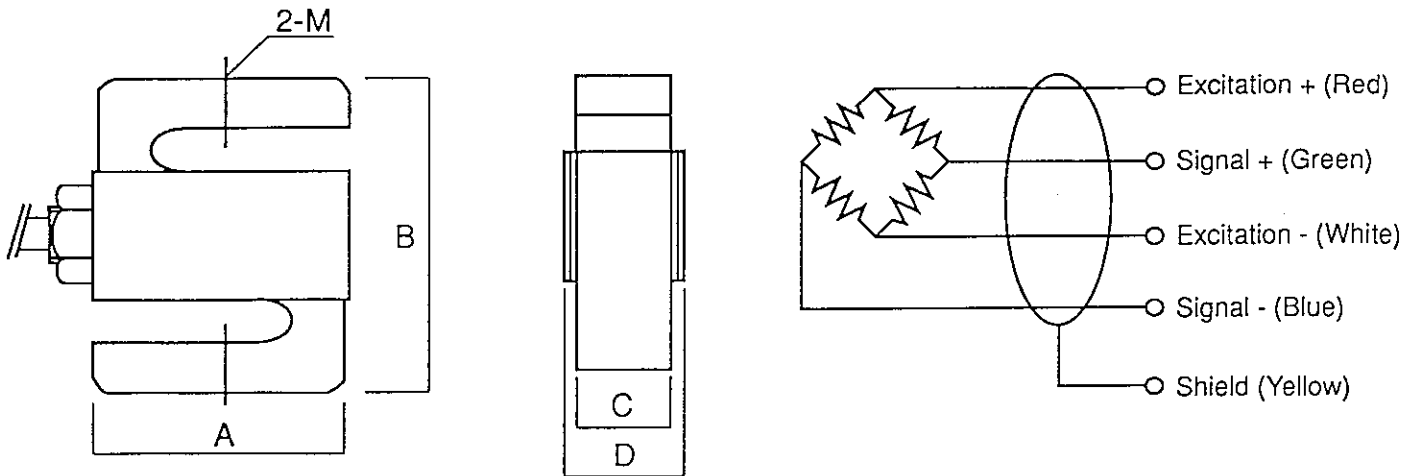


Note: When mounting the flexible rods to the load cell, at least 90% of the threaded ends should be engaged, but do NOT screw the flexible rods TIGHTLY onto the receptors.

Dimensions

LC1205 Model No.	Rod-End Bearing	Screw Size	Approx A	B	øC	D	E	øF
K020 / K050 / K100	LCB-6	M6 X 1.0	124	10.5	6	8.75	11	6
K200 / K500	LCB-12	M12 X 1.75	168	17	12	13.25	16	12
T001A / K002	LCB-18	M18 X 1.5	230	21.5	18	16.3	20	18
T005	LCB-24-5T	M24 X 2.0	268	35	25	25.3	35	24

7. Specifications



Dimensions:

LC1205 Model No.	A	B	C	D	M X P
K020 / K050	50	64	19	23	M6 X 1
K100	50	64	12	16	M6 X 1
K200 / K500	50	64	19	23	M12 X 1.75
T001A / T002	75	100	24	28	M18 X 1.5
T005	75	100	36	40	M24 X 2

Unit : mm

Rated capacity	: 20/50/100/200/500 kgf, 1/2/5t
Rated output	: 2 mV/V \pm 0.5% (1.5 mV/V \pm 0.5% for 20 and 50 kgf)
Maximum allowable overload	: 200% of R.C.
Non-linearity + hysteresis error	: \pm 0.02% of R.O.
Creep	: \pm 0.1% of R.O./h
Zero balance	: \pm 2% of R.O.
Recommended impressed voltage	: 12V
Resistance between input terminals	: Approx. 400 Ω
Resistance between output terminals	: 350 \pm 3.5 Ω
Insulation resistance	: 5,000 M Ω or more/50V DC
Temperature coefficient (zero point)	: 0.007% of R.O./ $^{\circ}$ C
Temperature coefficient (span)	: 0.002% of R.O./ $^{\circ}$ C type
Cable length	: ϕ 6 x 3m (ϕ 6 x 5m for 1t, 2t and 5t)
Temperature compensation range	: -10 to 60 $^{\circ}$ C
Maximum impressed voltage	: 15V