RL1100EM

Portable Platform Scale

Mechanical-to-Electronic Conversion Manual

REVOLUTION SCALEWARE

RICE LAKE WEIGHING SYSTEMS
Industrial Solutions on a Global Scale®

ISO 9001 REGISTERED

52567

Contents

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1.0 Introduction

This assembly and operating manual is intended for use by service technicians responsible for installing and servicing the RL1100EM mechanical-to-electronic conversion kit.

The kit comes complete with an IQ plus® 390-DC indicator, a RL20000 S-beam load cell and all necessary conversion hardware.

The IQ plus 390-DC is a single-channel digital weight indicator housed in a NEMA 4X/IP66-rated stainless steel enclosure. The indicator front panel consist of a 1 inch (25 millimeter), six-digit, liquid crystal display (LCD) and six-button keypad. The indicator comes with a pre-drilled mount bracket for easy installation and assembly.

The indicator features include:

- Electronic data processing (EDP) port for full duplex, RS-232 communications up to 19200 bps
- Powered by six C-size batteries for complete portability
- AC adapter for 115 or 230 Vac power;
- Standby mode which can be configured to limit indicator power consumption when scale is inactive
- Piece count mode for basic parts counting functions

The IQ plus 390-DC is NTEP-certified for Classes III and IIIL operation at 10,000 divisions.

The RL20000 load cell is an S-beam, nickel-plated, alloy steel load cell that has a full-scale output of 3.0 mV/V and a nominal bridge resistance of 350 Ω .

This manual covers removal of mechanical components and installation of the indicator and associated hardware only. See the *IQ plus 390-DC Installation Manual*, PN 48820, for configuration and calibration information.

The mechanical-to-electronic conversion kit (shown in Figure 1-1) requires no special tooling or equipment. Assembly and calibration require only ordinary hand tools.

Figure 1-1. Conversion Kit Installed on RL1100 Portable Platform Scale

2.0 Installation and Maintenance

Prior to installation and setup, carefully remove the IQ plus 390-DC indicator and the RL20000 load cell from the shipping container and compare serial numbers with that of the materials packing list. Ensure that all conversion kit hardware matches the component parts listed in Section 5.

NOTE*: Care should be taken to assure proper assembly and operation of this scale. The unpacking and assembly should be accomplished by a trained scale technician. Untrained personnel should not attempt any adjustment not specified in these instructions.*

The assembled scale must be operated on a firm, level surface. Use the built-in bubble level as a reference medium.

2.1 Mechanical Components Removal

1. To convert the mechanical scale to an electronic scale, do the following steps (see Figure 2-1):
2. Remove slotted weights and counterpoise assembly.
3. Disconnect steelyard (connecting rod).
4. Remove the two top beam cap assembly nuts and washers. Remove beam cap assembly, weight rack, and beam assembly.

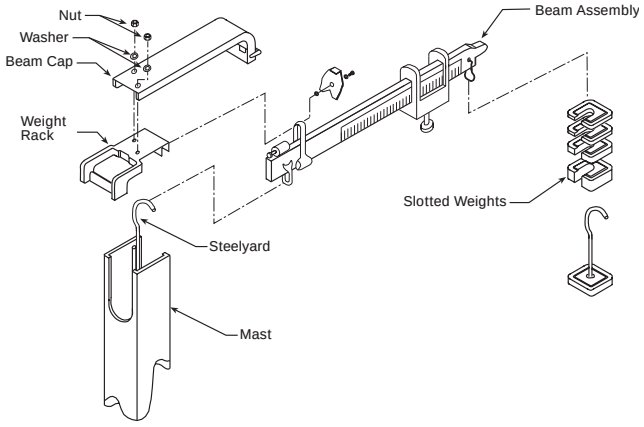

Figure 2-1. Mechanical Scale Parts Removal

2.2 Indicator and Load Cell Installation

1. Install jam nut and lock washer onto eyebolt (see Figure 2-2 and Figure 3-1). Thread eyebolt into load cell until thread of eyebolt protrudes into slot of load cell approximately 1/8 inch. Turn eyebolt so that the centerline of the eyebolt hole (open end) is perpendicular with the leg of load cell. Tighten jam nut.

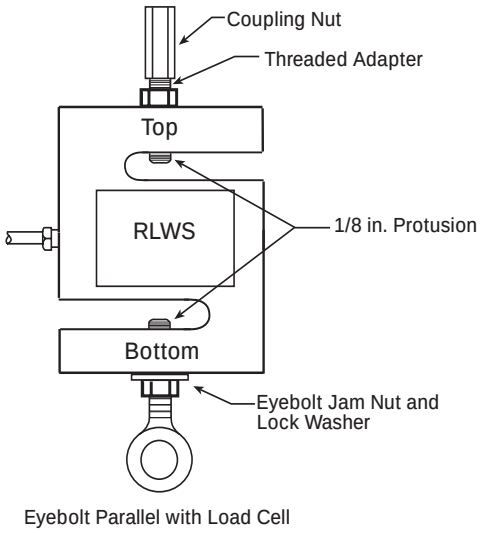

Figure 2-2. Load Cell Hardware Installation

2. Install jam nut on threaded adapter and turn adapter into top of load cell until thread protrudes into load cell slot approximately 1/8 inch. Tighten jam nut on threaded adapter to load cell.
3. Place load cell into tip of mast, lining up cable of load cell with large window in mast. Install hook of steelyard rod into eyebolt then rest bottom of load cell on bottom of window of the mast.
4. Line up holes in indicator stand with holes in baseplate then attach indicator stand to baseplate using four 1/4 x 1/2 inch cap screws and lock washers. Tighten screws with an allen wrench.
5. Install carriage bolt through indicator stand/base plate assembly. Install lock washer and nut. Tighten nut. Install second jam nut on carriage bolt turning it to approximately 1/4 inch from the first jam nut.
6. Place indicator stand/base plate assembly on mast. Line up threaded rods (in mast) with holes in indicator stand/base plate assembly. The handle of the indicator stand/base plate assembly should be to the rear of the scale.
7. Place flat washers and chrome-plated acorn nuts on threaded rods through plate. Line up indicator stand/base plate assembly with mast then tighten acorn nuts.
8. Place lock washer and right hand threaded end of load cell coupling nut on carriage bolt two to three turns only.

NOTE: *Load cell adjustment nut has both right and left hand threads.*

9. Lift load cell so that the threaded adapter in top of load cell lines up with load cell coupling nut. Turn load cell coupling nut counterclockwise (looking down from top) until top of load cell coupling nut is approximately 1/4 inch from jam nut.
10. With scale on a level surface, remove weighing platter from bottom scale assembly. Place a level across standoffs on levers and adjust load cell coupling nut until level reads plumb. Tighten jam nut-to-load cell coupling nut. Remove level and replace weighing platter on scale.
11. Install load cell cable up through hole in indicator stand/base plate assembly.

Caution *Do not twist, bend or kink load cell cable.*

12. Wrap excess cable around cable hooks on handle.
13. Connect cable from the load cell through the load cell cable cord grip to connector J1 as shown in Table 2-1.
14. If using 6-wire load cell cable (with sense wires), remove jumpers JP1 and JP2 before reinstalling connector J1 (see Figure 2-3). For 4-wire installation, leave jumpers JP1 and JP2 on.
15. When connections are complete, reinstall connector J1 on the board and reinstall indicator back cover.
16. Install cable tie on wrapped up load cell cable allowing sufficient cable to be able to tilt indicator head.

The scale is now ready for final adjustment and calibration.

J1 Pin	Function
1	+SIG
2	–SIG
3	+SENSE
4	–SENSE
5	SHIELD
6	+EXC
7	–EXC
For 6-wire load cell connections, remove jumpers JP1 and JP2.	

Table 2-1. J1 Pin Assignments

2.3 Final Adjustment, Calibration and Troubleshooting

Final adjustment, calibration, and troubleshooting of the IQ plus 390 indicator can be found in the *IQ plus 390-DC Installation Manual*.

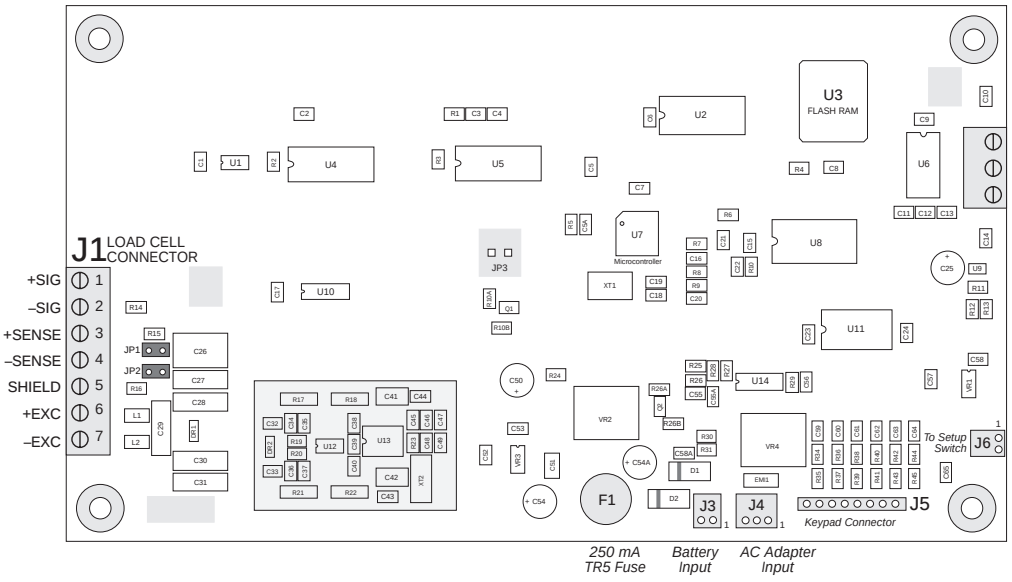

Figure 2-3. IQ plus 390-DC Indicator Board

3.0 Assembly Drawing and Parts List

Reference No.	PN	Description	Quantity
1	17705	Eyebolt, 1/4-28 NF x 1 in. shank	1
2	14636	Jam nut, 1/4-20 NC Hex	2
3	15148	Lock washer, 1/4 in. regular	7
4	21431	Load cell, SBM 20000-100	1
5	50606	Threaded adapter, 1/4-20 NC	1
6	50746	Coupling nut, 1/4-20 NC	1
7	50605	Carriage bolt, 1/4-20 NC x 2 in.	1
8	51885	Mountplate weldment assembly	1
9	35087	Cap screw, 1/4-20 NC x 1/2 in.	4
10	50902	IQ plus 390-DC indicator	1

Table 3-1. Parts List

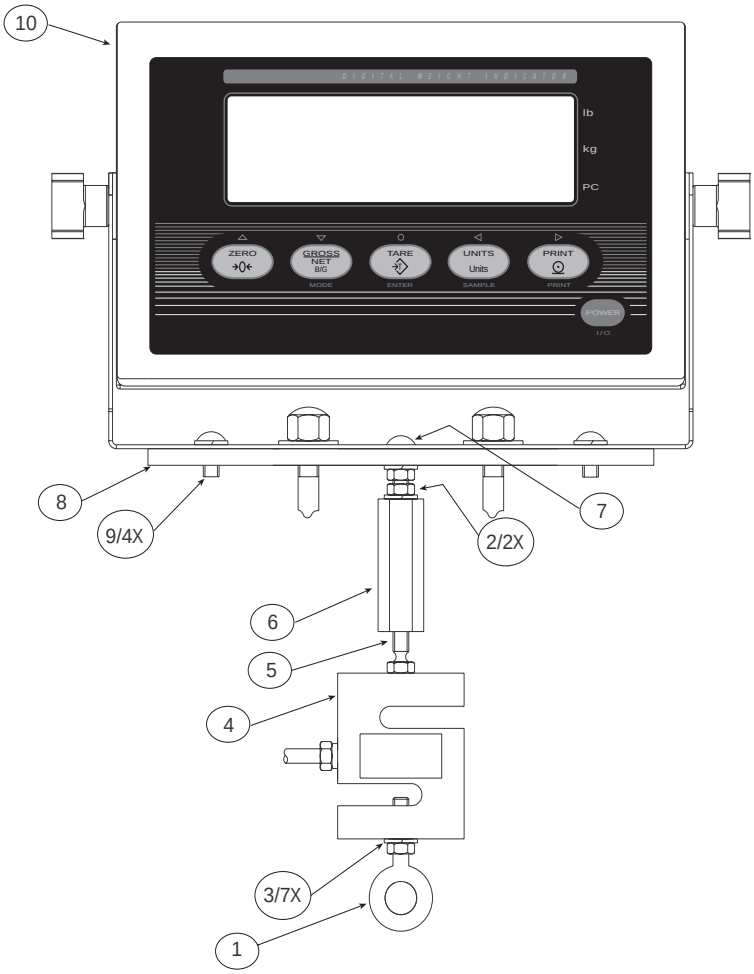

Figure 3-1. Diagram of Installation Kit 50573

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RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, *Protecting Your Components From Static Damage in Shipment*, available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

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