



OEM Manual

MODEL 2305D™
ECONOMICAL
DIGITAL DUAL
CYLINDER SCALE
WITH DUAL DISPLAY

These instructions generally describe the installation, operation, and maintenance of subject equipment. The manufacturer reserves the right to make engineering refinements that have not been described herein. Should any questions arise that may not be answered specifically by these instructions, they should be directed to **Scaleton Industries Ltd., Or Our Sales Agent** for a response.

All possible precautions were taken in packaging each piece of equipment to prevent shipping damage. Carefully inspect each item and report damages immediately. Report all damage claims to the shipping agent involved for equipment shipped F.O.B. job site. Do not install any damaged equipment.

All instructions given on any labels, or attached tags, should be followed. Carefully inspect all packing material before discarding to prevent the loss of accessories, mounting hardware, spare parts, or instructions.

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I. **General Description:**

The Model 2305™ Eco-Scale with Dual Display is designed for weighing two cylinders 10.25" to 10.50" in diameter, with a maximum net weight of 199.9 lb. and a maximum tare weight of 150 lb. The low profile design of the platform (< 1 ½ inches) allows for safe and easy loading and unloading of cylinders. The printed circuit board contains a power supply section and a separate tare and span control. The weigh meter electronics are housed in a NEMA 4X enclosure for mounting on wall.

Standard Parts

2 Base assemblies (labeled as to left base and right base – see connection diagrams!)
 1 Technical Manual
 1 Weigh Meter (indicator) 1 Power Cord
 1 Tool Rack 1 Parts Kit (including shims)

Available Options

- A. Remote mounting of standard enclosure
- B. Load Cell Cable
- C. Low Level relay contacts

II. Specifications:

Display: LCD, Dual 3 ½ Digit with minus sign liquid crystal display, 0.5 inch high, seven segment

Resolution: Dual cylinder (one per base) 199.9 lb x 0.1 lb, or 90.7 kg. x 0.1 kg.

Load Cell Excitation: 12 VDC Power, 1 Load cell

Zero Adjustment: Internal potentiometer, External tare knob

Overload: Blanks with “1” displayed at the far left of the display

Accuracy: +/- 0.5% full capacity

Power: 85-265VAC ~ 50/60 Hz, single phase, 0.3 Amps Dedicated – Isolated Power With Earth Grounding

Dimensions: Standard unit OD: 12.625 inches W x 14.75 inches D x 2.75 in at highest point

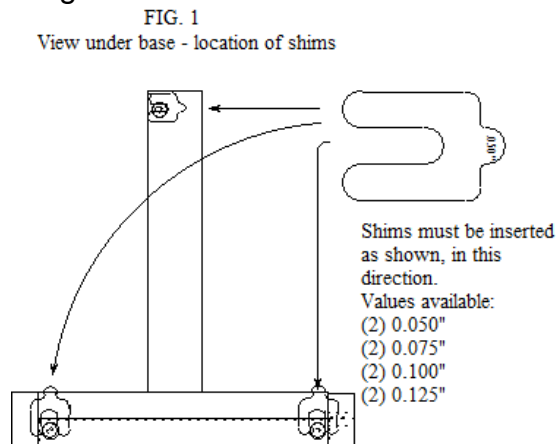
III. Assembly and Start-Up:

The Model 2305™ Eco-Scale with Dual Display is shipped partially disassembled. Assembly instructions are as follows:

The load cell is secured to base. All wire connections in the base have been made and sealed at the factory. The digital weigh meter is assembled and calibrated to the base at the factory. The customer must mount the indicator, tool rack, and chain on the wall. The base *must* be leveled for accurate readings by placing shims under the base. Various thickness shims are in the parts kit, labeled with thickness in inches, and they **MUST** be installed in the direction shown in the diagram in the manual. The wires must be plugged into connectors as labeled in the indicator before scale is operated. Steps are as follows:

Step 1: Remove all parts from box and inspect for damage – bent metal, broken wires, cracks in indicator, etc. Any shipping damage must be reported **to carrier!**

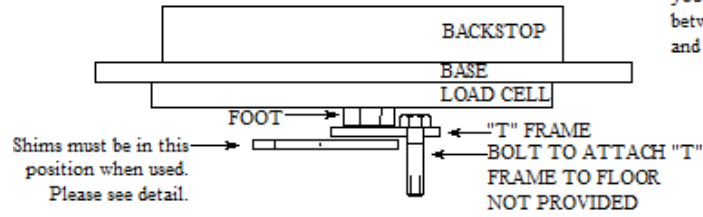
Step 2: Place the scale on a solid, dry, and even surface. Clear the area of all debris where the scale base will be anchored. Using level on base and shims in parts kit, choose correct combination of shims to level the base. This is extremely important to the proper reading of weight. Refer to FIG 1.



Install the bolts through base “T” Frame and into floor when scale is level. You must be sure to leave clearance between the base frame and the bolt heads when the scale base is lowered into position. See Fig.2.

FIG. 2

SIDE VIEW 2305™ BASE

**URGENT!!**

In order for scale to operate correctly, you must assure at least .060" clearance between head of bolt holding base to floor and the load cell and load cell foot.

Step 3: Secure the tool rack to the wall using anchors; make sure they are strong enough to safely restrain the cylinder. Fasten the chain to outer-most holes with two "S" hooks in the holes provided. The tool rack should be at the proper height to restrain the size cylinder being used.

Step 4: Open the weigh meter (indicator) and install two black liquid tight fittings in the indicator enclosure. Feed the wire up through each fitting and snug the fitting on the wire. Fasten the indicator to the wall. Connect the wires into the connector using the following code:

TB1 :	Ret: Common, 4-20mA Return*	Base #1 connections Right Side
	Out: + 4-20mA Output*	
	G: Green = + Signal	
	W: White = - Signal	
	Bk: Black = - Supply Voltage	
	R: Red = + Supply Voltage	
<hr/>		
	Bk: Black = - Supply Voltage	Base #2 connections Left side
	R: Red = + Supply Voltage	
	G: Green = + Signal	
	W: White = - Signal	
	Ret: Common, 4-20mA Return*	
	Out: + 4-20mA Output*	

*Connect your wires here if you are using 4-20mA output. Refer to the wiring diagram on page 6 and 7 for 4-20mA connections. Jumper J-4 will need jumper in the top two pins for loop powered, and the bottom two pins for scale powered (with board oriented as in drawing pg 5.)

Insert the wire, being sure not to crimp the insulation in the connector. Using a small screwdriver, push the orange lever down to insert the wire into the proper hole and release the lever to allow the wire to clamp into the connector. The connector holes are labeled according to the color that is inserted there.

Step 5: Allow approximately 15 minutes warm up time before using the scale.

IV. General Use Instructions:

Please refer to these instructions for daily use of this scale. These instructions simulate the procedure for every day usage.

To load a new, full cylinder, please follow these steps:

1. If you know what the **Tare Weight** of your cylinder (the weight of an empty cylinder) you may turn your black tare knob (located on the front of the indicator door) counterclockwise, until the tare weight is shown on the LCD indicator as a negative number. (*Ex: Your cylinder is stamped with a tare weight of 100 lbs. You turn your tare knob counterclockwise until it reads "-100". Then you load the cylinder on to the base, being sure that it is against the backstop.*)

Do not load the cylinder on before you have reached the tare weight. Apply the safety chain to the cylinder making sure that it is not too tight as to interfere with the weight of the cylinder.

-OR-

2. If you do not know the tare weight of the cylinder, or if you DO know the **Net Weight**, (the weight of the contents of the cylinder) you may use this alternate procedure. Load the full cylinder on to the scale, up against the backstop. When cylinder is loaded, and safety chain is attached, turn the tare knob, located on the door of the indicator, counterclockwise, until the known weight of the contents is displayed on the LCD. (*Ex: You have a cylinder that holds 150 lbs. of contents. Load the cylinder on the scale, apply safety chains, and turn the black tare knob located on the front of the indicator door until the weight of the contents, 150 lb., is displayed on the LCD display. You are ready to start using the contents.*)

When cylinder is empty, remove chain, remove old cylinder, and load new one using the instructions above.

V. Calibration Procedure:

The Model 2305™ Eco-Scale with Dual Display is **pre-calibrated at the factory to within specified accuracy and is calibrated to standards traceable to the Bureau of Weights and Measures. No further calibration should be necessary. If the electronics or load cells in the base are being replaced, the following procedure should be used.**

1. Plug the AC Cord into a well-grounded receptacle. There is no power on / off switch, so power is applied as soon as it is plugged in.
2. Allow approximately 15 minutes warm-up time before calibration.
3. While indicator is warming up, proceed to check under base to make sure there is no debris, and that base is as level as possible.
4. WITH NO WEIGHT APPLIED TO THE SCALE, turn the black tare knob on the outside of the door of the indicator in the clockwise direction to make sure that there is *at least* +10 lb. of weight in the tare knob. If not, adjust R-6 to see a positive reading.
5. Adjust tare knob on front of weigh meter until scale reads zero with no weight on platform. Adjust R-22 to set the 4mA reading to 0lbs.
6. Place a known weight on the base, as close to center as possible. Weight should be equal to ½ of capacity, or greater, and must be a diameter of 10.25" and up against the backstop, or adjusted for the difference in size. *You will have to measure and calculate this on your own.*
7. Adjust R-15 until display reads weight of test weight on scale base.
8. To complete calibration of 4-20mA output, adjust R-19 for proper 20 mA adjustment reading. Factory setting is for 20 mA at 150.0 lb (68 kg.) unless specified otherwise.
9. Once that is established, turn the black tare knob on the door of the indicator counterclockwise until it stops (DO NOT OVER TURN KNOB OR YOU WILL DAMAGE THE TARE POT!) Once it reaches the most negative reading, make sure you have at least –150 lb. on the display. If the tare span is large, you may get to a –1 reading and this is a weight under-load condition. Turn R-6 until you see a number a number that is not “below” –199.9 lb.
10. Calibration is complete if specified accuracy is obtained.
11. Repeat on other side.

VI. Troubleshooting:

1. If display reads: “-1”:

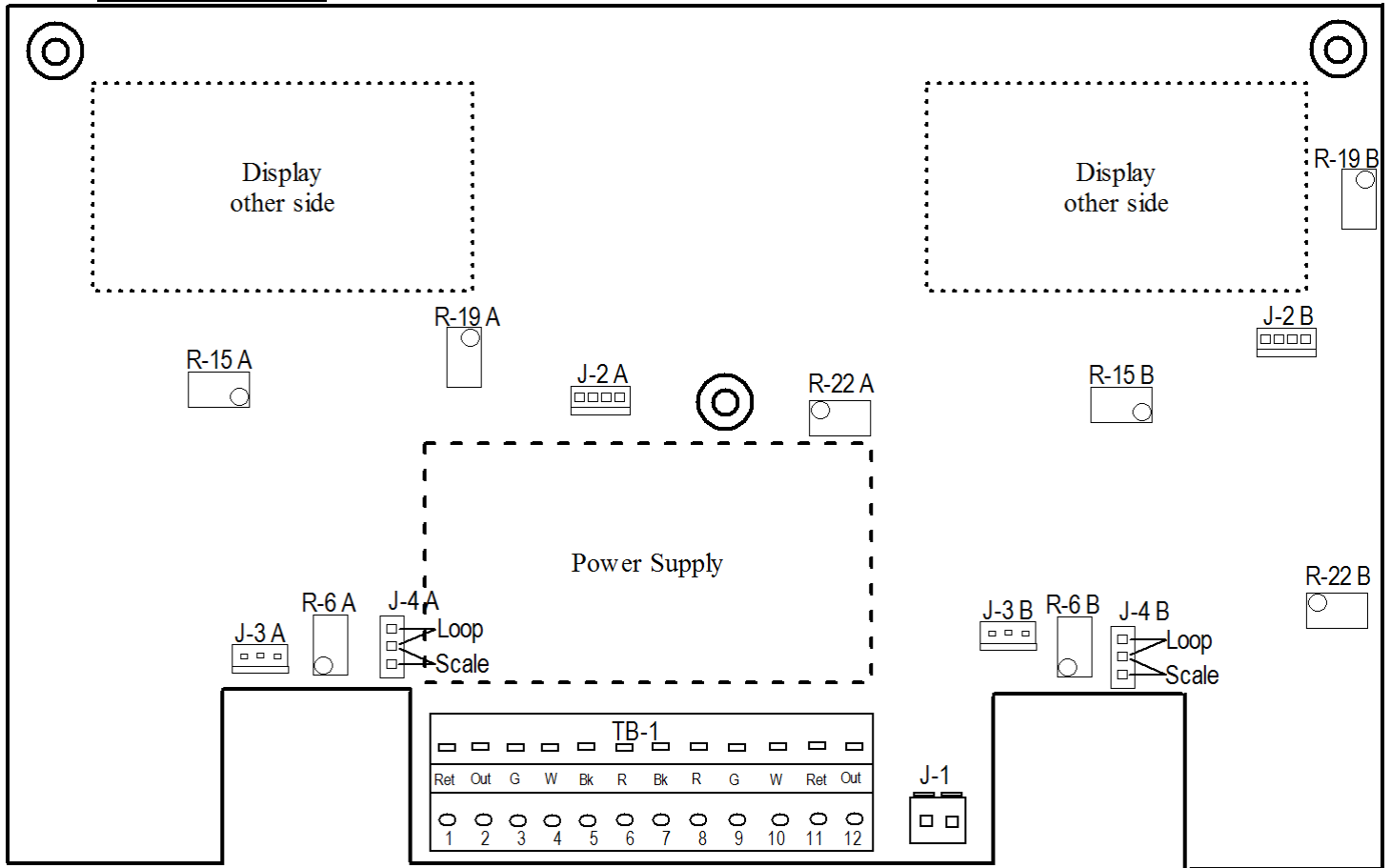
A. Gross under-load. Turn knob clockwise. Numbers should reappear and can be adjusted to tare weight or zero as required.

- B. Check load cell connections at indicator, and connect wires as per diagram on Page 5.
- 2. If display reads: "1":**
- A. Gross over-load. If starting point was zero, the cylinder weight is more than 199.9 lb., or kg.
 - B. If starting point was -150.0 lb. (68kg.) then the cylinder weight is more than 349.9 lb. (158 kg.). Remove weight and recheck tare setting.
 - C. Check load cell connections according to page 2.
- 3. If no display (not lit):**
- A. Check power to weigh meter.
 - B. Check green light on power supply board. It should be lit. If not lit, it is shorted out.
- 4. Other Problems:**
- A. Consult the Factory!

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Notice: Do not return any equipment without first contacting the factory. A return authorization number will be issued and it must be marked on all materials returned to the factory, accompanying a letter that explains the problem specifically. A Serial Number will also be required. It is located inside the indicator box.

VII. Board Diagram:



TB-1
Connections

- Ret = 4-20 mA Return
- Out = 4-20 mA Output
- G = Green = + Signal
- W = White = - Signal
- Bk = Black = - Supply Voltage
- R = Red = + Supply Voltage
- Bk = Black = - Supply Voltage
- R = Red = + Supply Voltage
- G = Green = + Signal
- W = White = - Signal
- Ret = 4-20 mA Return
- Out = 4-20 mA Output

J-1 = AC Power Connection

J-2 A & B = Low Level (optional) Connection

J-3 A & B = Tare Pot Connection

J-4 A & B = Scale or Loop Powered 4-20mA selection:
 Jumper on top two pins = Loop powered, Jumper on bottom two pins = Scale powered

R-6 A & B = Tare Span Adjustment

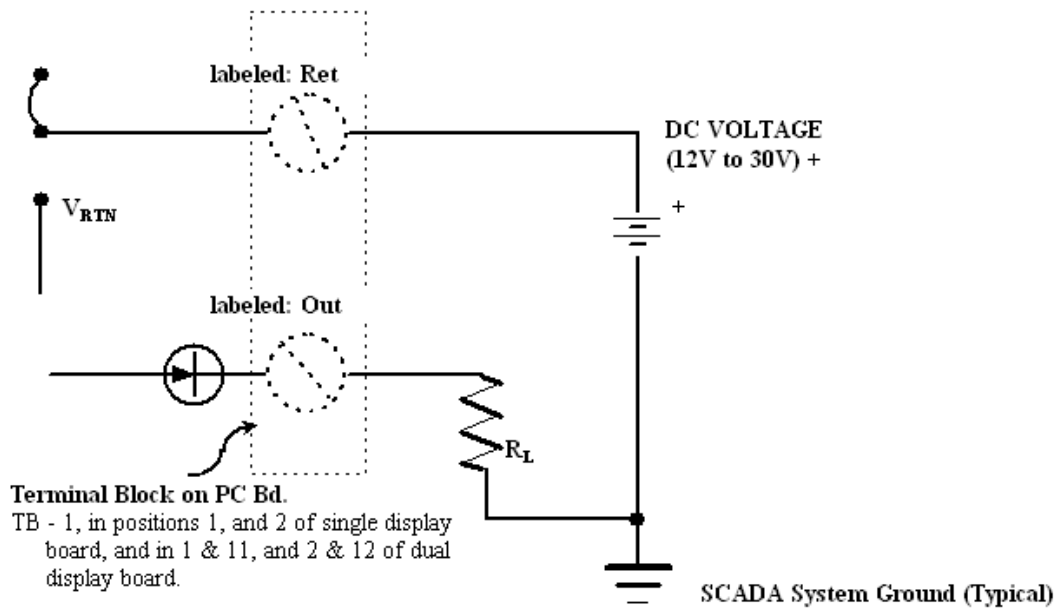
R-15 A & B = Weight Span Adjustment

R-19 A & B = 20 mA Adjustment

R-22 A & B = 4 mA Adjustment

#s 1-6 to Right Display

#s 7-12 to Left Display

4-20mA Diagram:*Refer to appropriate diagram:***LOOP POWERED DIAGRAM****SCALE POWERED DIAGRAM**