OEM Manual

MODEL 4021™ 4½ DIGIT
ULTRA LOW PROFILE SCALE

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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 **Scaletron 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.

TABLE OF CONTENTS ***PAGE***

I. GENERAL DESCRIPTION……1
II. SPECIFICATIONS……2
III. ASSEMBLY AND START-UP……2 - 3
IV. GENERAL USE INSTRUCTIONS……3
V. CALIBRATION PROCEEDURE……4
VI. TROUBLESHOOTING……4 - 5
VII. BOARD DIAGRAM……6

I. *General Description:*

The Model 4021™ Ultra Low Profile Platform Scale is available with two platform sizes. The 18" platform will accommodate cylinders sized from 10" diameter to 18" diameter, and the 26" platform will accommodate cylinders sized from 18" diameter up to 26" diameter. The maximum reading is 1999.9 lb./ or kg at 0.1 lb/ or kg resolution. For the Model 4021™-18", the maximum reading is 1000 lb (394 kg) at 1.0 lb/kg resolution, and the Model 4021™-26" has a maximum reading of 1500 lb (591 kg) at 1.0 lb/kg resolution.

The low profile design of the platform (1 ½ inches) allows for safe and easy loading and unloading of cylinders. A crossbar and chain are provided to secure cylinders in place. 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

1- Base assembly 1- Weigh Meter (indicator)
1- Power Cord 1- Technical Manual

Available Options

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

II. Specifications:

Load Cell Excitation: 16 VDC Power
Zero Adjustment: Internal potentiometer, R-25 med., and R-23 fine. DIP switches SW-B 1-6

for course adjust, jumper J-8 to change polarity of adjustment
Span Adjustment: Internal potentiometer R-12 for med., and R-13 for fine. DIP switches SW-A 1-6 for course, 7 & 8 no effect, not used
Current Output Adjustment: Potentiometer R-43 adjusts 4-20 mA active, or passive. 220 Ohm Load max.
Power: 120 Volt, 50/60 Hz single phase, 0.5 amps. 240 Volt available with jumpers on board.
Dimensions: *18" base:* 18 "w x 20 "d x 1 ¾"h *26" base:* 24"w x 27"d x 1 ¾"h

III. Assembly and Start-Up:

The Model 4021™ Ultra Low Profile Platform Scale is shipped partially disassembled. Assembly instructions are as follows:
The load cell is secured to platform has been tested for clearance. DO NOT LOOSEN AND MOVE CELL. 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 on the wall. The base must be anchored and secured to floor. The wires must be run through conduit (if used) and inserted into the connector 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: Clear the area of all debris where the scale base will be anchored. Place the scale on a solid, dry, and even surface.
Step 3: Feed the wire through conduit (flexible conduit run horizontally for at least 2 feet is required if it is to attach to the base as to not interfere with the proper operation of the scale). The wire will be fed into the indicator. Make sure that the proper size hole is drilled in the indicator for the conduit used, and any open areas of the box are sealed. This means if there is an open area around the conduit, you **must fill any void with silicon caulk, or other substance to prevent gas from attacking the electronics in the indicator! Take care not to drill into the PC Board.** Fasten the indicator to the wall. Connect the wires into the connector using the following code:

TB1: 1: Low Level set pt. 1 (REED relay, contact closure to pin 2: common)
2: Common
3: Low Level set pt. 2 (REED relay, contact closure to pin 2: common)
*** 4: 4-20 LOOP Powered (4 is common and 5 is supply)**
*** 5:**
*** 6: 4-20 SCALE Powered (5 is common and 6 is supply)**
7: - Sense (optional)
8: - Excitation (BLACK)
9: + Sense (optional)
10: + Excitation (RED)
11: -Signal (WHITE)
12: +Signal (GREEN)

*****Make 4-20mA connections at this location. Determine if 4-20 mA signal is to be scale powered, or if it is loop powered (powered by SCADA or PLC). Refer to page 5, Jumper labeled J-4 for proper settings of scale or loop powered 4-20mA.

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

Step 5: Make sure that the tank or drum is centered on the base when being placed. Adjust the back-stop to brace against proper position. Use the measuring scale on the base to adjust the backstop to proper drum / tank diameter.

IV. General Use Instructions:

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

****Be sure that back-stop is adjusted to the proper drum / cylinder diameter!!! This is crucial to accurate readings! ****

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 completely centered on the base.)*

Do not load the cylinder on before you have reached the tare weight.

-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 base being sure that the cylinder does not sit on the base. When cylinder is centered, 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, 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 chains, remove old cylinder, and load new one using the instructions above.

For use when FILLING the TANK instead of on & off loading:

To start with a new, EMPTY tank that will be filled while on the scale base, please follow these steps:

Load the new, empty tank on to the platform. Be sure to connect all equipment to the tank that may apply weight to the scale. With this weight applied, turn the black tare knob located on the outside, front of the indicator, until the digital reading says zero. This means that your digital reading will show net weight, or the weight of the contents alone. As you fill the tank, the scale shows the current weight. Do not readjust the tare weight unless you are starting with a dry, new, empty tank. Any residual weight will reflect what is left in the tank, and should not be changed unless a new tank is put on the base.

V. Calibration Procedure:

The Model 4021™ Ultra Low Profile Platform Scale 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. Once scale is leveled with no weight on scale, it is ready for calibration. Turn tare pot **on front panel** fully clockwise, then turn back counter-clockwise one full turn. (This will assure enough tare adjustment when calibration is completed.) Adjust SW-B zero switches 1-6 and R-25 to obtain a zero reading on digital display. Do not move shorting pin on J-8 unless SW-B 1-6 and R-25 adjustments cannot reach a zero reading. J-8 will reverse the adjustment polarity and thus double the range of the adjustments.
2. After a zero reading is obtained a known weight (such as a certified test weight) should be placed on the scale platform so the center of the weight is the proper distance from the backstop. (if the backstop is set for an 18 inch diameter container, the center of that container should be 9 inches from the backstop.)
   Note: Calibration is done at the factory and should only need adjustment of R-12, or slight switch change to set span to desired weight. Wait for a minute so a reading can be obtained. Adjust R-12 or SW-A 1-6 span switches to obtain gross weight desired.
3. Adjustment of span interacts with the zero setting previously made and Step (1) must be repeated, followed by the repeat of Step (2) until both readings remain correct with weight on or off scale without adjustment.
4. Analog output is selectable as scale powered, or loop powered. If scale is to supply the power for the loop, J-4 must be in the "S" (scale) position. The 4-20 mA output will be available at TB-1 Terminal 5 & 6. (5= -) & (6= +) 220 Ohm load max.
   If the device connected to the scale is to supply power for the loop, then the jumper, J-4 must be in the "L" (loop) position and the signal will be available at TB-1 terminals 4 (common) and 5 (+1). (220 Ohm load at 15 VDC, or 440 Ohm load at 30 VDC max.)
   Note: Output is selectable as 4-20 mA, 0-20 mA, or +12 mA, -8 mA, with jumper, J-7. Two pins closest to R-43 are for 0-20 mA, two center pins are for 4-20 mA, and the two pins farthest from R-43 are for +12mA, -8mA.
5. Connect device to be connected to output terminals required. Install milliamp meter **in loop** to measure **current.**
6. Adjust R-43 for full load setting. (No load should be correct when digital indicator is reading "0").
7. Two set points are available for contact closure at two different points in range of scale.

Use R-59 to adjust SP 1, and R-56 to adjust SP 2. SP 1 is available at TB 1 terminal 1 and 2. SP 2 is available at TB 1 terminal 2 and 3. Relay rated for 12 VDC 1.5 amp max load. (Contacts are closed below set point.)

VI. Troubleshooting:

Consult the Factory!

USA & Canada Toll-Free: (800) 257-5911

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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: