MSI4260

PORT-A-WEIGH
CRANE SCALES

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User Guide

Quality Industrial Weighing and Force Measurement Equipment

Measurement Systems International

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INTRODUCTION

The Measurement Systems International Port-A-Weigh is a computerized, self-contained, battery-operated crane scale. The scale is made up of three separate sections which house the electronics, load cell and battery respectively. The sections are bolted together and sealed against moisture by the use of O-rings. The scale housing is made of impact resistant cast aluminum alloy. All electronics are shock mounted and the display window is impact resistant polycarbonate. The accuracy of the scale meets or exceeds the requirements of National Institute of Standards Technology, Handbook 44. For most scales, this is 0.1% of applied load.

CERTIFICATION

Measurement Systems International (MSI) certifies the MSI-4260 Port-A-Weigh has been thoroughly tested and inspected and found to meet its published specifications when shipped from the factory. MSI further certifies that its calibration measurements are traceable to NIST.

- ❑ Fishing Industry Model
- ❑ Industrial Model
- ❑ Legal-For-Trade Model

Program Number _____

Capacity _____ ❑ Lb. ❑ Kg

Serial Number _____

SW1 (Front switch) 1 2 3 4 5 6 7 8

SW2 (Rear switch) 1 2 3 4 5 6 7 8

Note: *Circled numbers above are closed.*

Cal Number _____

Standard Options _____

_____

Custom Options _____

SPECIFICATIONS

Accuracy:

Plus or minus 0.1% of applied load

Operating Temperature Range:
14° to 140° F (-10° to 60°C)
Power:
12 Volt lead acid rechargeable battery (charger included)
Operating Time:
LCD: 50 hours, LED: 25 hours (between charges)
Enclosure:
NEMA IV, alodined cast aluminum
Safe Overload:
200% rated capacity
Ultimate Overload:
500% rated capacity with the following exceptions:
50,000 lb = 490% of kilogram capacity
70,000 lb = 475% of pound capacity, 430% of kilogram capacity
100,000 lb = 450% of kilogram capacity

UNPACKING

When unpacking the scale from the shipping container, insure that all parts are accounted for. Check the scale for any visible damage and immediately report any damage to your shipper. It is advisable to use the original shipping container when shipping or transporting the Port-A-Weigh.

CONTROLS

Port-A-Weigh operation is controlled by depressing a series of push-button switches. These switches are totally sealed against moisture and are recessed to prevent damage caused by rough handling.

Push-button controls – Industrial Model

Industrial Model
There are 5 push-button controls which are described below:

1. **ON/OFF:** Turns the unit on or off. Unit will automatically shut off after

5 minutes of non-operation.

2. **LOCK:** Depressing this switch overrides the automatic shut-off for continuous use.
3. **ZERO:** Sets the display to “0”. Any positive weight zeroed will be subtracted from the scale capacity. Negative weights that are zeroed will have no affect on the capacity.
4. **TARE:** The Tare control consists of two push-button; SET and CLEAR. By pushing the Set button, any hanging load on the scale will be tared. The scale will display “0” and operate in the Net mode. Tare Clear removes the set value and returns the scale to the Gross operating mode.

OPERATION

1. Turn the unit on with the ON/OFF push-button. Upon activation, the display on the Port-A-Weigh will display a segment check of “-88888”. Missing segments alerts the operator that the display is not working properly.
   Immediately following the segment check “-88888” a program number will appear (P-16, P-18 or other variation. This is a number that signifies what computer program is being used in a particular scale. Program numbers change as new models appear on the market or as additional features are added to the scale.
   Following the segment check and program number, the display will stabilize and will be ready for operation.
2. Depress the Lock button (Industrial Model Only) if continuous operation is desired.
   `Note:` The Lock button has no affect until the test sequence (Item 1 above) is complete.
3. Depress the Zero button to set the display to a zero weight reading.
4. For net weight operation, tare weights may be entered using the Set button. Tare value may be removed with the Clear button.
5. Turn the unit off to conserve battery life when weighing is complete.

BATTERY PACK

The Port-A-Weigh is powered by a 12 volt rechargeable battery. The battery is located in the rear compartment of the scale. Two stainless steel fasteners secure the battery access door. To remove the battery for charging; unlatch the fasteners and pull the battery straight out. The battery will automatically disengage from its connectors and may be plugged into the battery charger for recharging.

BATTERY OPERATION

The battery will operate continuously for 50 hours with the LCD display and 25 hours with the LED display before requiring recharging. The Port-A-Weigh will alert you when the battery is within 2 hours of requiring recharging by flashing a tick in the upper left-hand corner of the display adjacent to the “LO” marking cast into the housing.

When the battery requires recharging, the weight reading on the display will be replaced by “LO”, after which the scale will shut itself off to prevent battery damage. If the On button is depressed at this point, “LO” will reappear and then the scale will again deactivate automatically.

Instructions for charging are located on the battery charger. Charging time for a completely discharged battery is approximately 16 hours. A spare battery pack

is recommended to keep the Port-A-Weigh continuously operational. Note: More frequent charging of the battery prolongs its life.

BACK LIGHT

A display light for low light operation is standard with the Port-A-Weigh. This light is activated and deactivated by a photocell which senses ambient light levels. No controls are required to activate the backlight.

OTHER FEATURES

1. The capacity of your scale is located on the scale just above the display window. If this capacity is exceeded by approximately 4%, the unit will display “EEEE”. (This overrange point will be decreased if positive weight has been zeroed out.
2. To convert from Pounds to Kilograms, reverse the capacity plate located on the scale exterior above the display window and reset the internal Pound/Kilogram and Count By switches. (See “Internal Switch Settings” and Figure 1).
3. The unit has a safe mechanical overload capacity of 200% and an ultimate overload of 500%. Overloads greater than 500% may result in structural failure.
4. Legal-For-Trade model: The accuracy of this scale is 0.1% of applied load. The operating controls and accuracy allow it to be sealed as Legal-For-Trade.
5. Remote Control ON/ZERO: When fitted with this option, the scale may be activated and zeroed by using a hand-held transmitter, or may be operated as a standard unit. A two position selector switch located on the lower left side of the electronic housing selects local in the scale. The switch should be turned off when the scale is not in use to conserve battery life.
   In remote operation , the scale is activated by depressing the hand-held transmitter switch. Depressing the switch a second time will zero the scale. The scale will operate for 5 minutes before automatically turning off to preserve battery life. A Zero/Tare memory is supplied as standard, so that the amount previously zeroed or tared will be recalled when the scale is reactivated.
   All radio controlled scales are shipped with the same operational codes. If more than one radio controlled scale is to be used at the same location, the codes should be changed to prevent inadvertent interference. Consult your dealer or the factory for instructions.
6. Presettable Tare: When fitted with this option, known tare weights may

be pre set without a load on the scale. Using the UP and DOWN switches, specific negative tare values may be entered. (Not available on Legal-For-Trade models).

Note: The preceding instructions are intended as an operational aid for the Port-A-Weigh. More complete service information and specifications are available on request from the factory.

INTERNAL SWITCH SETTINGS

The Port-A-Weigh has several internal switches. The same printed circuit board is used for every capacity Port-A-Weigh. Two sets of switches are manipulated to set up various capacities and "count by" increments. These switches are accessed through an access port located on the right side of the scale. (See figure 1).

SW1 – Front Switch

1, 2 **Count By -** Determines increments in which the weight is displayed.

3, 4 **Rated Capacity in Pounds -** These switches match the electronics to the load cell used for a given capacity.

5 **Auto Zero Maintenance (AZM) -** Activates or deactivates the auto zero maintenance. This feature eliminates zero drift in the absence of weight on the scale.

6 **LB/KG Select -** Selects whether the load being weighed is displayed in pounds or kilograms. The scale may require slight recalibration.
Note: Count By must also be changed.

7 **Filter -** Activates or deactivates the digital motion filter. Activating this switch helps to stabilize the display when the item being weighed is moving. This switch should remain on during normal operation.

8 **Memory Enable -** Activates or deactivates the zero memory. When activated, it will allow the scale to remember the last amount zeroed out if the scale should be shut off. When deactivated, the amount zeroed out will be forgotten when the scale is turned off.
Note: This switch must be left open if the zero memory is not installed.

SW2 – Rear Switch

1 - 4 **Analog Gain Select -** Acts as a course gain control when calibrating the scale. The capacity of the scale will determine the position of these switches. (Note: only one switch can be closed at a time)

5, 6 **CAL Select: -** Determines the magnitude of the calibration number displayed when the CAL Test switch is activated.

7 **CAL Test -** Activates the CAL test.

8 **Decimal Point -** Activates or deactivates the decimal point on the

display. (For systems having program numbers P-14 and below only). On programs P-15 and above, the decimal point is automatically set.
Note: The Operational Mode Chart included in these instructions indicates proper switch settings for each capacity. (See Figure 2).

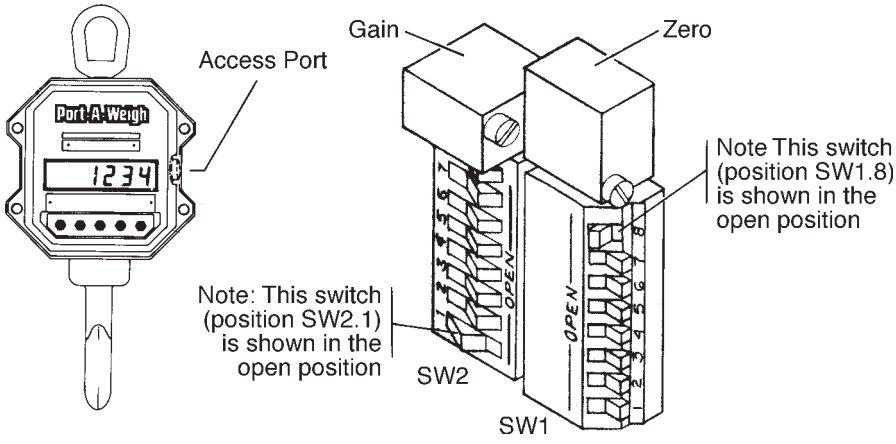

Figure 1: Location of Internal Switches and Gain Potentiometers

Rated Capacity	Front Switch (SW1)								Rear Switch (SW2)							
	1	2	3	4	5	6	7	8	**1	**2	**3	**4	5	6	7	8
500.0 x 0.2 lb.	O	X	X	X	X	X	X	X	O	X	O	O	X	X	O	O
250.0 x 0.1 kg	X	X	X	X	X	O	X	X	O	X	O	O	X	X	O	O
2,000 x 1 lb.	X	X	X	O	X	X	X	X	X	O	O	O	O	X	O	O
1,000.0 x 0.5 kg	X	O	X	O	X	O	X	X	X	O	O	O	O	X	O	O
5,000 x 1 lb.	X	X	O	X	X	X	X	X	O	X	O	O	X	X	O	O
2,500 x 0.5 kg	X	O	O	X	X	O	X	X	O	X	O	O	X	X	O	O
10,000 x 2 lb.	O	X	O	O	X	X	X	X	O	O	X	O	X	X	O	O
5,000 x 1 kg	X	X	O	O	X	O	X	X	O	O	X	O	X	X	O	O
20,000 x 5 lb.	X	O	X	X	X	X	X	X	X	O	O	O	O	X	O	O
10,000 x 2 kg	O	X	X	X	X	O	X	X	X	O	O	O	O	X	O	O
30,000 x 10 lb.	O	O	O	O	X	X	X	X	O	X	O	O	X	X	O	O
15,000 x 5 kg	X	O	O	O	X	O	X	X	O	X	O	O	X	X	O	O
50,000 x 10 lb.	O	O	O	X	X	X	X	X	O	O	X	O	X	X	O	O
25,000 x 5 kg	X	O	O	X	X	O	X	X	O	O	X	O	X	X	O	O
70,000 x 20 lb.	X	X	X	O	X	X	X	X	O	O	O	X	X	X	O	O
35,000 x 10 kg	O	O	X	O	X	O	X	X	O	O	O	X	X	X	O	O

For higher capacity switch settings, consult factory.

X = Closed (on)
O = Open (off)
** Note: Use next lower or higher switch position if scale cannot be calibrated using positions shown.

Figure 2: Internal Switch Setting Table

CALIBRATION VERIFICATION

The Port-A-Weigh is calibrated at the factory; however, to check the calibration prior to use, follow the procedures outlined below.

Caution: Do not apply test weights during this procedure.

Note: This is an approximation and is not an acceptable means of calibration by Weights and Measures.

1. Remove the access port plug on the side of the scale and open the Memory Enable switch (SW1 Position 8). (See Figure 1).
2. Open the Filter and AZM switches (SW 1 Positions 7 and 5).
3. Turn on the unit by depressing the ON/OFF button. (This combined with step 2, zeros the zero and tare memory so that true analog zero will be obtained in step 6).
4. The display will cycle through the segment check, the program number, then stabilize. Depress the Lock button then wait three minutes before proceeding. This will allow the electronics to stabilize.
5. Zero the scale by adjusting the internal Zero potentiometer located above SW1. (See Figure 1).
6. Depress the Zero button on the front of the scale.
7. Close the Cal Test switch (SW2 Position 7).
8. Compare the number displayed with the Cal Number stamped on the serial tag located in the battery compartment.
9. If the numbers compare, the scale is in calibration. If they do not, turn the Gain potentiometer (located behind the Zero potentiometer) either clockwise or counterclockwise until they do. (See Figure 1).
10. Open the Cal Test switch (SW2 Position 7). The display should return to zero. If not, repeat steps 7 through 11.
11. The scale is now calibrated.
12. Close the Filter and ATZ switches (SW1 Position 7 and 5).
13. Close the Memory Enable switch (SW1 Position 8).
14. Replace the access port plug.
15. The scale is now ready to use.

Calibration Verification may be used if the load cell or the electronics have been changed. However, when these components are changed, complete calibration must be carried out as soon as possible.
Note: If the load cell has been changed, the calibration number for the new load cell *must* be used.

COMPLETE CALIBRATION

1. Remove the access port plug on the side of the scale and open the Memory Enable switch (SW1 Position 8). (See Figure 1).
2. Open the Filter and AZM switches (SW1 Positions 7 and 5).
3. Turn on the unit by depressing the ON/OFF button. (this combined with step 2, zeros the zero and tare memory so that true analog zero will be obtained in step 6).
4. The display will cycle through the segment check, the program number, and then stabilize. Depress the Lock button and wait three minutes before proceeding. This will allow the electronics to stabilize.
5. Find the internal Zero Adjustment located above SW1 and zero the display by turning the potentiometer either clockwise or counterclockwise.
6. Depress the push-button Zero located on the front of the scale. This sets the exact center of zero.
7. Lift known test weights that equal the rated capacity of the scale and turn the Gain adjustment (potentiometer above SW2) clockwise or counter clockwise until the display reads the weight of the test weights.
8. Remove the test weights and verify that the display reads “0”. If it does not, depress the Zero button and repeat step 5 above.
9. Sequentially pick up test weights that equal 25%, 50%, 75% and 100% of the rated capacity of the scale.
10. If any further gain adjustments are made, steps 6 and 7 above must be repeated.
11. Close the Cal Test switch SW2 Position 7 and record the new calibration number.
12. Reset the following switches:
    Filter: Close SW1 position 7.
    Memory Enable: Close SW1 position 8
    Cal Test: Open SW2 position 7.
    AZM: Close SW1 position 5.
13. Replace access port plug.

BATTERY CHARGER OPERATION

1. Plug AC line cord into 115 VAC, 50 or 60 Hz or 230 VAC as specified on charger label.
2. Red indicator lamp will illuminate to indicate that the battery charger is functioning properly.
3. Insert battery into charger.
4. The indicator lamp will go out (unless the battery is fully charged) indicating that the battery is charging.
5. When the light illuminates, the battery has reached 80% of full charge. This will require 8 to 12 hours for a fully discharged battery. The battery should be charged 12 to 16 hours to reach full capacity. The battery may be left connected to the charger continuously if desired.
6. The indicator lamp may flash slowly on and off when the battery is fully charged and in the “float” mode.

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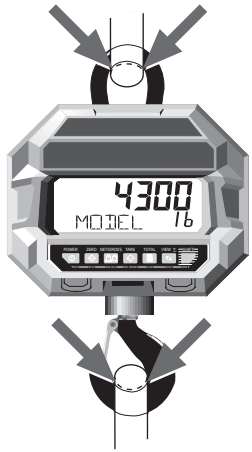
TROUBLESHOOTING GUIDE

Symptom	Possible Cause	Remedy
1. Display is blank when ON/OFF button is pushed	A. Discharged battery	Recharge
	B. Defective battery	Replace
	C. Corroded battery connections	Clean
	D. Defective switch or electronics module	Requires authorized service
2. Display shows correct power-up sequence but displays "LO" instead of weight, then shuts off.	A. Discharged battery	Recharge
	B. Defective battery connections	Replace
	C. Defective electronics module	Requires authorized service
3. Display does not function properly or Front panel switches do not function normally. or Unit will not turn off.	A. Computer lockup	Remove and re-insert battery. If problem persists, authorized service is required.
	B. Faulty electronics module	
4. Display does not respond to weight changes.	A. Same as 3 A. & B. above	
	B. All coarse gain switches are open	Close one
	C. Faulty load cell or electronics module	Requires authorized service
5. Display overranges below 100% of capacity.	A. Significant positive weight is zeroed out	Normal (See Operational Controls Section – Number 3)
	B. Zero potentiometer requires adjustment	Follow Calibration Verification Section (Steps 1 thru 7)
	C. Cal Test switch closed	Open switch
	D. Memory switch is closed on scale without memory backup option	Open switch
6. Display experiences excessive zero drift between weighings	A. AZM switch open	Close switch
	B. Resolution too great for proper AZM tracking	Set "Count by" switches according to table
	C. Scale does not have AZM feature (Program numbers below P-15)	Zero the display with zero button
	D. Scale electronics not stabilized after turning on the scale	Leave scale on two minutes before weighing

7. Display shows large number after power-up sequence with AZM switch open and no weight applied.	A. Cal Test switch closed	Open switch
	B. Memory switch closed on scale without memory backup option	Open switch
	C. Zero potentiometer requires adjustment	Follow Calibration Verification Section (Steps 1 thru 7)
	D. Defective load cell or electronics module	Requires authorized service
8. Displayed weight shows large error.	A. Scale not zeroed before applying weight	Depress Zero button before applying weight
	B. Requires calibration	See Calibration Verification and Complete Calibration Sections.
	C. Lb/Kg or capacity switches in wrong position	Set to correct position
9. Display reading not stable.	A. Filter switch off	Turn on
	B. Too much resolution	Set “Count by” switches to correct position
	C. Faulty electronics module	Requires authorized service
10. Battery charger lamp off with charger on and battery not inserted	A. Defective charger	Requires authorized service
11. Battery charger lamp does not stay off when battery is inserted.	A. Battery already charged	
	B. Corroded battery connections	Clean
	C. Defective charger	Requires authorized service
	D. Defective battery	Replace
12. Charger lamp does not come on after 16 hours of charging.	A. Defective charger	Requires authorized service
	B. Defective battery	Replace
	C. Corroded battery connections	Clean
13. Charger lamp flashes.	A. No problem – Indicates a fully charged battery	

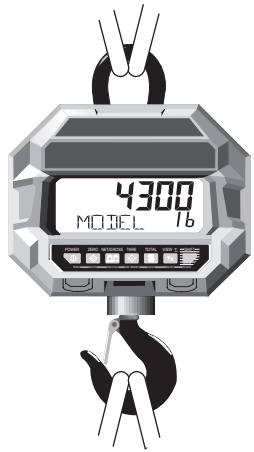
PROPER LOADING PROCEDURE

DO NOT



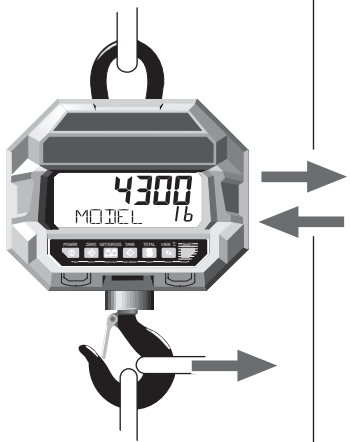
DO NOT INTERFACE HARDWARE (SHACKLES, HOOKS ETC.) THAT ARE OVERSIZED AND RESTRICT SINGLE POINT LOADING AND SELF-ALIGNMENT WHICH CAN RESULT IN OFF-AXIS LOADING.

DO NOT



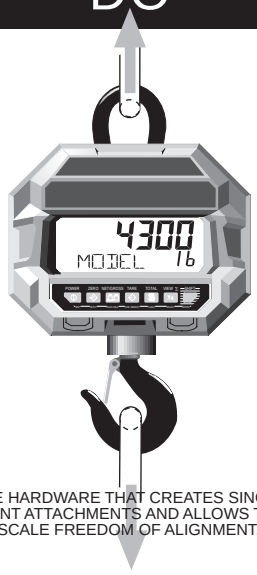
DO NOT USE MULTIPLE ATTACHMENTS.

DO NOT



1. DO NOT PUSH OR PULL ON LOADED SCALE. **2.** DO NOT PULL LATERALLY ON HOOK WITH SCALE LOADED.

DO



USE HARDWARE THAT CREATES SINGLE POINT ATTACHMENTS AND ALLOWS THE SCALE FREEDOM OF ALIGNMENT.

PUB.PLP-01-95

THE MSI LIMITED WARRANTY

MEASUREMENT SYSTEMS INTERNATIONAL, INC., WARRANTS load sensing elements and meters against defects in workmanship and materials for a period of one year from date of purchase and warrants electrical cables and batteries against the same defects for a period of ninety (90) days from date of purchase.

Any device which proves defective during the warranty period will be replaced or repaired at no charge; provided that the defective device is returned to the Company freight prepaid.

In no event shall the Company be liable for the cost of any repairs or alterations made by others except those repairs or alterations made with its specific written consent, nor shall the Company be liable for any damages or delays whether caused by defective workmanship, materials or otherwise.

The Company shall not be liable for any personal injury or property damage resulting from the handling, possession or use of the equipment by the customer.

The warranty set forth herein is exclusive and is expressly in lieu of all other warranties, express or implied, including without limitation any implied warranties of merchantability or fitness, or of any other obligations or liability on the part of the Company.

The liability of the Company under this warranty is limited solely to repairing or replacing its products during the warranty periods; and the final judgement and disposition of all claims will be made by MEASUREMENT SYSTEMS INTERNATIONAL, INC.

NOTES

MADE IN THE USA CE

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