

## DIGITAL WEIGHT COMPUTER MODEL TR-1

### STANDARD OPERATION FEATURES

#### ZERO BUTTON:

To bring the scale to a zero balance reading, press the ZERO button. The button will not activate if the MOTION lamp is on.

#### GROSS NET:

Press the GROSS/NET button to switch between the GROSS weight display mode and the NET weight display mode. The lamp will light to indicate which mode is being displayed.

#### PRINT:

To activate an optional printer, press the PRINT button. The printer data output will become active when the weight is not in motion or in an overload condition.

#### TARE:

This button is used to input a TARE weight value. This value can be entered by the keyboard or automatically taken as the GROSS weight value.

##### AUTO-TARE

1. Assure that the display is in the GROSS weight mode.
2. When the weight is stable (no motion), press the TARE button, and hold for one display update. If the gross weight was not a negative value, the tare weight now equals the gross weight and the display will show a NET weight of zero. KEYBOARD ENTERED TARE
  1. Assure that the display is in the NET weight mode.
  2. Press and hold the TARE button until the DATA lamp lights.
  3. The current TARE value will now be displayed. To keep the value, press the ENTER button.
  4. To alter this value, use the keypad and then press ENTER.
  5. The tare value must be in the same graduation as the scale graduation. For example, if your scale is in 10 lb graduations, a TARE entry of 1453 lbs will not be accepted. A entry of 1450 or 1460 will be accepted.
  6. When the entry has been made, the display will return to the NET mode, unless the tare entry was zero, in which case the display will return to the GROSS mode.

#### SETPOINT:

This button is used to set the weight value at which the optional setpoint relay will activate, or deactivate.

1. Press and hold the SETPOINT button until the DATA lamp lights.
2. The display will show the current value for the SETPOINT.
3. Use the keypad to alter this value, then press the ENTER button.
4. The value is stored in non-volatile memory and will not be lost if power is removed from the system.

#### ID:

When using a printer, an ID number can be printed with the weight. To set this number use the ID button.

1. Press and hold the ID button until the DATA lamp lights.
2. The current ID number will be displayed.
3. Use the keypad to alter this number.
4. The number will be stored in non-volatile memory and will not be lost if power is removed from the system.

#### FUNCTION: (LB/KG conversion)

This button changes the weight display from POUNDS to KILOGRAMS. The led lamp will indicate which is being displayed. When changing, the TARE weight entry (if any) will be cleared to zero. NOTE: Parameter #0 can disable this feature.

#### TIME/DATE:(optional)

Used to view and set the optional time and date. This clock will operate even if power is removed.

1. Press the TIME/DATE button until all the indicator lamps light.
2. Release the TIME/DATE button.
3. The display will show the time first, then the date, and return to the weight display mode.
4. If you want to alter the clock, do steps 1 and 2, and while the display is showing the date, press and hold the CLEAR button until the display shows all zeros with the DATA lamp on.
5. Use the keypad to enter the time in 24 hour format. then press the enter button.
6. Use the keypad to enter the current date. for example, if it is Nov. 5, 2007, enter 110507 and press the enter button.
7. The display will return to the weight mode.

## MODEL TR-1 CALIBRATION INSTRUCTIONS

### Parameter Entry:

1. Un-screw the large sealing screw on the back of the unit and press the CAL button through the hole.
2. The display will show -----.
3. Press and release the ID button.
4. The display will show 00--nn (The 00 denotes parameter number 0 and the nn may be any 2 digit number representing the current value set for parameter number 0).
5. To change the value of this parameter, press the CLEAR button and the display will change to all 000000.
6. Use the keypad to alter this to the value desired.
7. Press the ENTER button to save the value and go to the next parameter.
8. Continue steps 5 through 7 for all parameters desired.
9. When finished, press the CAL. button again to return to the weight display mode.

### Parameter List:

- # 0 = Printer output type and LB to KG conversion on/off:
  - 00 = LB/KG active with single line printer output
  - 01 = LB/KG off with single line printer output
  - 02 = LB/KG off with gross/tare/net print output if a tare weight is entered.
  - 03 = LB/KG off same as 02 but will clear the tare after printing.
  - 04 = same as 03 but will return to GROSS mode.
  - 05 = same as 04 but only allows keyboard tare entry.
- # 1 = The sample/averaging rate. A setting of 1 is the fastest display rate update, and does not average. A setting of 3 (for example) will take 3 samples and average them before updating the displayed weight.
- # 2 = The displayed graduation size. Set at 10 if a graduation size of 10 is required. Valid settings are 1,2,5,10,20, and 50. Any other setting will default to a setting of 1.

- # 3 = The overload trip-point in thousands of graduations.  
If the scale is to be 10,000 by a graduation of 1, then a setting of 10 would cause the overload to activate at 10,000. If the scale is to be 50,000 by a graduation of 10 (this equals 5000 graduations), then a setting of 05 would be used to cause the overload to activate at 50,000. NOTE: The actual point is 1% over capacity.
- # 4 = The motion detection window setting. Set this to the number of graduations that will be allowed as a no-motion condition.
- # 5 = Zero tracking amount. The 1s digit of this parameter is set to the number of graduations allowed to be auto-zeroed. A setting of n0 to n9 is available. The 10s digit of this parameter is used to set the number of samples that will be tested before auto-zero is done. For example, a setting of 52 in this parameter will track of + or- 2 graduations from zero, after the display has remained in a no-motion condition for 5 sample rates.
- # 6 = The decimal point position and weight units selection. The units digit of this parameter sets the decimal point position. A setting of x2 will cause the display to show 0000.00 The 10s digit selects the weight units that will be printed when the conversion is turned off by parameter number "0". A setting of 0x will print LB on the weight ticket.  
A setting of 1x will print KG on the weight ticket  
A setting of 2x will print TN on weight ticket.  
A setting of 3x will have no designator printed.
- # 7 = The print size and time/date location  
The 10s digit sets the time/date print location  
0x = weight then time/date printed  
1x = time/date then weight printed  
2x = no time/date print  
The 1s digit selects the print size of the weight. Time and date will be printed in the smaller size print.  
x0= regular size  
x1= wide print  
x2= tall and wide print

- # 8 = Setpoint type and print direction  
The 10s digit selects the optional setpoint operation  
0x=setpoint is on when the weight is below the setpoint  
1x=setpoint is on when the weight is above the setpoint  
The 1s digit selects the print direction x0 is normal  
print direction  
x1 is inverted (upside down) print direction  
x2 to x9 adds prespaces to the print line to move the  
data to the right on the ticket while  
inverting the print
- # 9 = The printer output baud rate, and margin indent.  
x0= 300 baud inverted data  
x1= 300 baud  
x2= 1200 baud for PR-2 tape printer  
x3= 1200 baud for PR-1 ticket printer 1x= indents left  
2 spaces 2x= indents left 4 spaces etc.
- #10 = Digital Rounding - Can be adjusted for sensitivity. Use  
a number from 0 to 99 to increase sensitivity.
- #11 = Remote output type and baud rate.  
00 = 1200 baud continuous      10 = 1200 baud on demand  
01 = 2400 baud continuous      11 = 2400 baud on demand  
02 = 4800 baud continuous      12 = 4800 baud on demand  
03 = 9600 baud continuous      13 = 9600 baud on demand
- #12 = Printer line feeds when printing Gross - Tare - Net.  
The TENS digit is for line feeding before printing.  
The ONES digit is for line feeds between print lines.
- #13 = OPTIONAL For auto-shutoff time on units with LCD  
display and 12 volt operation.  
Set to 00 to disable auto-shutoff  
Set to a value of 1 to 99. 1 is shortest and 99 is  
longest.  
The unit will shutoff if the weight remains at zero  
for the time period set.

## CALIBRATION:

### JUMPER SETTINGS:

Set DEAD-LOAD jumper to NORMAL for single loadcell scales or multiple loadcell scales with a excitation trim summing card. Set to LESS for signal trim summing cards.

Set GAIN jumper to normal. Use the HIGH position if required at step 9.C. When using the HIGH gain position, set the DEAD-LOAD jumper to the LESS position, if the scale appears locked on zero.

### TEST WEIGHT CALIBRATION:

1. Remove the largest of the two screws on the back of the unit.
2. Poke through the hole to hold down the CAL button.
3. The display shows all dashes (-----).
4. Press and release the SETPOINT button.
5. The display will show the raw un-calibrated value.
6. Assure that the scale is at a zero load condition.
7. Press the ZERO (balance) button to remove the dead-load and the display should go to zero (+ or - 1 graduation). If it does not, press the ZERO button again until the zero condition is obtained.
8. Load the scale with a known weight value.
9. The display must now show a value larger than the test weight. If the display is not larger than the weight value, do one of the following.
  - A. Check the load cell size, it may need to be reduced.
  - B. Increase the graduation size.
  - C. Raise the internal amplifier gain.
10. When the weight is stable, press the FUNCTION button until the DATA lamp lights.
11. Enter the correct test weight value using the keypad, then press ENTER.
12. The DATA lamp will go off, and the display will return to the weight display mode.

NOTE: Just the Dead-Load may be set by following the procedure up to step 7 then press the CAL button to return to the normal weight display mode.

FYI - (FOR YOUR INFORMATION)

The factors that were obtained automatically during this Test Weight Calibration procedure, can be viewed and altered to allow minor alterations to calibration and dead load settings.

The Dead Load Factor is the value of raw data that was zeroed off at step #7 of the CAL. procedure. This is the reference point for the overload detection. This value should be viewed and recorded incase of an internal memory failure that would erase this number. The value could be re-entered after the memory problem was corrected.

The Span Factor is a 4 digit number that was obtained at step #14 of the calibration procedure. This factor can be altered to make minor calibration adjustments if they are required. The 4 digits are each 10 times more sensitive than the one to the left. For example if changing the left-most digit from a 4 to a 5 increases the calibrated weight by 1240lbs., then the digit next to on the right will change the weight by 124 lbs. and the digit to the right of it will change the weight by 12 lbs. and the last digit will change the weight by 1.2lbs.

1. Remove the largest of the two screws on the back of the unit.
2. Poke through the hole to hold down the CAL button.
3. The display shows all dashes (-----).
- 4 Press the TARE button for the current Span Factor.

or

Press the ZERO button and the display will show the current setting for the Dead Load Factor.

5. Use the keypad to alter this value if desired, then press ENTER to save the data.

LOAD CELL CONNECTION

BOARD TERMINAL ----- OPTIONAL AMPHENOL 6 PIN

PIN 1	-----	PIN B	NEG EXCITATION
PIN 2	-----	PIN A	POSITIVE EXCITATION
PIN 3	-----	PIN C	POSITIVE SIGNAL
PIN 4	-----	PIN D	NEGATIVE SIGNAL
PIN 5	-----		SHIELD /CASE GROUND

DATA OUTPUT CONNECTION

*** RS232 OPTION ***		*** STANDARD OUTPUTS ***	
PIN 1	---- DATA GROUND	PIN 6	---- -20MA PRINTER
PIN 2	---- PRINTER DATA	PIN 7	---- +20MA PRINTER
PIN 3	---- RS232 INPUT	PIN 8	---- -20MA CONTINUOUS
PIN 4	---- RS232 AUX INPUT	PIN 9	---- +20MA CONTINUOUS
PIN 5	---- CONTINUOUS DATA		

NOTE: If RS232 option is not installed, use pin 6 for printer data or pin 8 for continuous data to RS232 devices, and use pin 1 as data ground.

Printer Data:

Baud rate selectable 300, 600, or 1200  
Data bits are 8 with 2 stop bits and no parity

Nominal single line print data string will be;

Polarity sign / 6 weight digits / LB or KG or TN / 6 digit ID number, if entered / Time and Date if option is ordered / Carriage Return and Line Feed.

Remote Continuous Data or On-Demand output:

Baud rate is adjustable from 1200 to 9600.  
Data bits are 8 with 2 stop bits and no parity  
Data stream is as follows;

STX / Space or - / 6 weight digits / L / G for gross /  
if negative K N for net

Space or / Carriage Return / Line Feed

M if in motion or  
O if in overload

If parameter #11 is set for continuous, then the data stream is sent as the display updates.

If parameter #11 is set for on-demand, then the host device must send any single character to cause the data stream to be sent.