Operator Manual

EZ II SERIES
ELECTRONIC SCALE INDICATORS

EZ 2000

EZ 2000 V

Digi-Star

Leading the way in Worldwide Weighing

US Part Number: F3531

Table of contents

Always keep this manual by your scale indicator

1. About the product

1.1 Features of Models EZ2000 and EZ2000V

- Scrolling Help Messages for easy operation
- Large 1.7" display (1" for EZ2000) for greater readability
- Front panel calibration without simulator or weights
- Expanded self diagnostic test capability
- SELECT and FUNCTION keys to simplify appearance and allow for future expansion
- A HOLD feature to hold the weight stable while moving the scale system
- Fiber-optic back lighting for extremely long life
- New powerful microprocessor and expanded memory

1.2 Operating specifications

- Temperature range: -20°F to 140°F
- Power requirements: 10.2Vdc - 16Vdc
- Power on: 160mA, 4L.C. 350Ω
- Power off: 1mA

1.3 Housing

- Size (l×h×w):   10" × 7.4" × 5"
- Weight (unpacked):   4.5 lbs
- Display EZ2000:   6-digit alpha numeric LCD, fiberoptic back lighting
                           Display height EZ2000 = 1"
                           Display height EZ2000V = 1.7"
- Environmental enclosure: IP65, IEC529
- Connectors: AMP, gold plated contacts

2. System operation

☞   EZ2000 shown - EZ2000V operation is the same.

☞   LB and KG annunciators are located along right hand edge of the 2000V display.

TURNING ON THE SCALE

Press ON .

A brief message will be displayed (such as *HELLO*). The scale then enters the GROSS weighing mode.

GROSS mode displays the weight change since the unit was last ZERO/BALANCED.

Pressing ON a second time during normal system operation starts the self test.

TURNING OFF THE SCALE

Press Off .

TO ZERO BALANCE THE SCALE

Press Net Gross and then within three seconds, press Zero .

The ZERO key will "balance off" empty trailer, bin, or platform weight.

The *ZERO* message is displayed and the scale is placed in the GROSS mode.

Pressing only the ZERO key will cause the message: *TO ZERO/BALANCE PRESS NET/ GROSS - THEN ZERO* to be displayed.

If the supply power is below the low battery threshold (10.5 Volts),the message *INDICATOR CANNOT BE ZERO/BALANCED-LOW BATTERY VOLTAGE* is displayed. The message *LO BAT* will be periodically shown on the display (approx. every five seconds) to alert the operator of the low battery condition.

Loss of power does <u>not</u> affect the Zero/Balance or Setup/Calibration values.

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TO SELECT GROSS MODE

GROSS mode displays the weight change since the unit was last Zero/Balanced.

Press Net Gross .

☞ The scale is in **GROSS** mode if there is a flashing arrow (∇) pointing toward the word **Gross**, next to the display.

TO SELECT NET MODE

NET mode displays the weight change after a TARE has been performed. TARE creates a temporary zero at that weight value.

Press Tare to set a temporary "zero" point and enter the NET mode.

or

if in GROSS mode, press Net Gross .

The NET/GROSS key is an alternating action key. If the scale is in the GROSS mode, pressing the NET/GROSS key will place it in the NET mode. If the scale is in the NET mode, pressing the NET/GROSS key will place it in the GROSS mode.

If the TARE function has not been previously performed, the unit will stay in the GROSS mode and the message *FOR NET MODE PRESS TARE* will scroll across the display.

☞ The scale is in NET mode if there is a flashing arrow (∇) pointing toward the word **Net**, next to the display.

TO SELECT HOLD MODE

HOLD mode prevents the displayed weight from changing due to "zero shift" while moving the scale. Use of this mode is optional.

Press Hold to "hold" the displayed weight and enter the HOLD mode.

☞ The scale is in HOLD mode if the word *HOLD* is flashing on the display and the flashing *HOLD WEIGHT* is only displayed for a brief time.

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TO EXIT HOLD MODE

Press Hold .

At this time the scale adjusts the Zero/Balance to maintain the gross weight displayed. Small changes in weight can occur while moving the scale system to new locations for loading or unloading. This change us called "zero shift" and is due to several factors including terrain changes and mechanical stresses.

TO CANCEL HOLD MODE

Press ON .

Cancelling the Hold mode **prevents** the scale from adjusting the Zero/Balance and returns the system to the normal weighing mode. Use this if you choose Hold Mode in error.

USING FUNCTION & SELECT KEYS

The FUNCTION key provides additional features to the operation of the scale. The FUNCTION key is similar to the F1 key of a computer. The SELECT key is used to determine what operation will occur when the FUNCTION key is pressed.

Press Select △ to display the current operation of the FUNCTION key.

Continue to press Select △ until the desired operation is displayed.

☞ The FUNCTION key maintains this operation until Select △ is pressed again.

Now press the Function ◁ key to perform the displayed operation.

For example, if the word *TIMER* is displayed, then pressing the FUNCTION key will activate the Mix Timer. If the message *M+* is displayed, then pressing the FUNCTION key will cause the scale to perform the Memory Plus (M+) operation.

The FUNCTION key operation is stored in non-volatile memory. This allows the scale to remember the operation of the FUNCTION key even when the unit is turned OFF.

Press the SELECT key once to display the operation currently assigned to the FUNCTION key.

ADD WEIGHT TO WEIGH MEMORY
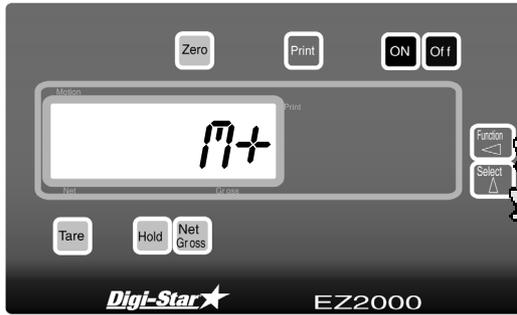
Press the [Select △] key to assign the M+ operation to the FUNCTION key.

Press the [Function ◁] key to perform the Memory Plus (M+) operation.

M+ will be displayed, followed by the amount to be added to the weigh memory. *RM* will be displayed next, followed by the total amount stored in the weigh memory.
(Optional RM & M+ Keys on the 2000V - See Front Cover Image).

RECALL WEIGH MEMORY

Press the [Select △] key to assign the RM operation to the FUNCTION key.

Press the [Function ◁] key to perform the Recall Memory (RM) operation.

The total amount stored in weigh memory will be displayed.

PRINT WEIGH MEMORY (OPTION)

Press the [Function ◁] key to display the Recall Memory (RM) value.

Then press the [Print] key while the weigh memory is still displayed.

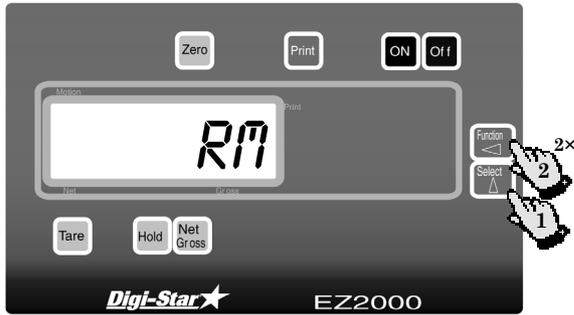The PRINT key causes the unit to print the weigh memory and return to the normal weighing modes.

CLEAR WEIGH MEMORY

Press the [Select △] key to assign the CM operation to the FUNCTION key.

Press the [Function ◁] key to perform the Clear Memory (CM) operation.

WEIGH AVERAGING

Press the [Select △] key to assign the RM operation to the FUNCTION key.

Press the [Function ◁] key twice within three seconds to perform the weigh averaging operation.

The *COUNT* or number of weight values added to the weigh memory will be displayed first. Then the message *AVERAG* is displayed, followed by the average weight value.

To print the average weight value, press the [Print] key while the average weight is still displayed.

Average weight print sample shown below:

```
10JA00   12:01P
5CT 1258LB AV
```

TO PRINT: (OPTIONAL FEATURE)

Press the [Print] key. Scale data will be sent to the printer.

The weight will be printed automatically whenever the TR is used.

Sample output format shown below:

```
10JA00     12:01P
  123456LB GR
```

REMOTE DISPLAY (OPTION)

A Remote Display is available for viewing weights at convenient locations. The Remote Display includes a visual alarm light which can be used with the TR option listed below.

TR OPTION: RADIO CONTROL

The transmitter/Receiver (TR) option uses a small hand held transmitter to allow the operator to remotely control the scale. The TR option allows the operator to perform TARE and GROSS functions.

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TO START THE MIXER TIMER

Press the ⬜ key to assign the TIMER operation to the FUNCTION key.

Then press the ⬜ key to see the Mix Time currently set.

While the Mix Time is displayed and a number is flashing, the FUNCTION and SELECT keys can be used to change the displayed value.

The SELECT key (⬜) increments the "flashing" digit and the FUNCTION key (⬜) selects which digit of the display is flashing.

Now press the ON key. Once the correct time has been entered or if the time displayed is acceptable, pressing ON stores the time and starts the Mix Timer.

The display now reads HOURS, MINUTES and SECONDS (HH:MM:SS), separated by colons that flash every second.

The Mix Timer "counts downward" until *00:00:00* time is displayed. At this time, the alarms are activated and the display begins flashing. This continues until the Mix Timer Alarm is cleared

TO CLEAR THE MIX TIMER ALARM

Press the ⬜ key or the ON key. The scale clears the Mix Timer alarms and enters the weighing mode.

TO RESTART THE MIX TIMER

Press the ⬜ key followed by the ON key to start the Mix Timer using the time previously entered.

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3. Mounting and connection

INDICATOR MOUNTING

The indicator is easily attached to the Indicator Mounting Bracket by hooking the top over the plate and securing the bottom with two (2) bolts (size# 10 x 24 x 3/4") and nuts.

POWER CONNECTION

⚠️ **Warning!**

Always disconnect the indicator power cord <u>before</u> "jump starting" or fast charging a battery.
Disconnect <u>all</u> indicator leads before welding on equipment. Failure to do so can cause surges which will damage the scale.

The power cable should be connected directly to a vehicle battery or regulated power supply. The scale end of the power cable is attached to the **J901** connector located on the bottom panel of the scale.

Connect the **RED** wire from the power cable to **+12VDC** and the **BLACK** wire to **GROUND**. The indicator is fused internally at 4 amps.

Wire Color	Wire Function
RED	Battery (+12Vdc)
BLACK	GROUND
ORANGE	NA
BLUE	NA

Serial Port Cable (Optional)   Remote Display Cable (Optional)   Junction Box Cable   Power Cable
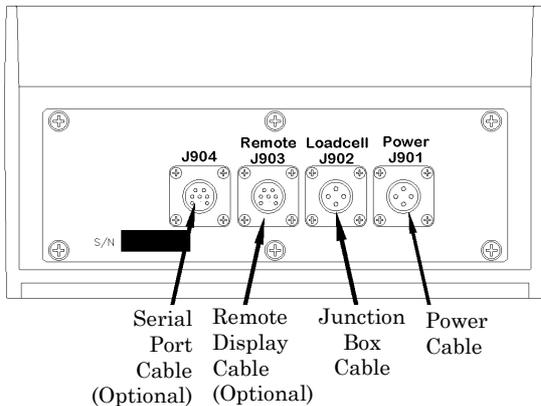
LOAD CELL CONNECTION

The indicator is designed to operate with strain gage load cells. The system will normally be supplied with a *"J-BOX"* cable going between the indicator and the load cell junction box. Extension Kits are available from your dealer in various lengths.

To connect the load cells, attach the junction box cable to the **J902** connector on the bottom panel of the scale. Connect the load cell cables to the junction box as shown below.
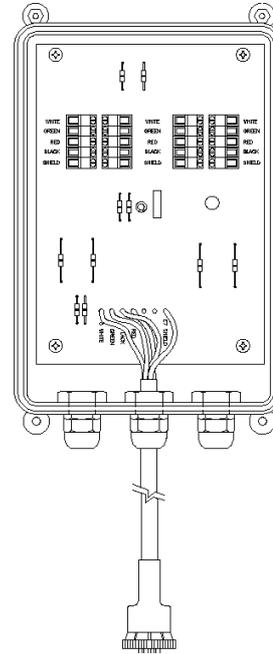
Terminal Color	Description
WHITE	SIGNAL +
GREEN	SIGNAL -
RED	EXCITATION +
BLACK	EXCITATION -
SHIELD	SHIELD

☞ Follow color key on circuit board to insure proper connection of load cell wires.

LIGHTNING PROTECTION

Additional protection can be achieved with the proper installation of grounding rods. Please call (920) 563-9700 and request Digi-Star Form F3050.

TECHNICAL MANUAL

Technical Manual available upon request. Please call (920) 563-9700 and request Digi-Star Manual for New EZ2.

CALIBRATION

⚠️ **Warning!**

This indicator was calibrated at the factory to weigh accurately with your system.

Additional calibration is <u>not</u> necessary under normal conditions.

The *Short Form* **Setup & Calibration** procedure allows you to change the **"SETUP"** and **"CAL"** numbers of the indicator. You may want to perform this procedure if;

1. The indicator is being connected to different load cells, or
2. You want to adjust the calibration to match another scale system.

Before continuing, first write down the current SETUP and CAL numbers of your EZ indicator. These numbers are displayed during the Self Test.

To run the self test:

With the indicator already ON, press the ON key to start the Self Test. Press the ON key to "pause" the Self Test while numbers are displayed. Press ON again to "resume".

SETUP # _____ CAL # _____
Keep this information for future reference.

☞ Do <u>not</u> attempt to calibrate the scale if the indicator is not reading stable weights. The calibration procedure **will not fix** instability, inconsistencies, or flashing "RANGE" messages.

4. Adjusting indicator to match another scale

Sometimes two different scales are used to weigh the same load. When this is done, the weight measured by each scale may not be the same. This can be caused by one or both of the two scales being slightly out of calibration. This indicator has the ability to match any other scale, even if that scale is not calibrated.

To match your EZ scale (Scale A) to another scale (Scale B) you must determine the Calibration Multiplier. To do this, place a load on Scale A (feed wagon, etc...) and write down the weight displayed. Repeat several times to determine the average weight. Next, place the same load on Scale B and again write down the weight displayed.

Repeat several times to determine the average weight. Use the following formula to determine the Calibration Multiplier for the EZ's "CAL" number:

It is important to use an average of several weights before calibrating the scale.

Scale Matching Example

> **Original**
>   **SETUP #**   **127060**
>   **CAL#**   **23980**
>
> | | 1 trial | 2 trial | 3 trial |
> |---|---|---|---|
> | **Scale B** | 30,000 | 30,580 | 28,000 |
> | **Scale A** | 29,440 | 29,800 | 27,500 |
> | **B ÷ A** | 1.020 +   1.026 +   1.018 = 3.064
 3.064 ÷ 3 trials = 1.021
 Cal. Multiplier | | |
>
> New EZCAL# = Orig. EZCAL# × Cal.Multiplier
>   24484   =   23980   ×   1.021
>
> You should not modify your "SETUP" number. Only your "CAL" number.

Follow the instructions: *TO CHANGE THE SETUP/CALIBRATION NUMBERS* shown on the next page.

Scale Information sheet

> **Original**
>   **SETUP #**   _____
>   **CAL #**   _____
>
> **Scale Matching Work Sheet**
>
> | | 1 trial | 2 trial | 3 trial |
> |---|---|---|---|
> | **Scale A** | | | |
> | **Scale B** | | | |
> | **B ÷ A** | + | + | = x |
> | | x ÷ 3 trials = Cal. Multiplier | | |
>
> New EZCAL# = Orig. EZCAL# × Cal.Multiplier
>
> _____ = _____ × _____

CONNECTING EZ INDICATOR TO OTHER LOAD CELLS
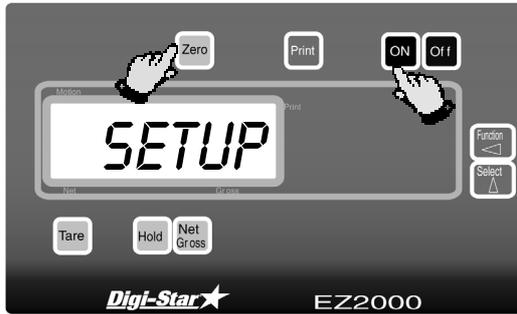
You will need the number <u>and</u> type of load cells used in the new scale system. You will also need the current "SETUP" and "CAL" as described above. Once you have written down this information, contact your nearest Scale Service Center for new "SETUP" and "CAL" numbers.

Follow the instructions "To Change the Setup / Calibration Numbers" shown below.

Press and hold the [Zero] key, then press the [ON] key, to enter Short Form Setup & Calibration.
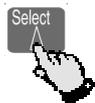
TO CHANGE THE SETUP & CALIBRATION NUMBERS

The first message displayed is SETUP.

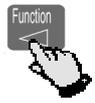Next, the actual SETUP number is displayed.

☞ Press the [Zero] key for additional help information during Setup and Calibration.

If the correct SETUP number is displayed, press the [ON] key to advance to the CAL number.

1. Press the [Select] key to cause the "flashing" digit to count upward.

2. Press the [Function] key to select which digit is flashing.

When the correct SETUP number is displayed, press the [ON] key to advance to the CAL number.

This displays the CAL message, followed by the CAL number.

☞ The CAL number is not a weight. It is a reference value the indicator uses to determine the weight. This number directly affects the accuracy of the scale system.

Change the CAL number using the same method described in Steps 1 & 2. When the display shows the correct number, press the [ON] key. This causes the number to be stored permanently in the indicator and returns the indicator to the weighing mode.

TO RETURN TO WEIGH MODE

To exit setup without changing any values, press and hold the `Tare` key, then press the `ON` key.