DIGI★STAR

TOPCON POSITIONING GROUP

# EZ2810

## Operators Manual




D4008-EN REV B

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D4008-EN EZ2810 Operators Manual Rev B LAC

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## CONTENTS

SECTION 0 – PRODUCT OVERVIEW ..... 5
0.1.0 Important: Record of Setup & Calibration Numbers ..... 5
0.2.0 EZ2810 Special Features ..... 5
0.3.0 Accuracy Statement ..... 6
0.4.0 Technical Specifications ..... 7
0.5.0 Safety During Use ..... 8
0.6.0 Battery Charging and Welding ..... 9
SECTION 1 - OPERATION ..... 10
1.1.0 Indicator Overview ..... 10
1.2.0 Turn ON Indicator ..... 12
1.3.0 Zero Balance Indicator ..... 12
1.4.0 Tare and Net/Gross ..... 12
1.5.0 Print Key ..... 14
1.6.0 Mixer Timer ..... 14
1.7.0 Restart Mix Timer ..... 14
1.8.0 Function & Select Keys ..... 15
1.9.0 Memory Options M+, RM, MS, CM ..... 15
1.9.1 Printing Weight from Memory ..... 17
1.9.2 Weight Averaging ..... 17
1.9.3 Printing Average Weight ..... 19
1.9.4 Memory Store ..... 19
1.9.5 Clear Memory ..... 19
SECTION 2 – ADVANCE COMMANDS ..... 20
2.1.0 Hold Mode ..... 20
2.2.0 Preset ..... 20
2.3.0 Clear Preset ..... 20
2.4.0 Preset Load ..... 21
2.5.0 Load/Unload Mode ..... 21
2.6.0 Net Mode ..... 21
2.7.0 Preload a Tare ..... 22
2.8.0 Pre-Alarm ..... 22
2.9.0 Tolerance ..... 23
2.9.1 Preset Delay Time ..... 23
2.9.2 Rotation Counter ..... 24
2.9.3 Re-Start Rotation Counter ..... 24
2.9.4 Setting Drive Ratio ..... 25
2.9.5 Maintenance Message ..... 25
2.9.6 Hour Meter ..... 26
SECTION 3 – OPTION MENUS ..... 27
3.1.0 Access to Menus ..... 27
SECTION 4 – SETUP / CALIBRATION ..... 28
4.1.0 Viewing and Changing Setup & Calibration Numbers ..... 28
4.1.1 Setup Number ..... 28
4.1.2 Calibration Number ..... 28

SECTION 5 – DIRECT ACCESS NUMBERS (DAN #'S) ..... 29
5.1.0 Options Changed By User ..... 29
SECTION 6 – INSTALLATION ..... 36
6.1.0 Indicator Mounting ..... 36
6.2.0 Cable Connections ..... 37
6.3.0 Connecting Load Cells to Junction Box ..... 39
6.4.0 Load Cell Direction ..... 39
SECTION 7 - OPTIONAL EQUIPMENT ..... 40
7.1.0 Cab Controls (Wireless) ..... 40
7.2.0 Remote Displays ..... 40
7.3.0 Transmitter/Receiver ..... 41
7.4.0 Printer Option ..... 41
7.5.0 Data Transfer Option ..... 41
7.6.0 Rotation Counter Sensor (Kit p/n: 408088) ..... 42
SECTION 8 — TROUBLESHOOTING ..... 43
8.1.0 Flow Chart ..... 43
SECTION 9 – DECLARATIONS & CERTIFICATES ..... 45
9.1.0 Declaration of Conformity (EU) ..... 45
9.2.0 Legal-for-Trade Certification ..... 46
10.0.0 NOTES ..... 46

# SECTION 0 – PRODUCT OVERVIEW

Thank you for your purchase of a Digi-Star EZ2810 scale indicator. Your EZ2810 is the culmination of more than 30 years of agricultural weighing engineering and expertise. With proper operation and preventative maintenance the EZ2810 will last for many years.

The Digi-Star EZ2810 is primarily designed for weighing agricultural animal feed products during the loading and unloading of mobile and stationary feed mixers. The EZ2810 can also be used on feed delivery boxes, forage wagons, grain carts, and animal scales.

The EZ2810 is not for use with applications for which the EZ2810 is not intended, or as outlined in this manual.

Use of the EZ2810 outside of its intended purposes may result in inaccurate weight measurement or damage to instrument.

## 0.1.0 Important: Record of Setup & Calibration Numbers

See Section 4 for how to access the Setup and Calibration numbers that were originally delivered with your Indicator and equipment, or note the correct or customized Setup and Calibration numbers here:

**SETUP NUMBER:** _____

**CALIBRATION NUMBER:** _____

## 0.2.0 EZ2810 Special Features

**Preset Weight**

The EZ2810 indicator provides simple to use and very useful Preset Weight feature. Using the numeric keypad the operator can enter the desired weight of product that the operator wants to load or unload. Once loading or unloading begins the EZ2810 will count down to 0 (zero). As the weight approaches 0 the audio and visual alarms will begin to pulse with the frequency of the pulses increasing the closer the preset weight gets to 0. At 0 the alarm light and buzzer will sound continuously.

See section 2.2.0 for details.

**Rotation Counter / Timer**

The Rotation Counter / Timer provides the useful benefit of monitoring mix revolutions or mix time and a warning light, buzzer, or external signal will indicate when the desired mix revolutions or time has been achieved. For this the EZ2810 uses an optional

Rotation Counter Sensor (See Option Equipment Section: 7.5.0) which is fitted to the drive line of the feed mixer. See section 2.9.2 for details.

**Maintenance Message**

The Maintenance Message is available with the Machine Hour Meter function noted above and provides the ability for the equipment manufacturer or equipment owner to utilize the EZ2810 to display a specific Service or Maintenance message after a predetermined period of operation similar to a Change Oil message in an automobile.

See section 2.9.5 for details.

**Machine Hour Meter**

The EZ2810 when fitted with the Rotation Counter Sensor can be configured to record hours of operation. The Machine Hour Meter can provide valuable information to aid the user in determining when maintenance and upkeep is required.

See section 2.9.6 for details.

## 0.3.0 Accuracy Statement

**READ THIS SECTION BEFORE USING THE SCALE SYSTEM**

Digi-Star Scale Systems are designed and manufactured to provide the greatest accuracy possible. However proper installation and use are required in order to obtain the highest level of accuracy.

When using the scale system the following must be considered in order to realize the best possible performance and accuracy.

- Load cells must be installed with the proper orientation. Most Digi-Star load cells have a label indicating either the “TOP” or bending direction of the load cell. Inspect load cells to determine if the load cells are installed correctly. Incorrect installation of load cells will result in inaccurate measurement.
- Load cells should not be subjected to any strains or loads other than the weight of the load. Stress or strain caused by misalignment or other factors when accurate weight readings are desired will negatively affect the accuracy.
- The weighing unit should be stationary with minimum movement, and on a level surface, to insure that weight readings are as accurate as possible.
    - The effect of movement on accuracy depends on the speed and roughness of the ground and application. Rougher terrain and faster and/or greater movement increases the degradation of accuracy.

A level surface is defined as being less than a 5” (13cm) change in rise over 10’ (3.0m) of run. As the slope of the terrain increases, degradation of accuracy will also increase.

## 0.4.0 Technical Specifications

| | |
|---|---|
| **SIZE** | 10.25” long x 8.0” high x 4” wide (260mm x 190mm x 105mm) |
| **WEIGHT** | 4.5 lbs. (2.04 Kg) |
| **HELP MESSAGES** | Context sensitive help messages in 10 languages, Long messages are scrolled |
| **LOAD CELL EXCITATION** | 8 volts D.C. Nominal, Capable of driving ten 350 Ohms transducers, Short circuit proof |
| **AUTO TEMPERATURE COMPENSATION** | Of internal circuitry for high accuracy weighing measurements |
| **LOAD CELL SIGNAL** | Compatible with Load Cells with greater than 0.25 mv/v |
| **CONNECTORS** | AMP plastic weather resistant circular connector. Gold plated contacts. |
| **POWER REQUIREMENTS** | 10.5 to 16.0 V.D.C. 160 mA nominal with four 350Ω L.C. |
| **SET UP AND CALIBRATION** | Via front panel or USB (???) |
| **GROSS RANGE** | 999,999 max.display |
| **LOW BATTERY WARNING** | Enabled at 10.5V nominal |
| **POUND / KILOGRAM** | Selectable |
| **DISPLAY** | 6 Digit Chip On Glass LCD 1.7” high |
| **DISPLAY RESOLUTION** | .01, .02, .05, .1, .2, .5, 1, 2, 5, 10, 20, 50, 100 |
| **DISPLAY UPDATE RATE** | Selectable: 1, 2, 3, 4 times/sec. |
| **MAX. DISPLAY RESOLUTION** | Adjustable to 40,000 counts max. |
| **ZERO TRACKING** | Selectable, On/Off |
| **SPAN ACCURACY** | ±(.1% + .005%/ °F) or (.1% + 0.009% °C) full scale ± 1 output count |
| **MOTION DETECTION** | Selectable, On/Off |
| **ZERO ACCURACY** | (.005%/ °F) or (0.009% °C) full scale ±1 output count for 0.5 mv/v transducer |
| **ENVIRONMENTAL ENCLOSURE** | IP65, IEC 529 |
| **WEIGH ALGORITHM** | 3 internally selectable digital filters to optimize performance (General, Slow, and Fast) |
| **HOLD MODE** | Used in mobile applications to stabilize displayed weight while moving the scale |
| **NON-VOLATILE MEMORY** | Standard |
| **OPERATING TEMP** | -29°C to 60°C -20°F to 140°F |
| **2 REMOTE INPUTS (Power/Remote ports)** | Tare / Print / Hold / Net Gross / M+ / Zero / TR Hold / Re-enter Preset / Switch |
| **REMOTE PORT Power Output** | 2 x Large Display LED Remote Displays (RD4000) or 3 x Standard Display Remote Displays (RD2500V) |

## 0.5.0 Safety During Use

**Danger: Indicates an imminently hazardous situation that, if not avoided, could result in death or very serious injury.**

**Warning: Indicates a potential hazardous situation that, if not avoided, may result in death or very serious injury.**

**Caution: Indicates a potential hazardous situation that, if not avoided, may result in a minor injury.**

**Exposure to Radio Frequency**
Exposure to energy from radio frequencies is an important safety issue. As this product uses the WiFi and Cellular system of a smartphone or tables please consult with the safety information provided with the device that the App operates with.

**Prior to Operation**
Read and understand this manual and learn all controls before you use the equipment. Check that the area is clear of people, animals, and obstacles before starting any work. Identify possible hazards.

**Check system before use**
Before using the App with the Digi-Star weighing system read the Operator's Manual for the scale indicator and the WiFi system. Follow all instructions.

Digi-Star cannot be held responsible for deviations and problems arising from incorrect use of the scale indicator, incorrect calibration, or settings. Furthermore Digi-Star cannot be held responsible for deviations and problems arising from technical problems to the system.

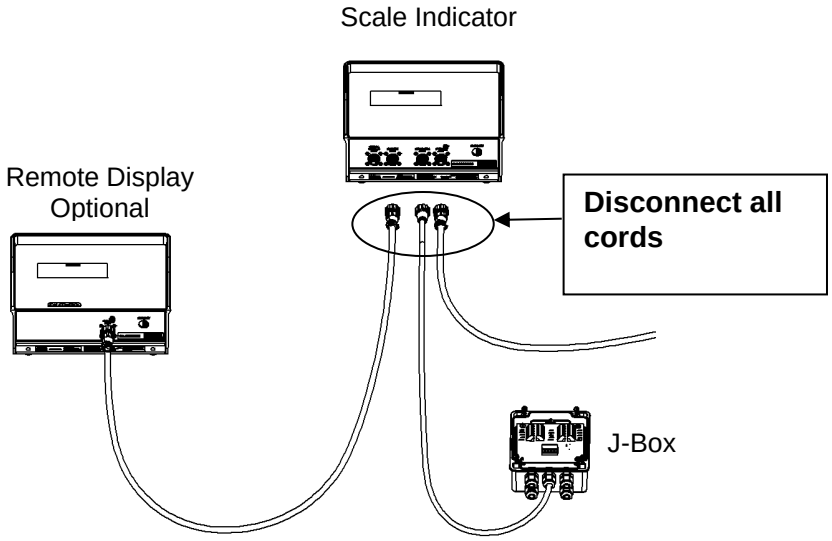
**CAUTION!**
**Cleaning:**
Do not use pressurized running water (high pressure cleaners, hoses nozzles, etc.) to clean the indicator.
Water ingress and damage to the indicator may result. Use soapy water and a sponge or cloth for best results.

## 0.6.0 Battery Charging and Welding

Disconnect all cables from the scale indicator as noted in diagram below before charging the battery or welding on the machine.

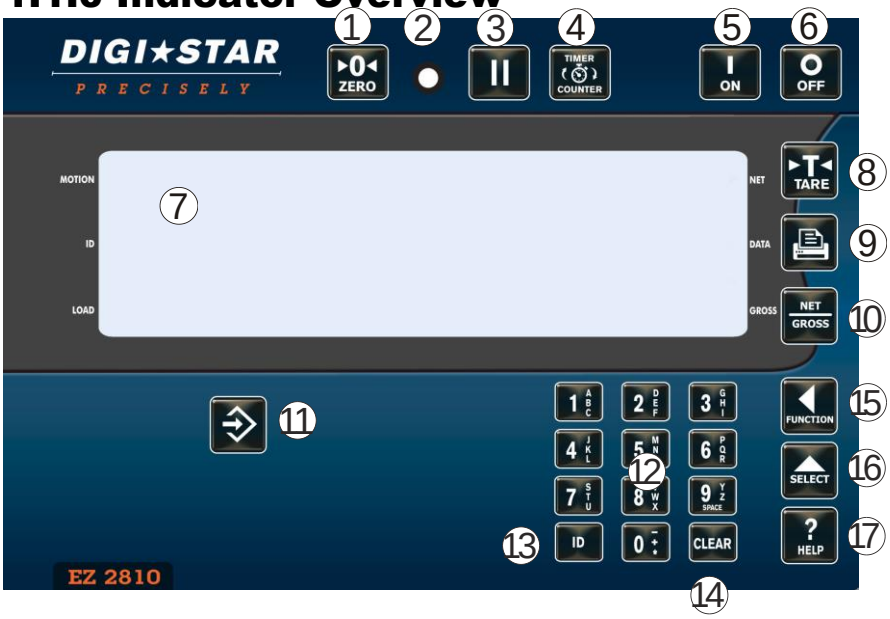
If cables are left connected, the scale indicator, optional devices, and connected load cells could be damaged.

**CAUTION!**



# SECTION 1 - OPERATION

## 1.1.0 Indicator Overview




① – Press and hold for 3 seconds to zero balance.

② **Pre-Alarm Light** – Flashes and Alarm sounds when weight at preset limit.

③ – Holds displayed weight when moving machine.

④ – Mixing time runs down, alarm sounds.

⑤ – Turns indicator on. Pressing while on will run self-test.

⑥ – Turns indicator off.

⑦ **Display Window** – Displays current actions.

⑧ – Temporary zero (Net mode).

⑨ – Records to memory or prints displayed weight.

⑩ – Toggles between Net and Gross weights.

⑪ – Accepts preset entry and menu changes.

⑫ **Keypad** – Input numbers or letters as required.

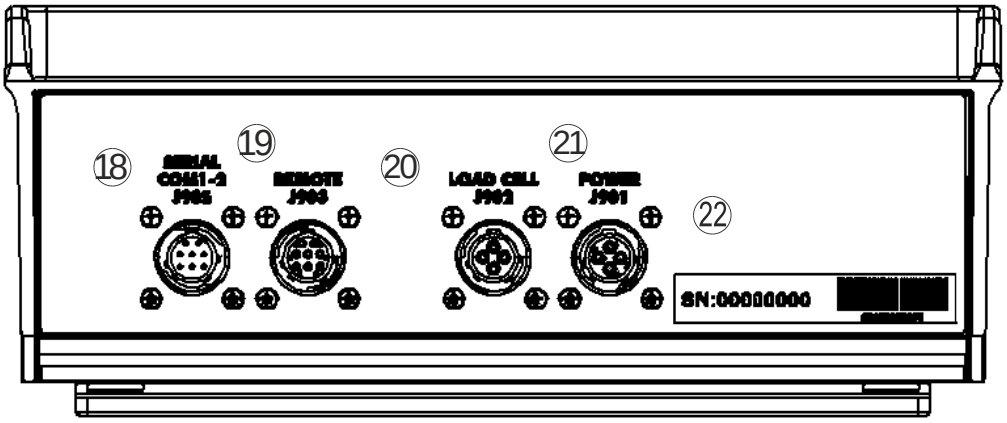
⑬ ID – To enter label number for weight value to be displayed and printed.

⑭ CLEAR – Clear current command.

⑮ FUNCTION – Performs tasks displayed by select.

⑯ SELECT – Displays additional tasks.

⑰ ? HELP – Shows additional information for last key pressed.




⑱ **Serial/Printer Port** – Option port for connection with other devices.

⑲ **Remote Port** – Optional remote display.

⑳ **Load Cell Port** – For J-Box cord.

㉑ **Power Port** – For power cord.

㉒ **Serial Number Plate** – Serial Number of indicator

## 1.2.0 Turn ON Indicator




1. Press ON

## 1.3.0 Zero Balance Indicator




1. Press and hold ZERO for 3 seconds to zero balance indicator

Flashing arrow points to gross next to the display window, indicator ready to weigh.

## 1.4.0 Tare and Net/Gross

Tare is a temporary zero




1. Weight displayed, press TARE sets zero weight.
2. Press NET GROSS repeatedly to show net and gross weights.




3. Pressing TARE displays zero weight and flashing arrow on side of display points to NET.




4. Add more weight.




5. To know total of original weight of 4000 pounds plus added 300 pounds, press NET GROSS to show 4300 pounds, flashing arrow points GROSS.



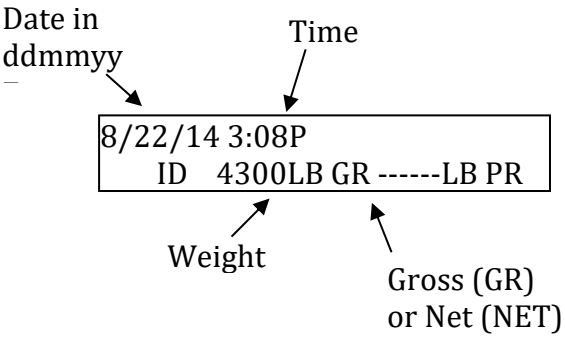

6. Press NET GROSS 300 pounds displayed flashing arrow points NET.

## 1.5.0 Print Key

***Note:*** *Optional Serial port must be installed for printing.*




1. Press . Indicator sends data to printer or PC.




## 1.6.0 Mixer Timer

Stopwatch for mixing time.



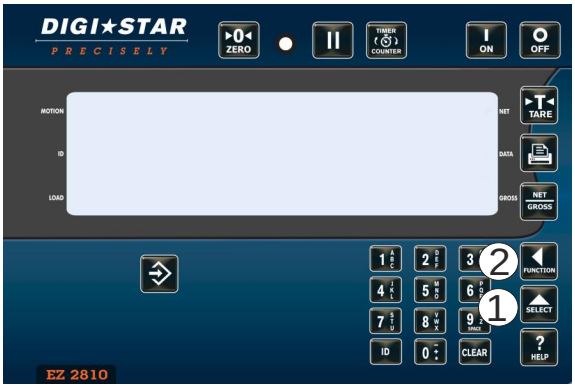

1. Press .
2. Enter time, press . Time runs down, alarm sound and timer shows negative for over mixing of set time.
3. Press .

## 1.7.0 Restart Mix Timer




1. Press  twice without entering value starts timer using previously time.

## 1.8.0 Function & Select Keys




1. Repeatedly press SELECT gives following options:

**M+:** Adding weigh to weight memory
**RM:** Recall weight memory
**CM:** Clear weight memory
**MS:** Stores display weight to memory
**Dimmer:** Dimming backlight
**Menu:** View menus 1,2,3,4 and calibrate. Change setup and calibration numbers.

2. Once desired option is displayed, press FUNCTION to activate the option.

## 1.9.0 Memory Options M+, RM, MS, CM

Use these options to weigh truck or wagon one axle at a time. See the bottom page of 14 for more information.

**M+**




1. Add weight on scale. Example: 500 pounds.




2. Repeatedly press SELECT until *M+* is displayed. Allow display to return to weight reading.

   Now FUNCTION is set to perform the *M+* option.




3. Press FUNCTION. M+ will briefly be displayed, followed by RM 500. This will add 500 lbs. to indicator memory and return to gross weighing mode.




4. Put another weight on the scale. Example: 1000 pounds.




5. Press FUNCTION. M+ will briefly be displayed, followed by RM 1500. This will add another 1000 lbs. to indicator memory and return to gross weighing mode.




6. Repeatedly press SELECT until RM is displayed.

7. Press FUNCTION.

8. Total both weights, 1500 pounds will be displayed, indicator switches to gross weight mode.

## 1.9.1 Printing Weight from Memory

Indicator must have optional serial/printer port for printing.




1. Repeatedly press SELECT until RM displayed.




2. Press FUNCTION shows weight in memory. Example: 1500 pounds.
3. Press while weight displayed.

**Sample Output**

```
8/22/14 3:08P
    ID   1500LB RM ------LB
```

## 1.9.2 Weight Averaging




1. Repeatedly press SELECT until RM displayed.




2. Press FUNCTION twice within three seconds performs weight average.
3. Display shows *COUNT 2* if number of individual weights to average is two. Example weight of 1000 pounds and 500 pounds averaged.




4. Displays *AVERAG.*



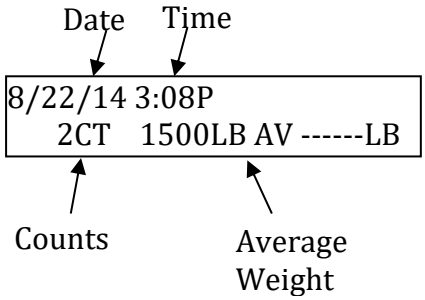

5. Display shows average of two weights in memory. After displaying average weight, indicator returns to gross weight mode.

## 1.9.3 Printing Average Weight




1. Press  while average weight is displayed.

**Sample output format:**




## 1.9.4 Memory Store

Stores display weight.




1. Repeatedly press  until *MS* displayed.

2. Press  .

## 1.9.5 Clear Memory




1. Repeatedly press  until *CM* displayed.

2. Press  .

# SECTION 2 – ADVANCE COMMANDS

## 2.1.0 Hold Mode

Hold mode prevents displayed weight from changing while moving.




1. Press ⏸ holds displayed weight, indicator flashes weight and *HOLD*.

   Press ⏸ returns indicator back to normal.
2. If weight added while in hold mode, press ON cancels hold.

## 2.2.0 Preset

Enter amount to be loaded or unloaded, alarm sounds as zero is approached.




1. Enter desired preset weight.
2. Press → (Note: indicator rounds weight to nearest display count.)
3. Once preset entered, display shows weight loaded or unloaded in one of three display modes shown in Section 2.4.0.

## 2.3.0 Clear Preset




1. Press CLEAR to clear preset value.

## 2.4.0 Preset Load




1. Press NET GROSS.

As ingredients load or unload display counts up or down to preset value alternates between flashing word *PRESET* and amount, until 5 percent of weight is loaded or unloaded.

## 2.5.0 Load/Unload Mode




1. Press NET GROSS .

Displays amount remaining to load or unload. As ingredients are loaded or unloaded, display counts down from entered weight to zero.

## 2.6.0 Net Mode

Displays weight added since preset entered. As ingredients are loaded or unloaded, display counts up or down.




1. Press NET GROSS twice.

## 2.7.0 Preload a Tare

For weighing containers after loading to exclude the weight of the container. If weight of container is known, a Tare weight is preloaded in indicator and only the Net weight of the product is displayed.




1. Enter 1103, then press SELECT to access Pre-Tare.
2. Press SELECT to enable the option.
3. Press → to return to weighing mode.
4. Press and hold ZERO for 3 seconds to zero balance the indicator.
5. Add weight to container.
6. Enter known weight of unloaded container.
7. Press TARE
8. Press NET GROSS

## 2.8.0 Pre-Alarm

"Early Warning" for Preset. Pre-alarm activates the alarm buzzer and light at a weight or percentage of preset value.




1. Enter **4001** press SELECT.
   Repeatedly press SELECT choose weight or percent.
2. Press → .
3. Enter number to activate pre-alarm.
4. Press → stores setting.

## 2.9.0 Tolerance

% ingredient can be under/over-loaded and still automatically advance.




1. Enter **4001** press SELECT.
2. Repeatedly press SELECT displays tolerance amount by percentage
3. Press → stores setting.
4. Enter number for tolerance setting
5. Press → stores setting.

**NOTE**: OFF Setting always advances after ingredient amount reached, if delay timer is set.

## 2.9.1 Preset Delay Time

Time indicator waits before automatically advancing/printing entered preset weight.




1. Enter **4006** press SELECT.
2. Using keypad, enter number (in seconds) before automatic advance/printing. (See note)
3. Press → stores setting.

**NOTE**: 0 Setting prevents auto-advance.

## 2.9.2 Rotation Counter

Indicator counts mixer auger rotations. Allows user to know how long feed has mixed.
**NOTE:** Feature requires optional Rotation Sensor kit.




1. Enter **4301** press SELECT.
2. Press SELECT to pick REV option.
3. Press →.
4. Press TIMER COUNTER
5. Enter number of rotations.
6. Press TIMER COUNTER rotation counter counts down. Counter reaches zero, alarm light and buzzer on.
7. Press CLEAR

## 2.9.3 Re-Start Rotation Counter




1. Press TIMER COUNTER twice (2X) starts rotation counter using previous count.

## 2.9.4 Setting Drive Ratio

Drive ratio is number of turns seen by sensor divided by number of mixing rotations.




1. Enter **4302** press SELECT.




2. Enter drive ratio.
3. Press .

## 2.9.5 Maintenance Message

Message can be used to alert the user of maintenance needed to be done on the equipment.

<u>Rotation Counter Sensor Kit (p/n 408088) required for this feature. For proper maintenance schedule, refer to your OEM equipment's operator's manual.</u>




1. Enter **8011** press SELECT. The user may edit the maintenance message using keypad.




2. "MANTMG 1" then edit maintenance message using key pad. Key pad "1" does; Example 1-A-B-C. Key pad "2" does; Example 2-D-E-F. When finished, press "ENTER". Example messages; "GREASE PTO SHAFT". Example; "CHANGE ENGINE OIL".

   There are 10 MANTMG windows to enter user's message. Six letters, spaces or numbers fit in one maintenance message window. The maintenance message scrolls as one message.

## 2.9.6 Hour Meter



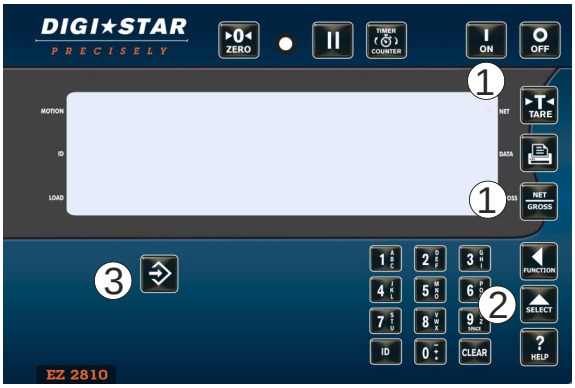

1. Then enter **8012** press 

.
2. Enter number of hours for maintenance message to be triggered using key pad, then press ENTER. For Example; 50 hours of equipment operation time, then maintenance message will be displayed on LCD.

   User will need to acknowledge message by pressing "ON" key. **Message will be displayed on each power cycle and every 4 hours of operation until user enters new maintenance time.** User can enter new time using D.A.N. 8012.

# SECTION 3 – OPTION MENUS

## 3.1.0 Access to Menus




1. Press and hold NET GROSS and ON .
2. Press SELECT for menus.
3. Press → to enter selected menu.




ONCE IN MENU:

4. Press → scrolls options.
5. Press SELECT changes options.
6. Press → saves changes.

# SECTION 4 – SETUP / CALIBRATION

## 4.1.0 Viewing and Changing Setup & Calibration Numbers

### 4.1.1 Setup Number




1. Enter 8711, press SELECT
2. Indicator shows *SETUP* briefly then shows a 6 digit number on LCD. This is the current Setup Number. Enter new number if required.
3. Press →

### 4.1.2 Calibration Number




1. Enter 8712, press SELECT
2. Indicator shows *SETUP* briefly then shows a 6 digit number on LCD. This is the current Calibration Number. Enter new number if required.
3. Press →

# SECTION 5 – DIRECT ACCESS NUMBERS (DAN #'S)

## 5.1.0 Options Changed By User

To display menus 1, 2, 3, 4, 5 and Calibrate:

1. Repeatedly press SELECT until MENU is displayed.
2. Press and hold FUNCTION.
3. Repeatedly press SELECT to select Menus1, 2, 3, 4, 5 or Calibrate.
4. Press → displays setting name and allows value changes.
5. Press either NET GROSS or SELECT to scroll through options for each setting/display.
6. Press → to save setting and next option for menu displays.

| SETTING [display] | D.A.N NO. | OPTIONS [displayed] BOLD=DEFAULT | | DESCRIPTION |
|---|---|---|---|---|
| **MENU 1 - GENERAL SETTINGS** | | | | |
| LANGUAGE (LANGAG) | 1001 | **English**<br>Dutch<br>French<br>German<br>Italian<br>Portuguese<br>Spanish<br>Danish<br>Hungarian<br>Spanish<br>Polish | **(**ENGLSH**)**<br>[NEDERL]<br>[FRANCS]<br>[DEUTSH]<br>[ITAL]<br>[PORT]<br>[ESPAN]<br>[DANSK]<br>[MAGYAR]<br>[VESTA]<br>[POLSKI] | Select language to be displayed. |
| DISPLAY RATE (DRATE) | 1002 | 1,2,3,**4,**6,7,8,9,10 | | Update display times per second. |
| SCALE ID SETUP (SCALID) | 1003 | **NEW EZ** | | Identity of scale location (truck id or Mixer number). |
| ZERO TRACK (ZTRACK) | 1004 | ON/**OFF** | | If ON -zero track adjust balance for buildup of snow & mud. |
| WEIGH METHOD (W MTHD) | 1005 | **1=General**<br>2=Fast<br>3=Slow | | Select weigh method. The speed the weight changes as shown on the LCD. |
| 1 PRESS ZERO (1 ZERO) | 1006 | **ON**/OFF | | If ON -press and hold Zero key to Zero/Balance scale. |
| AUTO OFF | 1007 | **OFF**, 15, 30, 45, 60 | | Indicator turns off after selected minutes of stable weight. |

| SETTING [display] | D.A.N NO. | OPTIONS [displayed] BOLD=DEFAULT | DESCRIPTION |
|---|---|---|---|
| (AUTOFF) | | | |
| DISPLAY UNIT (LB-KG) | 1008 | **LB**/KG | Display pounds – LB or Kilograms - KG |
| SCROLL DELAY (SCROLL) | 1101 | 0,1,2,3,**4,** 5, 6, 7, 8, 9 | Scroll rate for cold temperatures 0=normal 9=slowest |
| SAVE TARE (SAVTAR) | 1102 | ON/**OFF** | Saves tare weight to non-volatile memory. |
| PRELOAD TARE (PRETAR) | 1103 | ON/**OFF** | Tare weights can be entered using the numeric keypad. |
| TIME FORMAT (TIME F) | 1201 | 24 HR **AM/PM** | Select time format -AM/PM or 24 hours |
| TIME (TIME) | 1202 | XX:XX:XX, AM/PM | Enter changes hh:mm:ss (use numeric keypad) use function key to change between hh:mm:ss. Then choose AM/PM. |
| DATE FORMAT (DATE F) | 1203 | 1-mm-dd<br>2-mm/dd/yy<br>3-mm/dd/yyyy<br>4-dd-mm<br>5-dd/mm/yy<br>6-dd/mm/yyyy<br>**7-ddmmyy**<br>8-ddmmyyyy | Select date format |
| DATE (DATE) | 1204 | Enter ddmmyy | Select key changes date or numerical keys -function key chooses dd/mm/yy. |
| DATE CHECK (DT CHK) | 1205 | **ON**/OFF | Verifies the real time clock has a valid date at power up. |
| REMOTE INPUT 1 (RMINP1) | 1401 | **TARE**, PRINT, HOLD, NETGRS, M+, ZERO,OFF, PRESET, SWITCH | Sets function of remote input line on the power cord. |
| REMOTE 1 SWITCH MESSAGE (RI1MSG) | 1402 | OPEN,--,-+,-*,-0, -1,-2,-3, -4,-5,-6,-7,-8,-9,-A,-B,-C, -D,-E,-F,-G,-H,-I,-J,-K,-L, -M,-N,-O,-P,-Q,-R,-S,-T,-U, -V,-W,-X,-Y,-Z | Message that is displayed for remote input condition. D.A.N. 1401 set to “switch”. |
| REMOTE 1 SWITCH STATE (R1STAT) | 1403 | OPEN/**CLOSED** | Set remote input line state that displays message and/or illuminates alarm lamp. D.A.N. 1401 set to “switch”. |
| REMOTE 1 SWITCH MESSAGE TIME (R1TIME) | 1404 | 1...**2**-9 | Set how often the remote switch message is displayed. Once every 1-9 seconds. D.A.N. 1401 set to “switch”. |
| REMOTE INPUT 2 (RMINP2) | 1411 | **TARE**, PRINT, HOLD, NETGRS, M+, ZERO, TR HLD, OFF, PRESET, SWITCH | Sets function of remote input line on the remote port. |
| REMOTE 2 SWITCH | 1412 | OPEN | Message that is displayed for remote input condition. D.A.N. 1411 set to “switch”. |

| SETTING [display] | D.A.N NO. | OPTIONS [displayed] BOLD=DEFAULT | DESCRIPTION |
|---|---|---|---|
| MESSAGE (RI2MSG) | | | |
| REMOTE 2 SWITCH STATE (R2STAT) | 1413 | OPEN/**CLOSED** | Set remote input line state that displays message and/or illuminates alarm lamp. D.A.N. 1411 set to “switch”. |
| REMOTE 2 SWITCH MESSAGE TIME (R2TIME) | 1414 | 0...**2**-9 | Set how often the remote switch message is displayed. Once every 1-9 seconds. D.A.N. 1411 set to “switch”. |
| PROGRAM ID (PRG ID) | 1998 | | Displays current software version |
| ESTIMATED WEIGHT (EST WT) | 1999 | Enter weight value using key pad. Then press enter. | Manually adjust Gross weight of scale by changing zero/balance. Press “on” to continue. |
| MENU 2 - COMMUNICATIONS FEATURES | | | |
| REMOTE (REMOTE) | 2001 | ON/**OFF** | If ON indicator communicates with Cab Control Display |
| SCALE NUMBER (SCL NO) | 2002 | **1**,2,3,4,5,6,7,8,9,10,11,12, 13,14,15,16,17,18,19,20, 21,22,23,24 | Select scale number for cab control communication |
| EXTERNAL RADIO (EXTRAD) | 2003 | ON/**OFF** | Enables external radio to be connected to the J905 port. |
| DDL ATTACHED (DDL) | 2004 | YES/**NO** | Enables connection of a DDL (Data DownLoader) |
| SCOREBOARD MODE (SCOREM) | 2101 | **0**,1,2,3,4,5,6,7,8,11,12,15, 27,37,38,39 | Select scoreboard output |
| ZERO OUTPUT (ZEROUT) | 2102 | | Allows zero/balance for SCOREM #11 serial gross weight. |
| FRONT PANEL ZEROUT (ZEROFP) | 2103 | **OFF/**ON | Allows use of the zero key to zero/balance the serial gross weight. |
| OPERATION STATUS (OPSTAT) | 2111 | **0**, 2 | Select operating data to be sent to a Remote Terminal |
| COM 1 BAUD RATE (C1 BD) | 2201 | 1200,2400, 4800, **9600**, 14400, 19200, 38400, 57600, 115200 | Sets baud rate for com port #1 |
| COM 1 PARITY (C1 PA) | 2202 | NONE, ODD, **EVEN** | Sets parity for com port #1 |
| COM 1 DATA BITS (C1DATA) | 2203 | **7** , 8 | Sets data bits for com port #1 |
| COM 1 DELAY (C1 DLY) | 2204 | 0, **.10**, .25, .50, .75, 1-5 | Selects seconds to delay before advancing to next line. |
| COM 2 BAUD RATE | 2211 | 1200,2400, 4800, **9600**, 14400, 19200, 38400, | Sets baud rate for com port #2 |

| SETTING [display] | D.A.N NO. | OPTIONS [displayed] BOLD=DEFAULT | DESCRIPTION |
|---|---|---|---|
| (C2 BD) | | 57600, 115200 | |
| COM 2 PARITY (C2 PA) | 2212 | **NONE**, ODD, EVEN | Sets parity for com port #2 |
| COM 2 DATA BITS (C2DATA) | 2213 | 7 , **8** | Sets data bits for com port #2 |
| COM 2 DELAY (C2 DLY) | 2214 | 0, **.10**, .25, .50, .75, 1-5 | Selects seconds to delay before advancing to next line. |
| TARE AUTO PRINT (TAREAP) | 2301 | ON/**OFF** | If ON -tare auto-prints displayed weight. |
| ONE LINE PRINT (1L PRT) | 2302 | ON/**OFF** | If ON -indicator data prints on one line. |
| AUTO PRINT (APRINT) | 2303 | ON/**OFF** | If ON -pressing keys auto-prints weight values. |
| PRINT FORMAT (PRTFMT) | 2304 | **AUTO**, WTONLY, DOWNLD, DT+TM, ID+TM, IDWTTM, BATCH1, PRTAC1, PRTAC2, PRTAC3, PRWTRC, WTRCTM,3200-A, 3200-B, SCLABC | Select alternate & comma (CSV) formats. |
| PRINT ACCUMULATION (PRTACC) | 2305 | | Shows a running total of weights printed. |
| REMOTE DISPLAY (RMDISP) | 2401 | **EZ2,** EZ3MUX, COG,NONE | Select type of remote display |
| REMOTE TERMINAL (RMTERM) | 2402 | ON/**OFF** | Sends display data to serial remote terminal interface |
| BAR GRAPH MODE (BARGRP) | 2411 | OFF, **RIGHT**, LEFT, MIDOUT, MID IN | Selects output for a bar graph display when used with an RD4000 Remote Display |
| WEIGHT GRAPH (WTGRPH) | 2412 | **ON**/OFF | Enables graph to be used with weight when used with a RD4000 Remote Display. |
| BAR WEIGHT (BAR WT) | 2413 | **12000** | Enter the full scale gross weight for the bar graph display. |
| PRESET GRAPH (PRGRPH) | 2414 | **ON**/OFF | Enables graph to be used with presets when used with an RD4000 Remote Display. |
| TIMER GRAPH (TMGRPH) | 2415 | **ON**/OFF | Enables graph to be used with timers when used with an RD4000 Remote Display. |
| MENU 3 - MOTION & WEIGHT | | | |
| DISPLAY COUNT (COUNT) | 3001 | .01,.02,.05,.1,.2,.5,1,2,5,**10**,20, 50,100 | Select display count size of weigh values. |
| CAPACITY (CAP) | 3002 | **40,000** | Enter MAXIMUM weight measurable on scale. |

| SETTING [display] | D.A.N NO. | OPTIONS [displayed] BOLD=DEFAULT | DESCRIPTION |
|---|---|---|---|
| WM1 ADJUST 1 (WMA1-1) | 3003 | **10** thru 19 | Increase this number to smoothing weighing |
| WM1 ADJUST 2 (WMA1-2) | 3004 | 0 thru 9 | 0=off. Use value less than WMA1-1 for quick response weight. |
| WM1 ADJUST 3 (WMA1-3) | 3005 | **4000** | Enter the weight to active quick response weight Default-10% of scale capacity |
| WM2 ADJUST 1 (WMA2-1) | 3006 | **30** thru 39 | Increase this number to smoothing weighing |
| WM2 ADJUST 2 (WMA2-2) | 3007 | **10** thru 19 | 10=off. Use value less than WMA2-1 for quick response weight. |
| WM2 ADJUST 3 (WMA2-3) | 3008 | **4000** | Enter the weight to active quick response weight Default-10% of scale capacity |
| MOTION (MOTION) | 3101 | ON/**OFF** | ON = Motion arrow flashes with unstable weight. Prevents: Print, Zero, Tare, Advance |
| MOTION WEIGHT (MOT WT) | 3102 | **0** | Enter weight used to detect motion. 0=Standard detection |
| MENU 4 - PRESET, ALARM, and TIMER | | | |
| PRE ALARM METHOD (P MTHD) | 4001 | **WEIGHT,** PERCENT | Select weight or percentage method for pre-alarm |
| PRE-ALARM (P-ALM) | 4002 | **100** | Enter a value to activate an early warning that indicator is reaching the preset. |
| ALARM OUTPUT (AL OUT) | 4003 | OFF, **PRESET**, TR | Select preset or TR to control relay, horn & lamp. |
| BUZZER (BUZZER) | 4004 | OFF, **ON**, 1-10 | ALARM BUZZER -allows user to turn off alarm horn when loading/unloading |
| RELAY (RELAY) | 4005 | OFF, **PRESET**, SETPNT | Selects the behavior of the +12VDC alarm output |
| PRESET DELAY (PRTDLY) | 4006 | **0** thru 9 | Set time to automatically advance/print entered preset |
| GROSS SET PNT OUTPUT (SETOUT) | 4101 | **OVER**/UNDER | Select when the +12VDC Alarm Output becomes active. |
| GROSS SET POINT CHNG (SETCHG) | 4102 | **500** | Set required weight change to turn off +12VDC Alarm Output. |
| GROSS SET POINT DELAY (SETDEL) | 4103 | **0** thru 9 | Set time delay before the +12VDC Alarm Output can Turn On/Off. |
| GROSS SET POINT (SETPNT) | 4104 | **5000** | Set a gross weight in long form that will activate +12VDC Alarm Output on Power cord. |
| SET POINT COUNT (SETCTR) | 4105 | **0** thru 9 | Counts how many times set point is activated. |
| SET POINT WEIGHT | 4106 | SERIAL**/NORMAL** | Sets weight source for use with set point feature. |

| SETTING [display] | D.A.N NO. | OPTIONS [displayed] BOLD=DEFAULT | DESCRIPTION |
|---|---|---|---|
| SOURCE (STWTSC) | | | |
| TOLERANCE METHOD (T MTHD) | 4201 | **WEIGHT,** PERCENT | Select weight or percentage method for preset tolerance |
| TOLERANCE (TOLER) | 4202 | **0 thru 9** | Select tolerance weight percentage to accept preset. |
| TOLERANCE OVERLOCK (OVERLK) | 4203 | **OFF**/ON | Prevents auto-advancing if preset exceeds tolerance |
| TIMER, COUNTER (TMRCTR) | 4301 | **TIMER,** COUNTER | Select time or mixer revolutions to decrement mix timer/counter. |
| DRIVE RATIO (DRATIO) | 4302 | 0001.00 | Enter the number of input pulses that equal 1 mixer revolution. REVCTR needs to be enabled in the setup options. D.A.N. 4301 set to COUNTER. |
| MENU 5 - COM PORT SETUP | | | |
| REMOTE DISPLAY PORT (RMDPRT) | 5001 | OFF, COM1, **COM2**, COM3 | Sets serial remote display output |
| RADIO PORT (RADPRT) | 5002 | OFF, COM1, COM2, **COM3** | Sets internal radio port |
| EXTERNAL RADIO PORT (EXRPRT) | 5003 | OFF, COM1, **COM2**, COM3 | Sets external radio port |
| PRINTER PORT (PRPORT) | 5005 | OFF, COM1, **COM2**, COM3 | Sets printer port |
| SCOREBOARD PORT (SCPORT) | 5006 | OFF, **COM1**, COM2, COM3 | Sets scoreboard port |
| OPSTAT PORT (OPSTAT) | 5007 | OFF, **COM1**, COM2, COM3 | Sets opstat port |
| DDL PORT (DDLPRT) | 5009 | OFF, **COM1**, COM2, COM3 | Sets DDL port |
| 20MA MIRROR PORT (20MAMR) | 5011 | OFF, COM1, **COM2**, COM3 | Sets port for 20MA signal to mirror |
| RECIPE PORT (RECPRT) | 5012 | OFF, COM1, **COM2**, COM3 invalid | Sets recipe output port |
| DEBUG PORT (DBGPRT) | 5999 | **OFF**, COM1, COM2, COM3 | Sets debugger port |
| SETUP FEATURES | | | |

| SETTING [display] | D.A.N NO. | OPTIONS [displayed] BOLD=DEFAULT | DESCRIPTION |
|---|---|---|---|
| SIGNON SETTING (SIGNON) | 8001 | **OFF**,ON | Enables continuous display of sign-on message |
| SIGNON MESSAGE (SIGMSG) | 8002 | SIGMSG 1,2,3 | Enables editing of the sign-on message |
| MAINTENANCE MESSAGE (MANTMG) | 8011 | MANTMG 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 | Enables editing of the maintenance message |
| MAINTENANCE MESS. TIME (MANTTM) | 8012 | Time is entered using key pad. | Time for maintenance message to be triggered. |
| DEAD WEIGHT CAL (WT CAL) | 8121 | Follow instructions shown on LCD | Calibration method using weights |
| TEMPERATURE CALIBRATION (T CALB) | 8123 | OFF/**ON** | On=Scale adjusts for temperature changes |
| INDICATOR SETUP INFO (DS>SER) | 8299 | | Downloads all setup information to the serial port |
| KEYTEST | 8888 | | Enables front panel key test |
| SETUP & CALIBRATION | | | |
| SETUP NUMBER (SETUP) | 8711 | **146040** | Quick entry method selects weigh method 1-4 lbs, 5-8 kg, gain 1-9, display counts 1-9 and capacity *1000 |
| Calibration Number (CAL) | 8712 | **32640** | Weight displayed at 0.4mV/V |

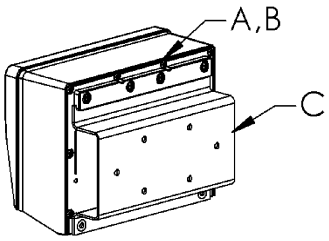
# SECTION 6 – INSTALLATION

## 6.1.0 Indicator Mounting

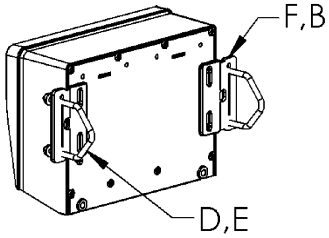
For most applications the equipment manufacturer provides the necessary mounting system and hardware, and mounts the Indicator for the End User.

Digi-Star provides a number of mounting options that allow the end user to customize the location and placement of the Indicator. The following section provides a list of the optional mounts.

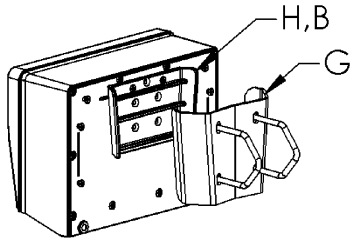
In all cases the Digi-Star Indicator must be securely mounted to the equipment. Loose, or unsupported, Indicators can be damaged.




**STD UNIVERSAL MOUNT TALL**

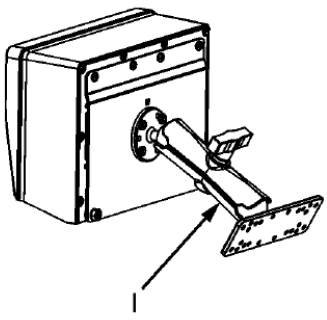


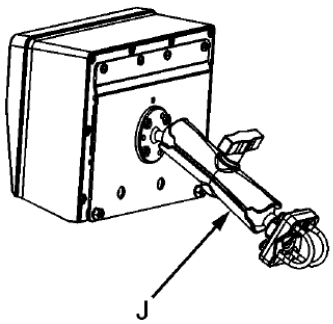

**WING MOUNT**

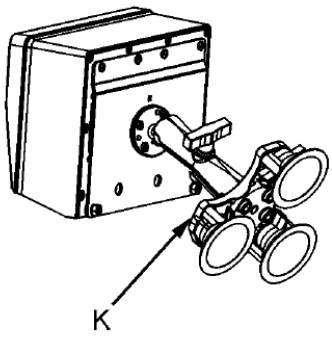



**WEDGE MOUNT**

| KEY | PART NUMBER | DESCRIPTION |
|---|---|---|
| A | 404353 | BRACKET-EZ3 PLASTIC RAIL * |
| B | 403780 | SCR-#10 X 5/8 FHSTS BLACK ZP |
| C | 840459 | SUPPORT-HAT BRACKET |
| D | 405069 | U-BOLT 1/4-20 X 3.25 ZP |
| E | 405084 | NUT-1/4-20 TOP LOCKING FLANGE |
| F | 403770 | BRACKET- WING MOUNT * |
| G | 405124 | PACK-WEDGE MOUNT BRACKET WITH U-BOLTS & FLANGE NUTS |
| H | 405244 | EZ3 WEDGE MOUNT |

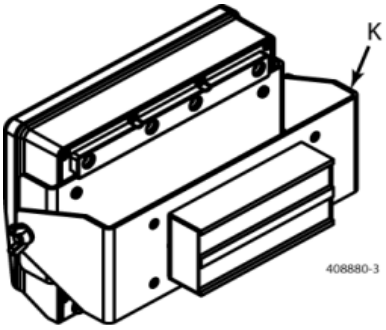


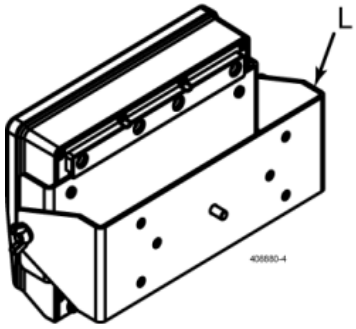



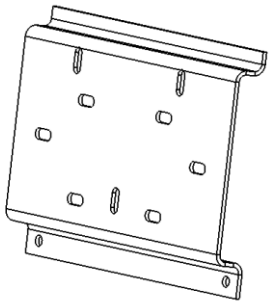
## RAM MOUNT

| KEY | PART NUMBER | DESCRIPTION |
|---|---|---|
| I | 404799 | KIT-1.5” RAM MOUNT WITH BOLT-ON BASE WITH HARDWARE |
| J | 407544 | KIT-1.5” RAM MOUNT WITH DUAL U-BOLTS (FITS 0.5”-1.5” ROUND) |
| K | 407434 | KIT-1.5” RAM MOUNT WITH TRIPLE SUCTION CUP BASE |




M



## SIDE AND UNIVERSAL MOUNTS

| KEY | PART NUMBER | DESCRIPTION |
|---|---|---|
| K | 408880 | MOUNT FOR LARGE INDICATORS WITH HARDWARE AND MAGNET |
| L | 408828 | MOUNT FOR LARGE INDICATORS WITH HARDWARE WITHOUT MAGNET |
| M | 408199 | UNIVERSAL MOUNT SHORT |

## 6.2.0 Cable Connections

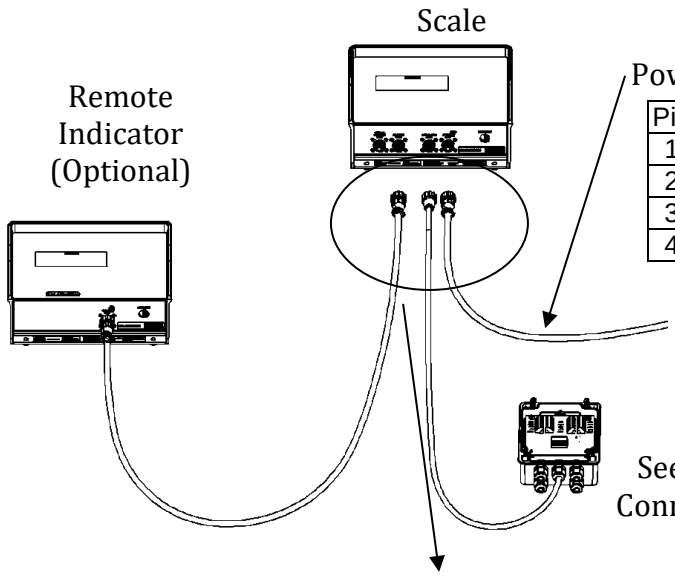
For accurate and reliable operation care should be taken when routing and connecting cables to the Digi-Star Indicator.

- Cables should be secured and protected from damage and abrasion.
- Long cables should not “hang” by the cable connector at the Indicator but should be secured to a structure close to the Indicator leaving a short “tail” to connect to the Indicator

Special Considerations for Power (+) and Ground (-):

- The Digi-Star Indicator is designed to operate at a continuous voltage ranging from 10.5 to 16.0 volts.
- Intermittent voltage drops to as low as 9.0 volts, such as when starting an engine, will be tolerated. Continuous low voltage will result in a Low Voltage warning on the display or the Indicator will power off.
- Voltage spike above 16 volts will damage the Indicator. Never weld or charge the battery on the equipment that the Indicator is mounted to without disconnecting the Indicator power cord. Never operate an Indicator on equipment with an engine charging circuit when the battery has been removed.
- Digi-Star recommends that the red power (+) and black ground (-) are connected as follows:
- Power (+) can be either switched or keyed On & Off, or un-switched and always On.

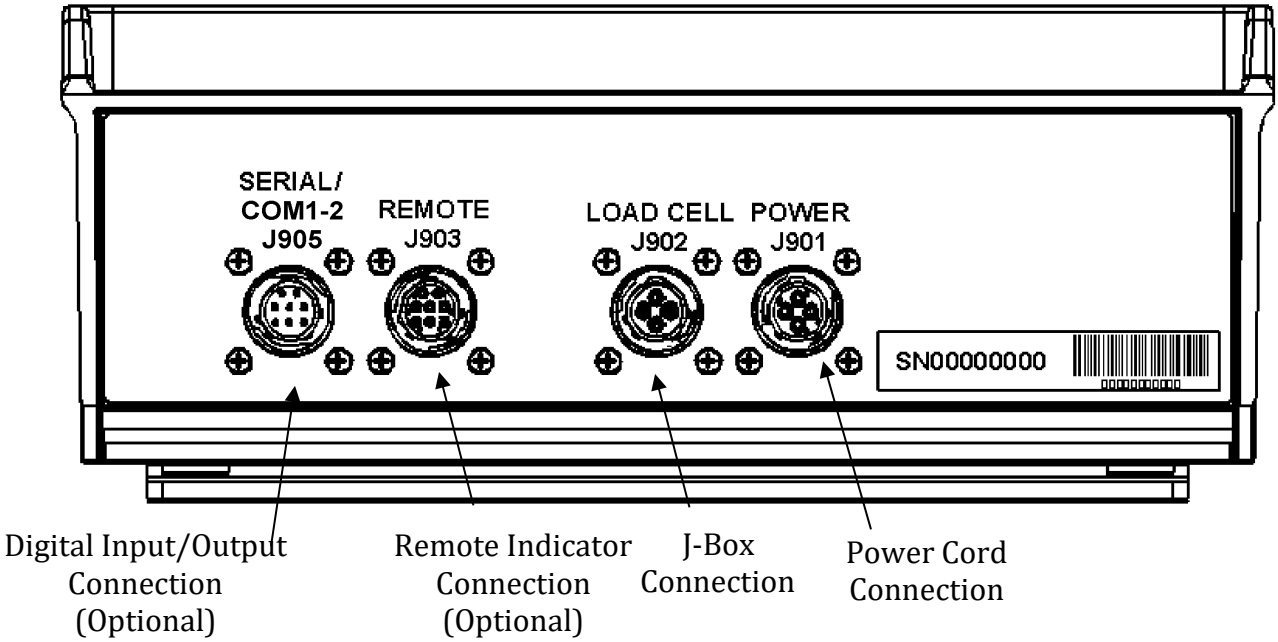
- Power (+) and Ground (-) should come from a dedicated auxiliary power source when provided. When auxiliary power sources are not provided power should come from the main power distribution system.
  - Fuse or circuit protection of at least 5 amps, but no more than 10 amps, should be provided. Although the Indicator is protected internally by an internal fuse a fuse or circuit protection is required to protect the power cable and equipment.
  - Ground (-) connection should be made to a main ground (the battery ground (-) is often connected to this location). Do not use the chassis or frame of the equipment as a ground.




| Pin | To 12VDC Power Supply | |
|---|---|---|
| 1 | Red | +Terminal |
| 2 | Black | -Terminal |
| 3 | Orange | Alarm Out |
| 4 | Blue | Remote Input |

Indicator Connection Diagram

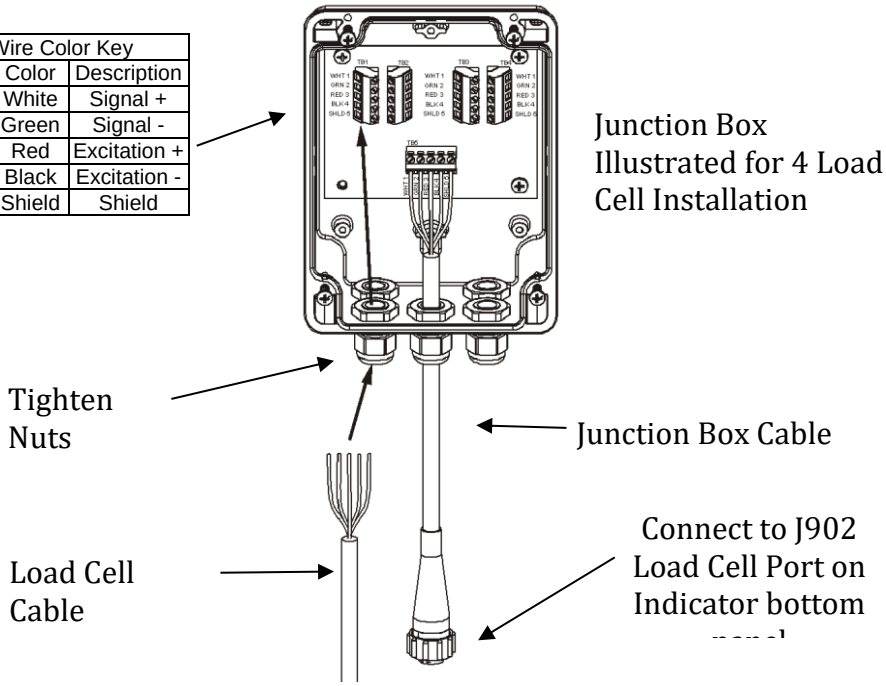
**Bottom Panel Cable Connections**



## 6.3.0 Connecting Load Cells to Junction Box

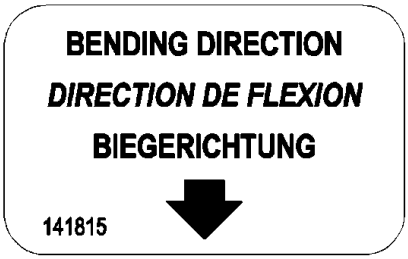
Connect load cell wires to terminal blocks. See Wire Color Key below.

| Wire Color Key | | |
|---|---|---|
| | Color | Description |
| 1 | White | Signal + |
| 2 | Green | Signal - |
| 3 | Red | Excitation + |
| 4 | Black | Excitation - |
| 5 | Shield | Shield |




**Junction-Box Connection**

## 6.4.0 Load Cell Direction




Observe direction of arrow when installing or replacing load cells.

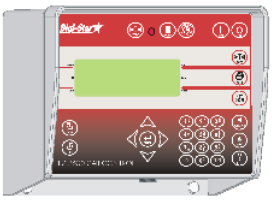
# SECTION 7 - OPTIONAL EQUIPMENT

Digi-Star offers a wide range of optional equipment that can improves productivity, increase loading accuracy, and improve record keeping. Additional details can be found on the Digi-Star website at: www.digi-star.com

## 7.1.0 Cab Controls (Wireless)







**Features**

- Wireless Remote Display with full key control of Indicator
- Mount remote in easy view of loading
- Improves loading accuracy

**Functions**

- Mounts in cab of loader or where wired remote is not practical.
- Will communicate with multiple mixers

**Specifications**

- 2.4 GHz & 900 MHz radios

## 7.2.0 Remote Displays




- RD440 small backlit display with 1” tall numbers. (Not Shown)
- RD2500V standard backlit display with 1.7” tall numbers.
  - Optional wireless T/R available. Allows user to remote Tare or Advance Indicator.
- RD4000LED ultra-bright display with 4” tall numbers. (Not Shown)

## 7.3.0 Transmitter/Receiver




Transmitter (shown) with factory installed receiver in indicator. Use to zero indicator from a remote location. Operating range up to 90' (27m).

## 7.4.0 Printer Option




**ICP-300 Printer**

- Lightweight compact thermal printer with an easy-load paper feature
- High speed, high resolution printing capability
- Part Number: P/ICP300/DS

**Indicator D.A.N. Settings for ICP-300**

If PRPORT(5005) = COM 1
2201 = 2400
2202 = NONE
2203 = 8

If PRPORT(5005) = COM 2
2211 = 2400
2212 = NONE
2213 = 8

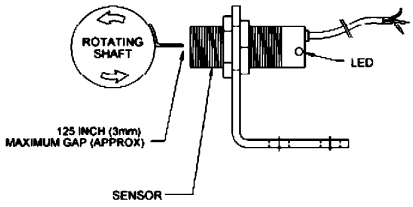
## 7.5.0 Data Transfer Option




Kit Data Down Loader (DDL)

Allows transfer of data from Indicator to PC. (Optional Serial communication port must already be installed in Indicator)

## 7.6.0 Rotation Counter Sensor (Kit p/n: 408088)

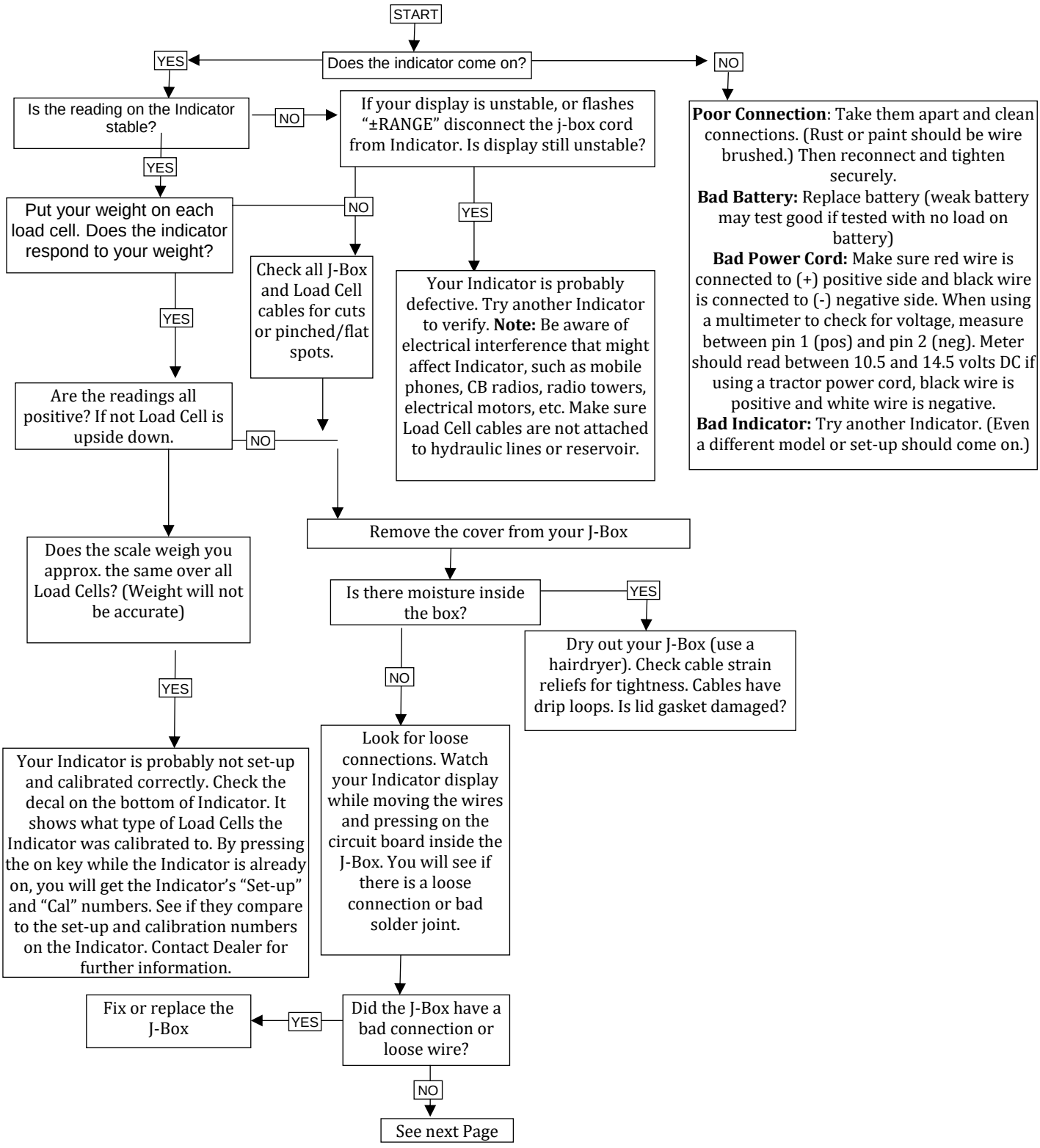



Use with Indicator for: Timer, Rotation, Hour Meter, or Maintenance Message functions.

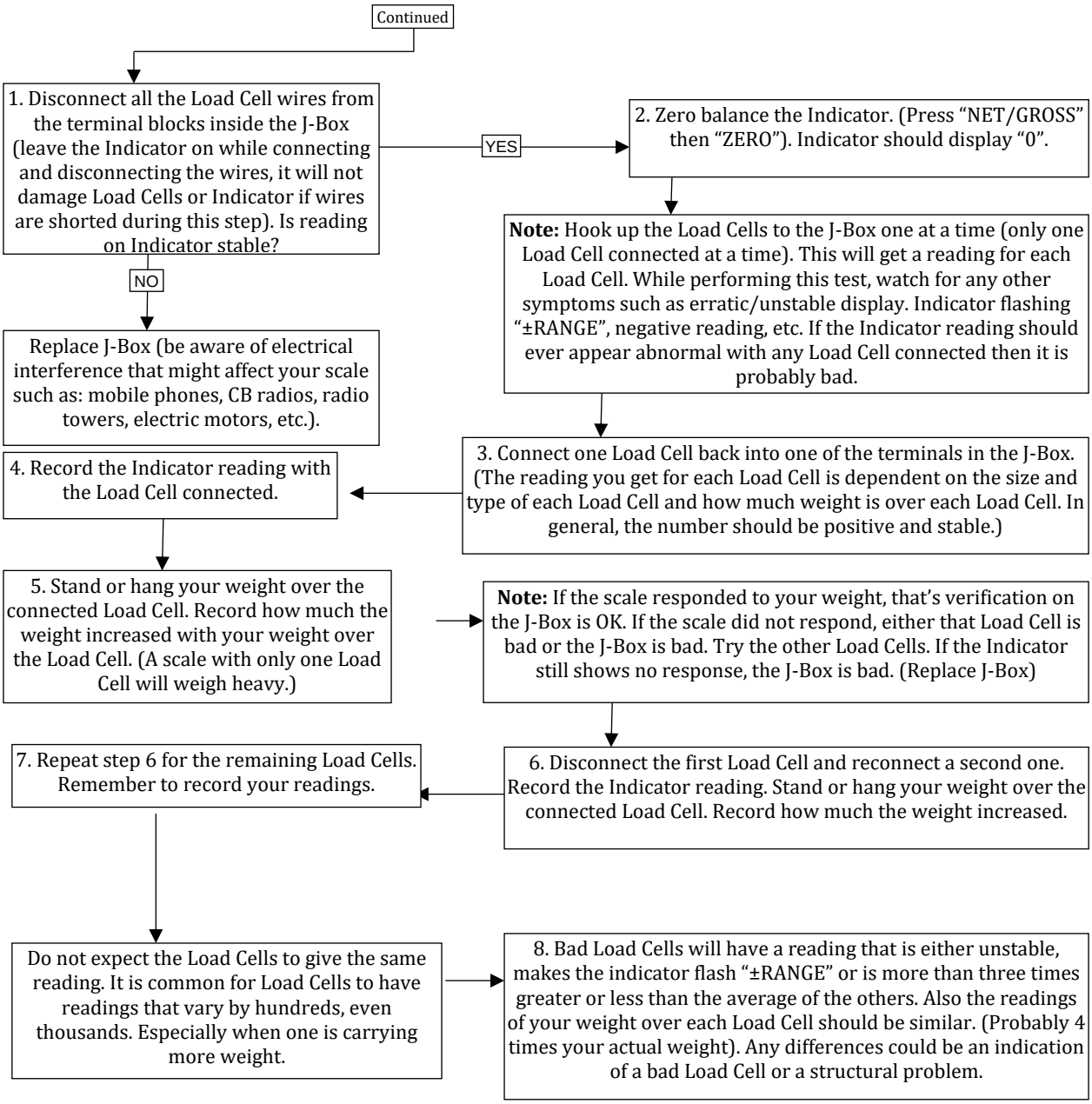
# SECTION 8 — TROUBLESHOOTING

## 8.1.0 Flow Chart

### FLOW CHART

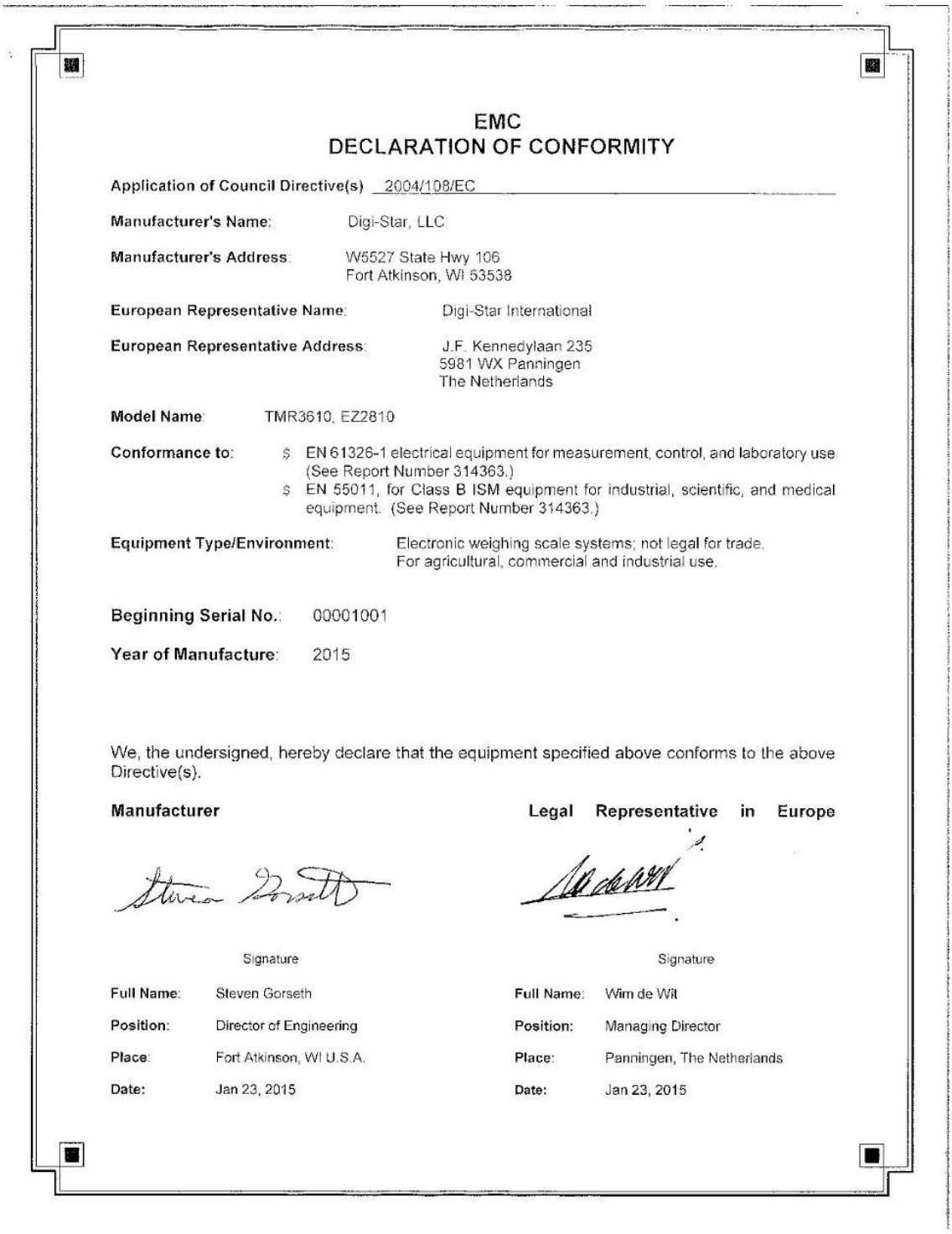


## FLOW CHART


Continued
1. Disconnect all the Load Cell wires from the terminal blocks inside the J-Box (leave the Indicator on while connecting and disconnecting the wires, it will not damage Load Cells or Indicator if wires are shorted during this step). Is reading on Indicator stable?
YES
2. Zero balance the Indicator. (Press "NET/GROSS" then "ZERO"). Indicator should display "0".
NO
Replace J-Box (be aware of electrical interference that might affect your scale such as: mobile phones, CB radios, radio towers, electric motors, etc.).
Note: Hook up the Load Cells to the J-Box one at a time (only one Load Cell connected at a time). This will get a reading for each Load Cell. While performing this test, watch for any other symptoms such as erratic/unstable display. Indicator flashing "±RANGE", negative reading, etc. If the Indicator reading should ever appear abnormal with any Load Cell connected then it is probably bad.
3. Connect one Load Cell back into one of the terminals in the J-Box. (The reading you get for each Load Cell is dependent on the size and type of each Load Cell and how much weight is over each Load Cell. In general, the number should be positive and stable.)
4. Record the Indicator reading with the Load Cell connected.
5. Stand or hang your weight over the connected Load Cell. Record how much the weight increased with your weight over the Load Cell. (A scale with only one Load Cell will weigh heavy.)
Note: If the scale responded to your weight, that's verification on the J-Box is OK. If the scale did not respond, either that Load Cell is bad or the J-Box is bad. Try the other Load Cells. If the Indicator still shows no response, the J-Box is bad. (Replace J-Box)
6. Disconnect the first Load Cell and reconnect a second one. Record the Indicator reading. Stand or hang your weight over the connected Load Cell. Record how much the weight increased.
7. Repeat step 6 for the remaining Load Cells. Remember to record your readings.
Do not expect the Load Cells to give the same reading. It is common for Load Cells to have readings that vary by hundreds, even thousands. Especially when one is carrying more weight.
8. Bad Load Cells will have a reading that is either unstable, makes the indicator flash "±RANGE" or is more than three times greater or less than the average of the others. Also the readings of your weight over each Load Cell should be similar. (Probably 4 times your actual weight). Any differences could be an indication of a bad Load Cell or a structural problem.

# SECTION 9 – DECLARATIONS & CERTIFICATES

## 9.1.0 Declaration of Conformity (EU)



EMC
DECLARATION OF CONFORMITY

**Application of Council Directive(s)** 2004/108/EC

**Manufacturer's Name:** Digi-Star, LLC

**Manufacturer's Address:** W5527 State Hwy 106
Fort Atkinson, WI 53538

**European Representative Name:** Digi-Star International

**European Representative Address:** J.F. Kennedylaan 235
5981 WX Panningen
The Netherlands

**Model Name:** TMR3610, EZ2810

**Conformance to:**
- $ EN 61326-1 electrical equipment for measurement, control, and laboratory use (See Report Number 314363.)
- $ EN 55011, for Class B ISM equipment for industrial, scientific, and medical equipment. (See Report Number 314363.)

**Equipment Type/Environment:** Electronic weighing scale systems; not legal for trade. For agricultural, commercial and industrial use.

**Beginning Serial No.:** 00001001

**Year of Manufacture:** 2015

We, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s).

| **Manufacturer** | | **Legal Representative in Europe** | |
|---|---|---|---|
| Signature | | Signature | |
| **Full Name:** | Steven Gorseth | **Full Name:** | Wim de Wit |
| **Position:** | Director of Engineering | **Position:** | Managing Director |
| **Place:** | Fort Atkinson, WI U.S.A. | **Place:** | Panningen, The Netherlands |
| **Date:** | Jan 23, 2015 | **Date:** | Jan 23, 2015 |

## 9.2.0 Legal-for-Trade Certification

Not presently available

## 10.0.0 NOTES