



EZ2400

Operators Manual



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TECHNICAL SPECIFICATIONS

SIZE

10.25" long x 8.0" high x 4" wide (260mm x 190mm)

WEIGHT

4.5 lbs (2.04 Kg)

HELP MESSAGES

Context sensitive help messages in 10 languages

Long messages are scrolled

TRANSDUCER EXCITATION

8 volts D.C. Nominal

Capable of driving ten 350 Ohms transducers
Short circuit proof**ATC**

Auto Temperature Compensation of the internal circuitry for high accuracy weighing measurements

TRANSDUCER SIGNAL

Compatible with transducers having full scale indicator transfer characteristics greater than 0.25 mv/v

"AUTO RANGE"

(Selectable) To increase display counts at weight values of 300 and 600 display counts.

CONNECTOR

AMP plastic weather resistant circular connector. Gold 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

GROSS RANGE

999,999 max. display

LOW BATTERY WARNING

Enabled at 10.5V nominal

POUND/KILOGRAM

Selectable

DISPLAY

STD EZ 6 Digit LCD 1.0" high

EZ VIEW 6 Digit 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 ALGORITHM4 internally selectable digital filters to optimize performance
(General, Slow, Fast and Lock-on)**HOLD MODE**

Used in mobile applications to stabilize displayed weight while moving the scale

NON-VOLATILE MEMORY

EEPROM for balance

OPERATING TEMP

-29°C to 60°C

-20°F to 140°F

REMOTE INPUTS

Tare / Advance Recipe / Re-enter Preset

SAFETY DURING USE



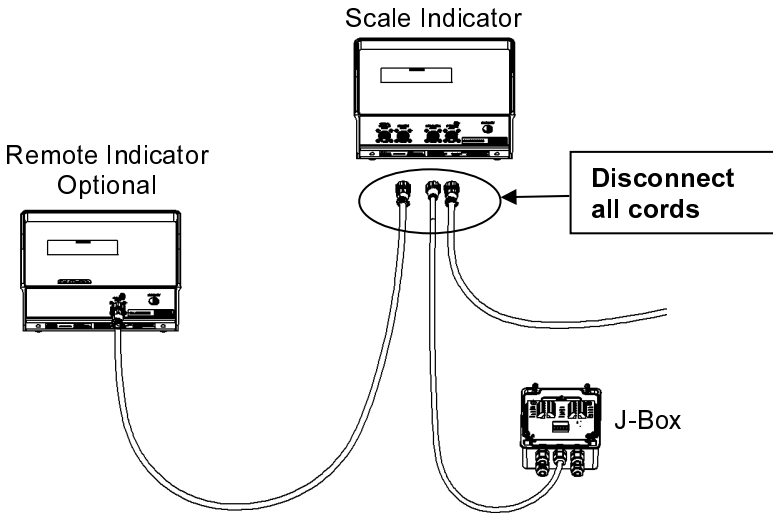
Caution

Cleaning

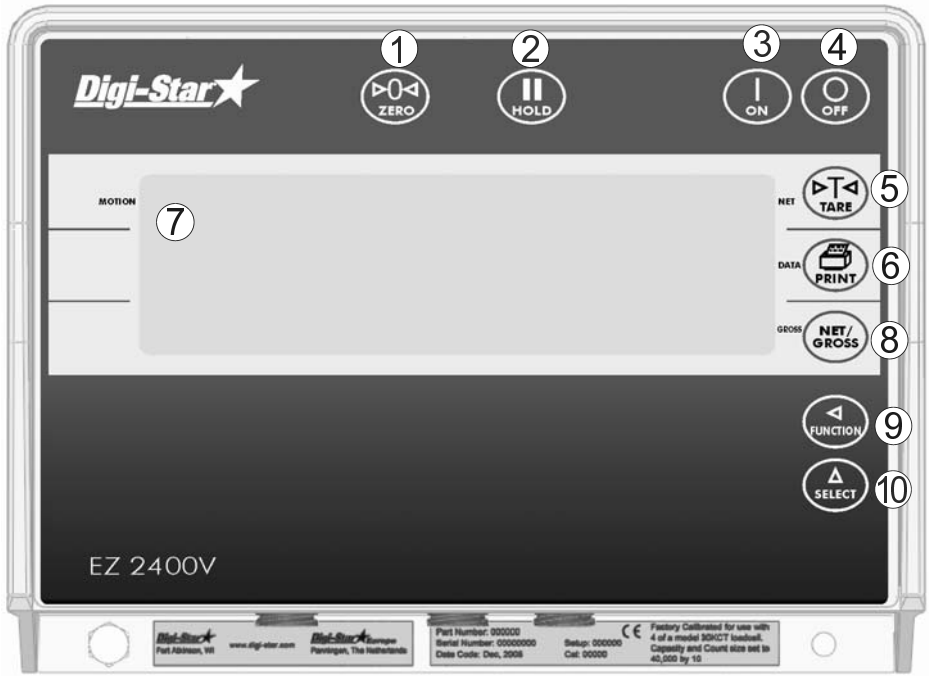
Do not use running water (high pressure cleaners, hoses) to clean the indicator.

Charging Battery and Welding










Disconnect all cables from the weighing indicator before charging the battery or welding on the machine. If cables are left connected, the weighing indicator and connected load cells could be damaged.

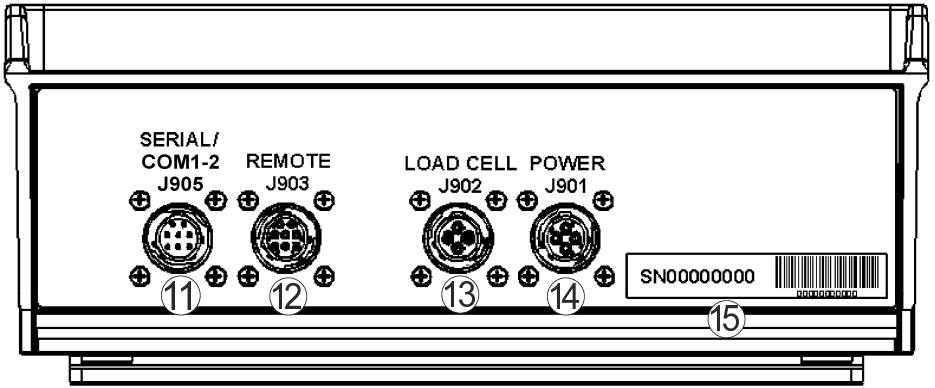


INDICATOR OVERVIEW



Note: See page 17-19 for installation instructions.

- ①  – press and hold for 3 seconds to zero balance indicator.
- ②  – holds displayed weight press to release.
- ③  – turns indicator on. Press while on runs self test.
- ④  – turns indicator off.
- ⑤  – temporary zero (Net Mode).
- ⑥  – records to memory or prints displayed weight.
- ⑦ Display Window – Displays current actions.
- ⑧  – toggles between Net and Gross weights.
- ⑨  – performs task displayed by select.
- ⑩  – displays additional tasks.




- ① Serial/Printer Port- optional, to communicate with computer and other digital input/output devices.
- ② Remote Port – optional, for remote display.
- ③ Load Cell Port – for J-Box cord.
- ④ Power Port – for power cord.
- ⑤ Serial Number Plate – Serial Number of indicator.

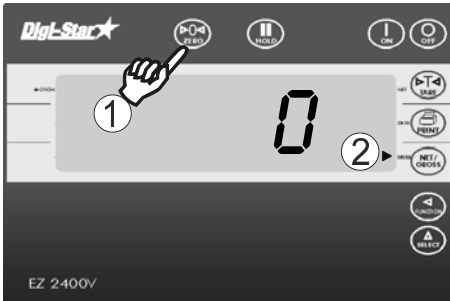
OPERATION


Turn on Indicator




1. Press .

Zero Balance Indicator




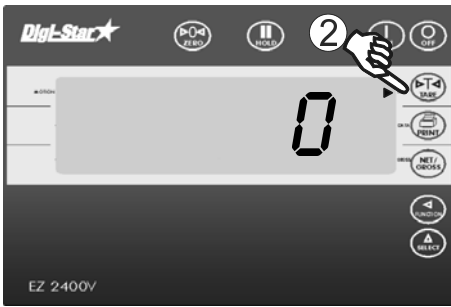
1. Press and hold  for 3 seconds to zero balance indicator.
2. Flashing arrow points to gross next to the display window, indicator ready to weigh.

Tare and Net/Gross

Tare is a temporary zero (Net Weight) to display total weight (Gross Weight)
Press .



1. Weight displayed, press  sets zero weight.




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




3. Add more weight.



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




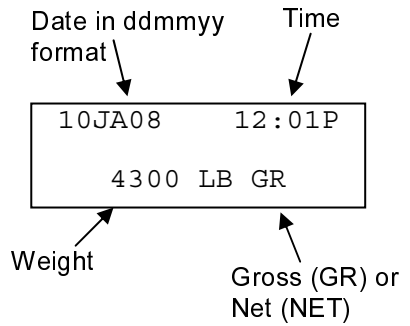
5. Press  300 pounds displayed flashing arrow points NET.

Print Key

Note: Optional serial port must be installed for printing.



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

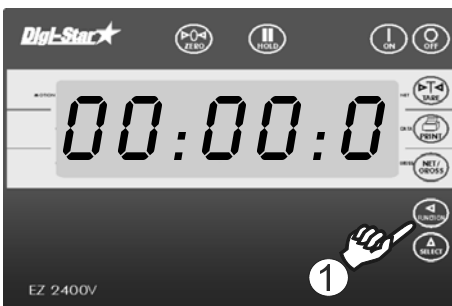



Timer Option

Stopwatch for mixing time.







1. Repeatedly press  until **TIMER** is displayed.



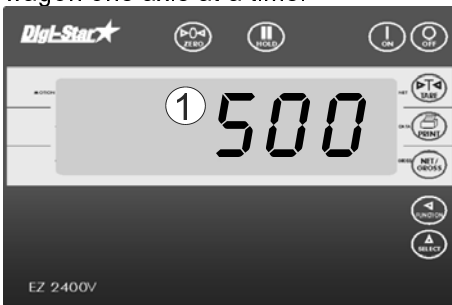
1. Press  to displays hours, minutes and seconds (hh:mm:ss).



1. Repeatedly press  moves flashing digit left.
2. Repeatedly press  changes number.
3. Press  to start timer.
4. When timer reaches zero press  to clear timer.

Using the M+, RM and CM Options

Use these options to weigh truck or wagon one axle at a time.




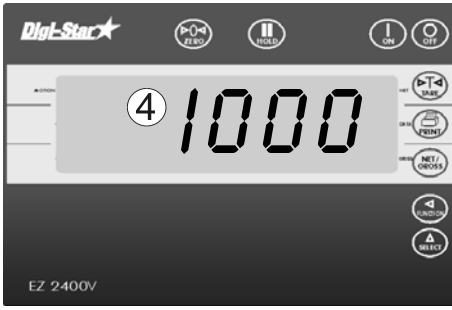
1. Add weight on scale. Example: 500 pounds.



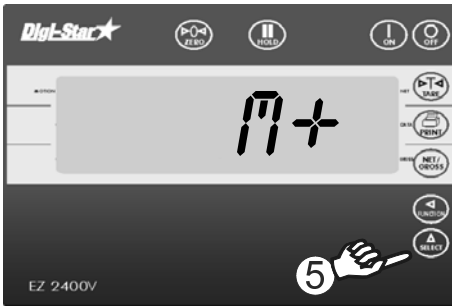
2. Repeatedly press  until *M+* is displayed.




3. Press  *500* pounds and *RM* briefly displayed 500 pounds added to indicator memory and indicator in gross weight mode.




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





5. Repeatedly press  until *M+* is displayed.



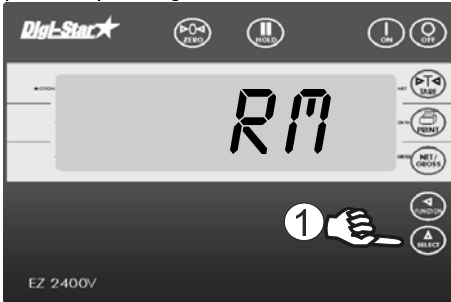
6. Press  indicator add 1000 pounds to 500 pounds in memory and *RM* flashes.




7. Repeatedly press  until *RM* is displayed.
8. Press .
9. Total of both weights, 1500 pounds, display, indicator switches to gross weight mode.



Printing Weight from Memory

Indicator must have optional printer port for printing.

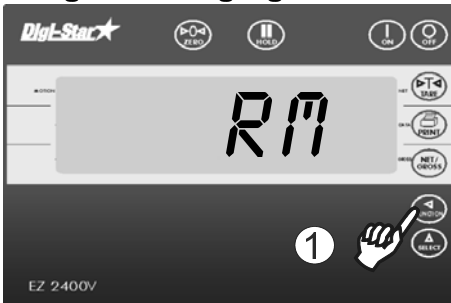


1. Repeatedly press  until *RM* is displayed.

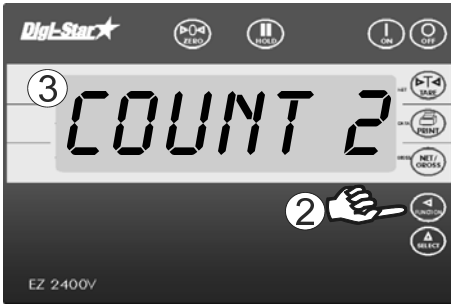



2. Press  shows weight in memory. Example: 1500 pounds.
3. Press  while weight displayed.

Weight Averaging



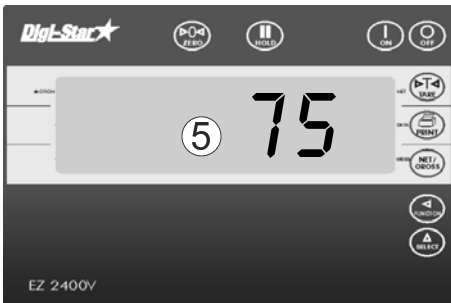
1. Repeatedly press  until *RM* is displayed.



2. Press  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.

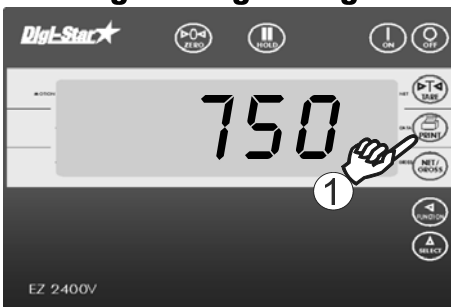



4. Displays *AVERAG*.



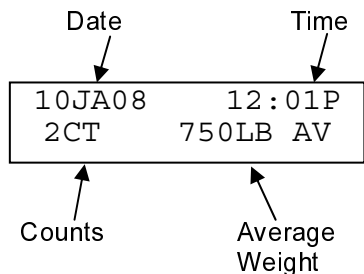
5. Display shows average of two weights in memory. After displaying average weight, indicator returns to gross weight mode.

Printing Average Weight



1. Press  while average weight is displayed.

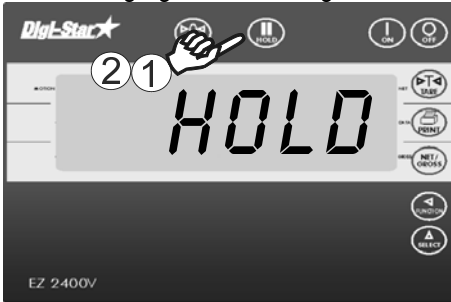
Sample output format shown below:





OTHER FUNCTIONS

Hold

Hold mode prevents displayed weight from changing while moving.



1. Press .
2. Press  indicator normal.

If weight added in hold mode, press  to cancel hold.

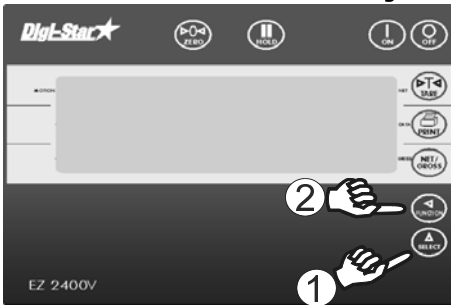
Note: This feature is disabled on all legal for trade systems.


Using Dimmer Option



1. Repeatedly press  until *DIMMER* is displayed.
2. Press  dims backlight.

Function and Select keys



1. Repeatedly press  gives following options:

Timer: Stopwatch for mixing time

M+: Adding weigh to weight memory

RM: Recall weight memory


CM: Clear weight memory

Dimmer: Dimming backlight

Menu: View menus 1,2,3,4 and calibrate. See page 13.







Setup: Change setup and calibration numbers. See page 16.

Help: Explains operation of select and function key

2. Desired option displayed, press  to activate.

MENUS AND CALIBRATION

Options changed by user. To display menus 1,2,3,4 and calibrate:

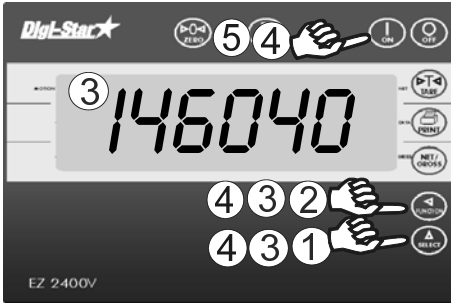
1. Repeatedly press  until *MENU* is displayed.
2. Press .
3. Repeatedly press  selects Menu1,2,3,4 or calibrate
4. Press  displays setting name and allows value changes.
5. Press  selects options for each setting/display.
6. Press  saves setting and next option for menu displays.









SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD=DEFAULT	DESCRIPTION
MENU 1. BASIC FEATURES IN MOST INDICATORS			
LANGUAGE (LANGAG)	101	English (ENGLISH) Dutch (NEDERL) French (FRANCS) German (DEUTSH) Italian (ITAL) Portuguese (PORT) Spanish (ESPAÑ) Danish (DANSK) Hungarian (MAGYAR) Spanish (VESTA)	Select language to be displayed.
DISPLAY RATE (D RATE)	102	1,2,3,4	Update display times per second.
ZERO TRACK (ZTRACK)	104	ON/OFF	If ON -zero track adjust balance for build up of snow & mud.
WEIGH METHOD (W MTHD)	105	1=General, 2=Fast, 3=Slow, 4=Lock-On	Select weigh method
SCALE ID SETUP (SCALID)	108	NEW EZ	Identity of scale location (truck id or Mixer number).
1 PRESS ZERO (I ZERO)	115	ON/OFF	If ON -press and hold Zero key to Zero/Balance scale.
MENU 2. CLOCK, PRINTER, COMMUNICATIONS FEATURES			
TIME FORMAT	201	24 HR	

SETTING [display]	D.A.N NO.	OPTIONS [display] BOLD=DEFAULT	DESCRIPTION
{TIME F}		AM/PM	Select time format -AM/PM or 24 hour
1 TIME {TIME}	202	XX:XX:XX	Select key changes time, function key chooses hh:mm:ss.
DATE FORMAT {DATE F}	203	1-mm-dd 2-mm/dd/yy 3-mm/dd/yyyy 4-dd-mm 5-dd/mm/yy 6-dd/mm/yyyy 7-ddmoyy 8-ddmoyyyy.	Select date format
DATE {DATE}	204	Enter XXXXXX	Select key changes date - function key chooses mm/dd/yy .
TARE AUTO PRINT {TAREAP}	211	ON/OFF	If ON -tare auto-prints displayed weight.
ONE LINE PRINT {1L PRT}	212	ON/OFF	If ON -indicator data prints on one line.
AUTO PRINT {APRINT}	214	ON/OFF	If ON -pressing keys auto-prints weight values.
PRINT FORMAT {PRTFMT}	216	AUTO WTONLY DOWNLD DT+TM ID+TM IDWTTM ANIMAL 3200-A 3200-B 32-TMR DATCH1 FDINFO WTRCTM EIDINF EID EIDVID	Select alternate & comma (CSV) formats.

SETTING [display]	D.A.N NO.	OPTIONS [display] BOLD=DEFAULT	DESCRIPTION
REMOTE (REMOTE)	218	ON/OFF	If ON indicator communicates with cab control display
ZERO OUTPUT (ZEROUT)	219		Perform Zero/Balance for SCOREM #11 weight output and analog output (4-20mA)
SCALE NUMBER (SCL NO)	231		Select scale number for cab control communication
REMOTE DISPLAY (RMDISP)	234	EZ3MUX EZ2	Select type of remote display
ANALOG LOW WEIGHT (LOW WT)	241		Enter analog weight value to equal 4mA or 0 volts
ANALOG HIGH WEIGHT (HIGHWT)	242		Enter analog weight value to equal 20mA or 5 volts
ANALOG SELECT (ANROUT)	243		Select 0-5V,4-20ma or 0-20ma output
MENU 3. SCALE CALIBRATION SETTINGS			
DISPLAY UNIT (LB-KG)	301	.01,.02,.05,.1,.2,.5,1,2,5, 10,20, 50,100	Select display count size of weigh values.
CAPACITY (CAP)	303	LB/KG	Display pounds -lb or kilograms -kg
WM1 ADJUST 1 (WM1-1)	304	40000	Enter MAXIMUM weight measurable on scale.
MENU 4. PRESET, BATCHING & ROTATION COUNTER FEATURES			
Does not apply to 2400 indicator			
CALIBRATION			
DEAD WEIGHT CAL (CAL)	802		Calibration method using weights
SETUP NUMBER (SETUP)	871		Quick entry method selects weigh method 1-4lbs, 5-8 kg, gain 1-9, display counts 1-9 and capacity *1000
CALIBRATION NUMBER (CAL)	872		Weight displayed at 0.4mV/V for these load cells

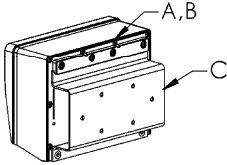
Change Set up and Calibration Numbers



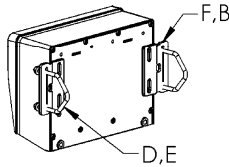
1. Repeatedly press  until *SETUP* is displayed.
2. Press .
3. Six digit setup number displayed. Change number, press  moves flashing position left. Press  changes number.
4. Press  stores setup number. Indicator displays *CAL*, change number by pressing  and .
5. Press  to exit.

INSTALLATION

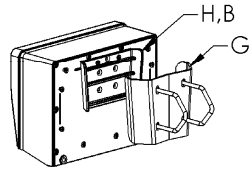
Indicator Mounting



RAIL MOUNT

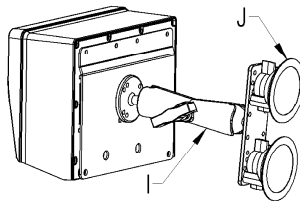


WING MOUNT



WEDGE MOUNT

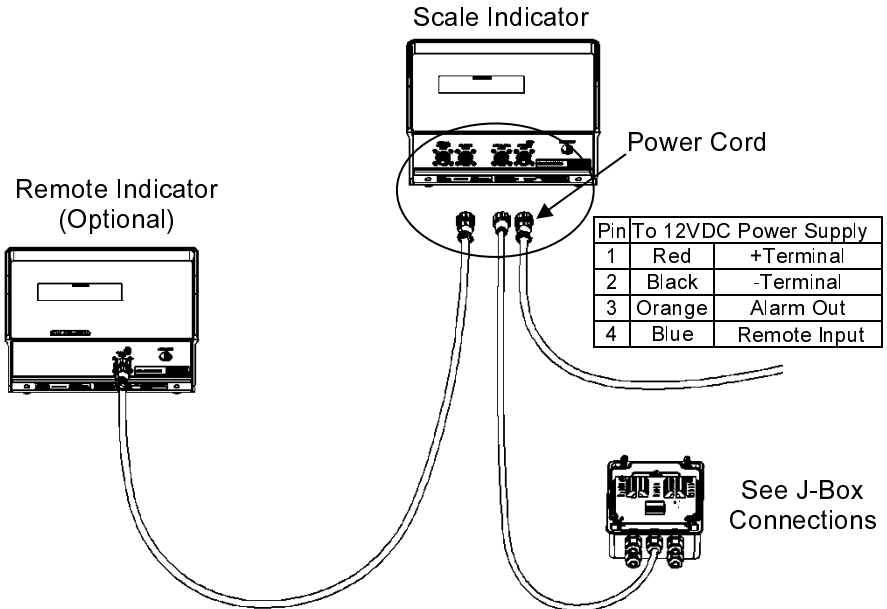
KEY	PART NUMBER	DESCRIPTION
A	404353	BRACKET-EZ3 PLASTIC RAIL *
B	403780	SCR-#10 X 5/8 FHSTS BLACK ZP
C	840459	SUPPORT-HAT BRACKET
D	405069	U-BOLT 1/4-20 X 3.25 ZP
E	405084	NUT-1/4-20 TOP LOCKING FLANGE
F	403770	BRACKET- WING MOUNT *
G	405124	PACK-WEDGE MOUNT BRACKET WITH U-BOLTS & FLANGE NUTS
H	405244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



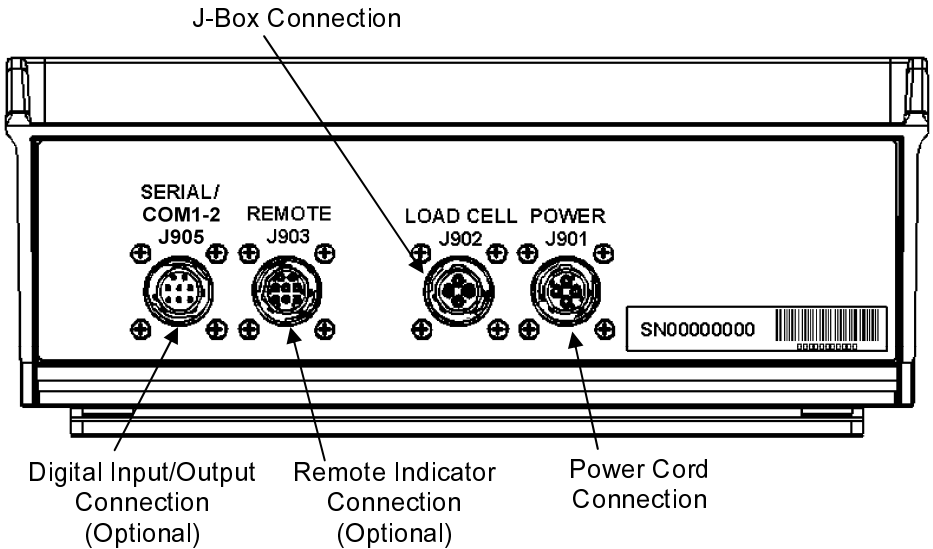
RAM MOUNT

KEY	PART NUMBER	DESCRIPTION
I	404799	RAM MOUNT FOR EZ III INDICATOR WITH HARDWARE
J	404230	RAM SUCTION CUP W/TWIST LOCK

Cable Connection



Indicator Connection Diagram

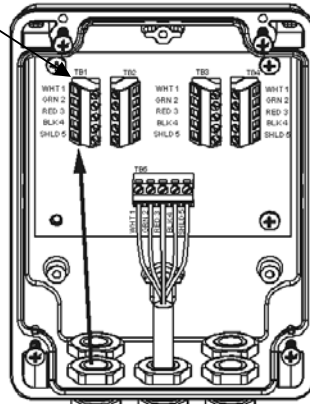


Bottom Panel Cable Connections

Connect Load Cells to J-Box

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

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



J-Box Illustrated for 4 Load Cell Installation

J-Box Cable

Tighten Nuts

Load Cell Cable

Connect to Indicator bottom Panel.

J-Box Connections

Load Cell Direction



Observe direction of arrow when installing load cell.

OPTIONAL EQUIPMENT

Cab Control (Wireless)



Features

- Wireless remote with full key control of indicator on mixer
- Mount remote in easy view of loading
- Improves loading accuracy

Functions

- Communicates with multiple mixers

Specification

- Internally mounted 2.4 GHz radios
- Up to 1000 foot range
- 24 channels
- 12 or 24 volt DC system

Data Transfer Options



Kit Data Down Loader

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

Transmitter/Receiver



Transmitter (shown) with factory installed receiver in indicator. Use to zero indicator from a remote location. Operating range about 90 feet.

Remote Indicators



RD440 small remote display

RD2400V backlit remote display with 1.7" high numbers

RD2400V backlit remote display w/transmitter and installed receiver

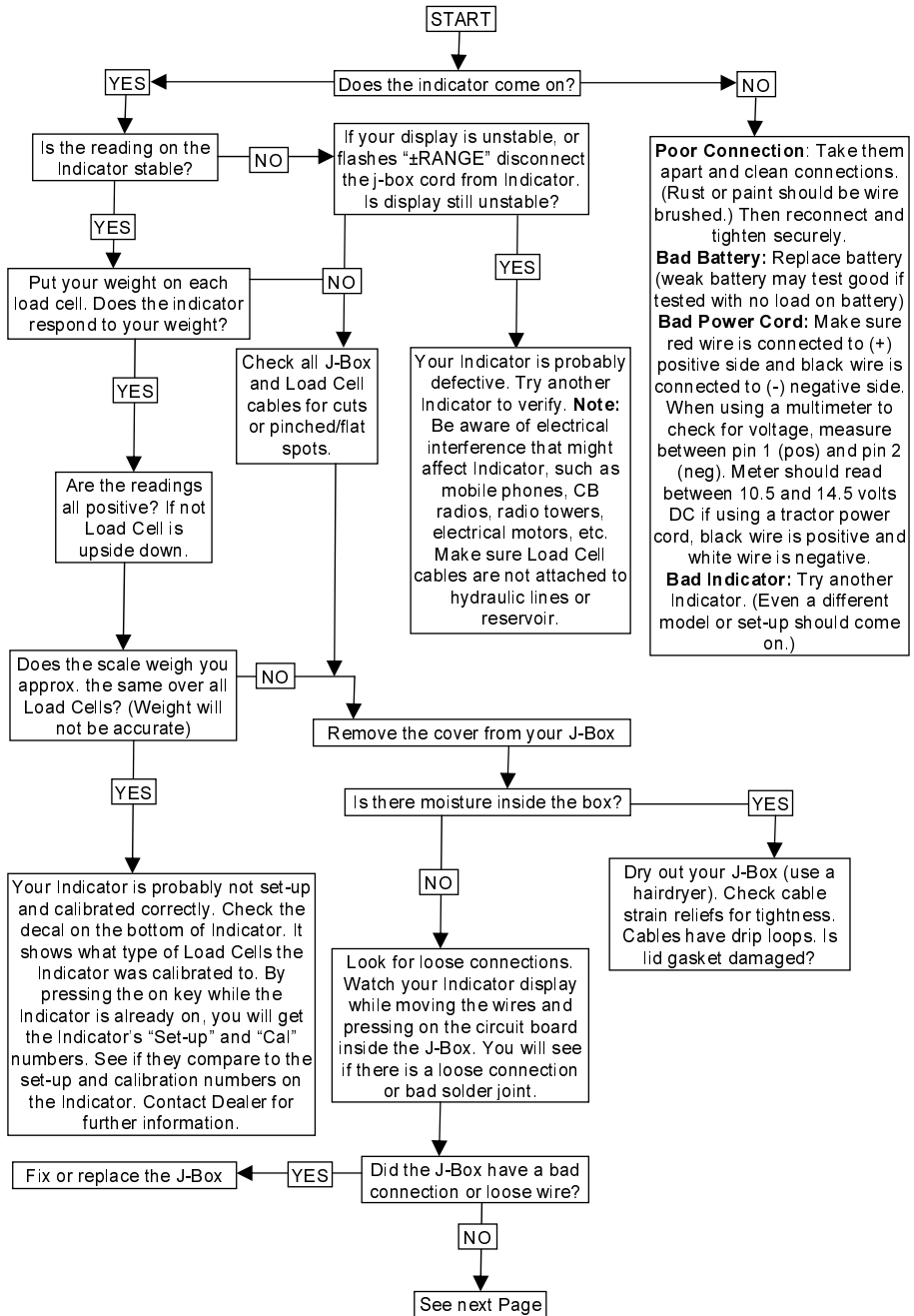
RD2400 backlit remote display with 1" high numbers

RD2400 backlit remote display w/transmitter and installed receiver

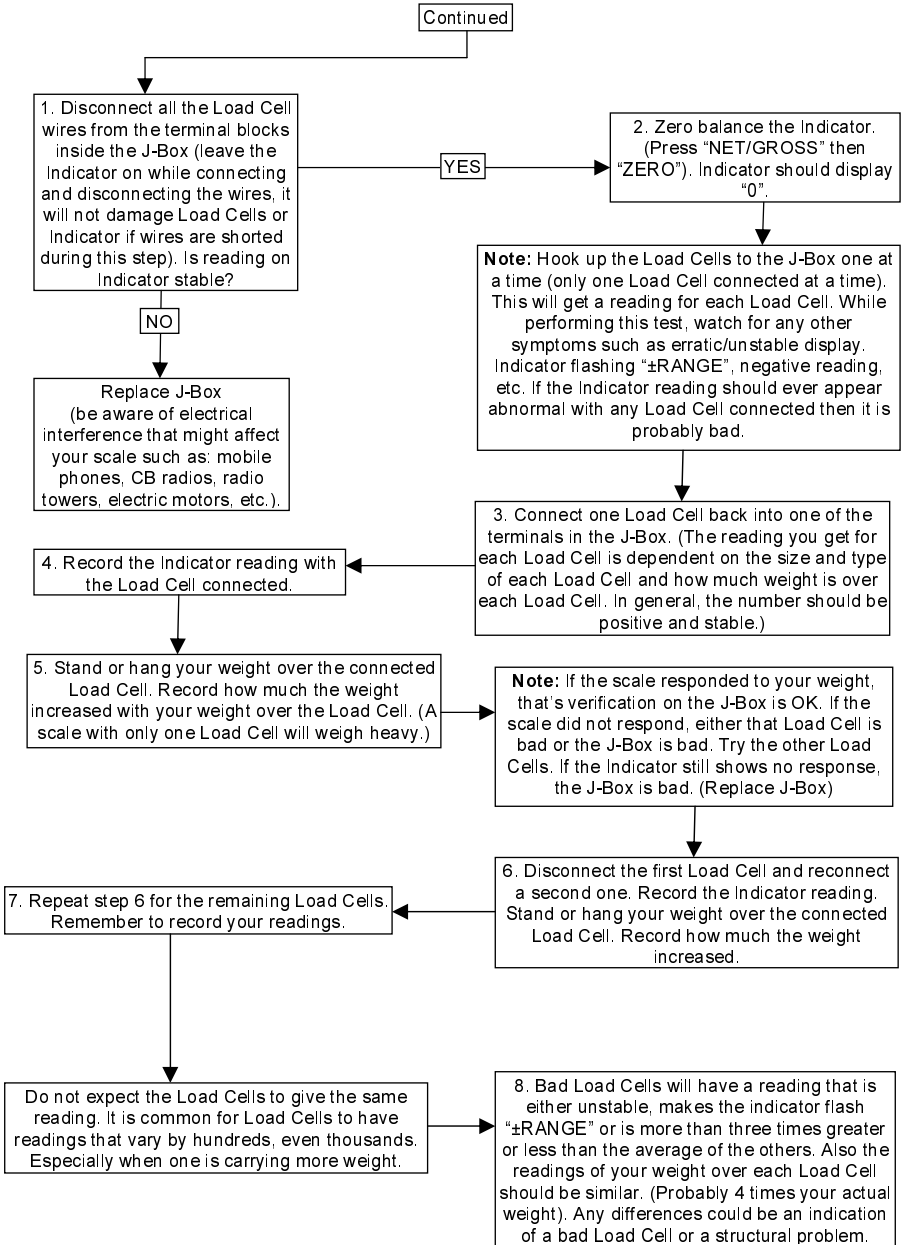
RD4000 remote display

TROUBLESHOOTING

FLOW CHART



FLOW CHART



LEGAL-FOR-TRADE CERTIFICATION

United States

In the US, the Legal-for-Trade certification is regulated by the National Type Evaluation Program (NTEP). The NTEP certificate number is 08-40.

Canada

Measurement Canada is the Canadian agency that regulates Legal-for-Trade scales. The approval number from Measurement Canada is AM-5678C.

Legal for Trade Features

Digi-Star Legal-for-Trade indicators are modified to comply with US and Canadian regulatory agencies. Some of these modifications are:

Load Cell Disconnect Sensor

Indicator displays *+RANGE* or *-RANGE* without flashing load when cells are disconnected.

Printing

Printing weight values is not allowed while in motion, during self-calibration, or if any error conditions such as *+RANGE*, *OVRCAP* or *OVRFLW* are active.

Lock-On Weigh Method

Lock on weigh method (for animal weighing) cannot be enabled.

Tare

Cannot tare a negative weight.

Labeling

The capacity and division information is shown on the front of the indicator.

Sealed to Prevent Unauthorized Modifications





The scale indicator is sealed by a Category 1 Audit Trail. To access the audit trail in the normal weighing mode, press [NET/GROSS] and then press [ON] within three seconds. This will display the current parameter and calibration event count values. Pressing any key will return the indicator to the weighing mode. The audit trail system is always active and cannot be altered. Audit trails are stored in flash memory and do not require batteries to maintain the audit trail values.

Changing any of the following parameters will change the Calibration event count value or parameter audit event count value. This will void your Legal-for-Trade certification unless performed by properly trained personnel.

- Setup
- Calibration
- Capacity
- Display Count
- Display Units
- Weigh Method
- Motion
- WMA1-1 through WMA2-3
- LFT Option Setting

On Legal-For-Trade Units Only

Perform the following procedure on an empty and clean machine before the unit is to be “site-certified”.

- Install the LFT indicator on the machine and connect all load cells.
- Zero/balance the scale with no load on the machine.
- Hold  and press .
- Press  and  to return to normal weighing.