EZ2500

Operators Manual

Digi-Star

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS

SIZE
10.25" long x 8.0" high x 2.7" wide
(260mm x 190mm x 70mm)

WEIGHT
2.7 lbs (1.2 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

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 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
4 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

Digi-Star

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.

Scale Indicator

Remote Indicator
Optional

Disconnect all cords

J-Box
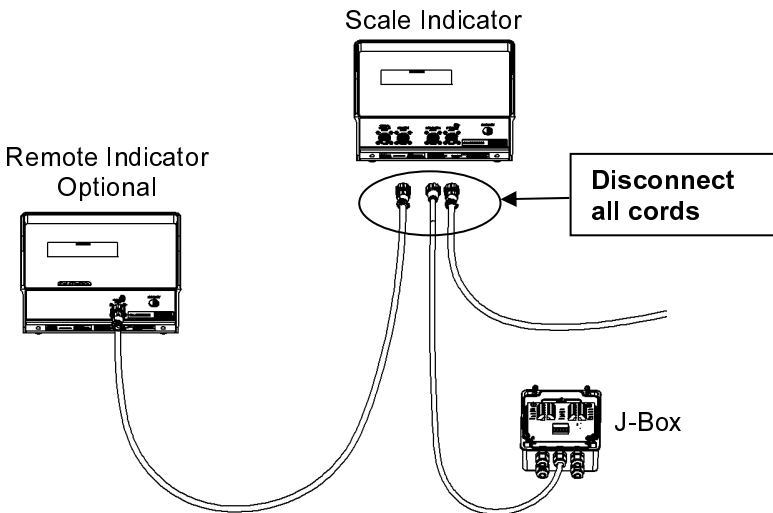
INDICATOR OVERVIEW
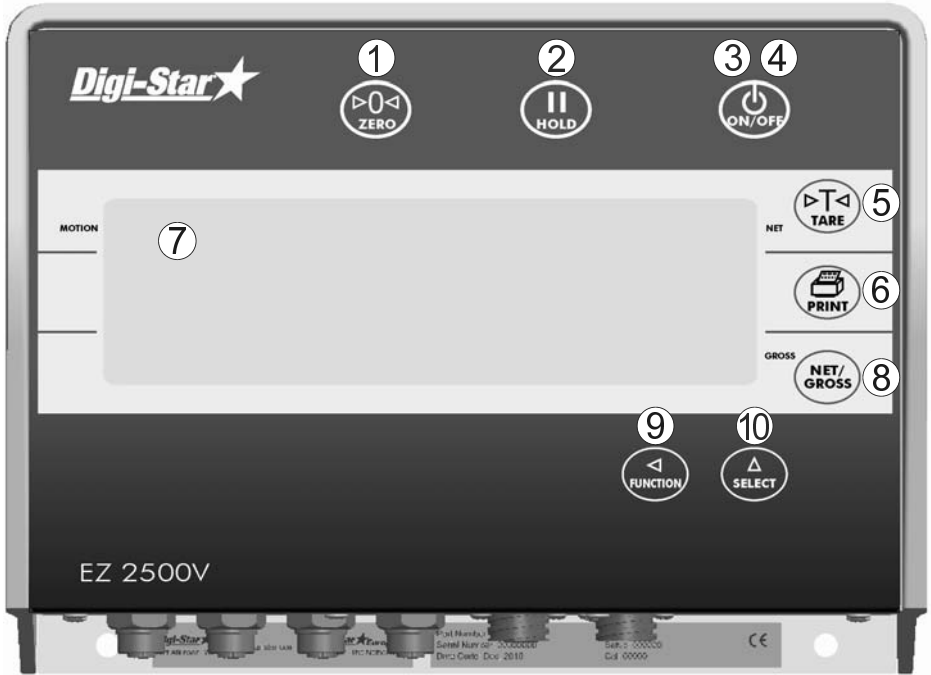
Note: *See page 17-19 for installation instructions.*

① ⌖(ZERO) – press and hold for 3 seconds to zero balance indicator.

② (HOLD) – holds displayed weight press to release.

③ (ON/OFF) – turns indicator on.

④ (ON/OFF) – turns indicator off.

⑤ (TARE) – temporary zero (Net Mode).

⑥ (PRINT) – records to memory or prints displayed weight.

⑦ Display Window – Displays current actions.

⑧ (NET/GROSS) – toggles between Net and Gross weights.

⑨ (FUNCTION) – performs task displayed by select.

⑩ (SELECT) – displays additional tasks.

⑪ Serial/Printer Port- optional, to communicate with computer and other digital input/output devices.

⑫ Remote Port – optional, for remote display.

⑬ Load Cell Port – for J-Box cord.

⑭ Power Port – for power cord.

⑮ Serial Number Plate – Serial Number of indicator.

OPERATION

Turn on Indicator

1. Press ON/OFF.

Zero Balance Indicator

1. Press and hold ZERO 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 NET/GROSS.
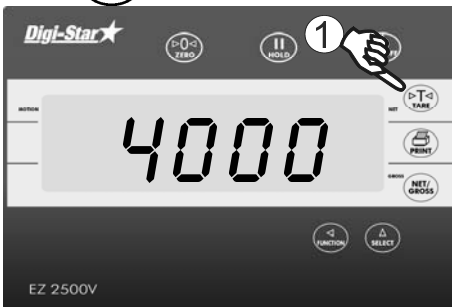
1. Weight displayed, press TARE sets zero weight.
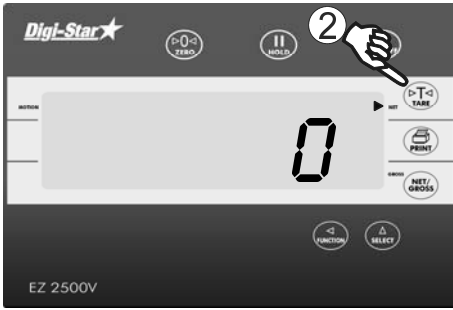
2. Pressing ⊳T⊲(TARE) displays zero weight and flashing arrow on side of display points to NET.

3. Add more weight.
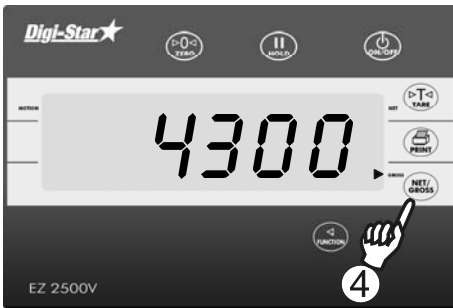
4. To know total of original weight of 4000 pounds plus added 300 pounds, press (NET/GROSS) to show 4300 pounds, flashing arrow points GROSS.

5. Press (NET/GROSS) 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.

```
4300 LB GR
```

Weight

Gross (GR) or Net (NET)
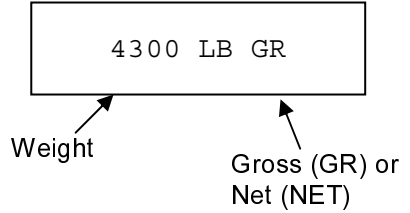
Timer Option

Stopwatch for mixing time.

1. Repeatedly press 🔼 until *TIMER* is displayed.
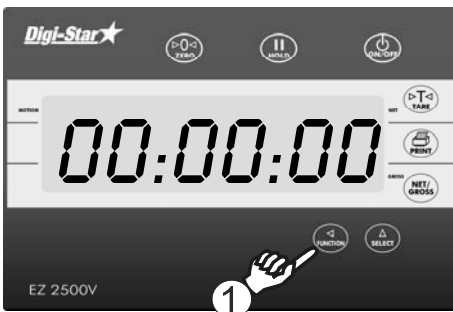
1. Press ◀️ to displays hours, minutes and seconds (hh:mm:ss).

---
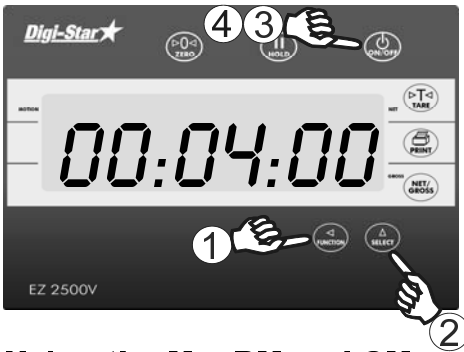
1. Repeatedly press (FUNCTION) moves flashing digit left.
2. Repeatedly press (SELECT) changes number.
3. Press (ON/OFF) to start timer.
4. When timer reaches zero press (ON/OFF) to clear timer.

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.
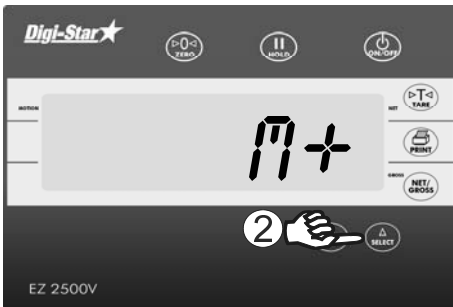
2. Repeatedly press (SELECT) until *M+* is displayed.
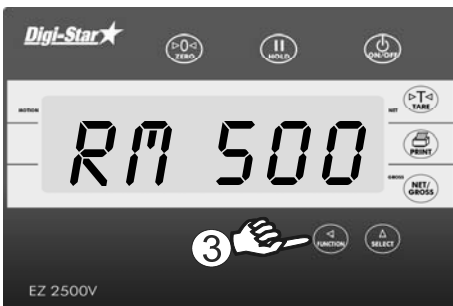
3. Press (FUNCTION) *500* pounds and *RM* briefly displayed 500 pounds added to indicator memory and indicator in gross weight mode.

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

5. Repeatedly press ⟨SELECT⟩ until *M+* is displayed.

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

7. Repeatedly press ⟨SELECT⟩ until *RM* is displayed.
8. Press ⟨FUNCTION⟩.
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 (SELECT) until *RM* displayed.

2. Press (FUNCTION) shows weight in memory. Example: 1500 pounds.

3. Press (PRINT) while weight displayed.

Weight Averaging

1. Repeatedly press (SELECT) until *RM* is 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.
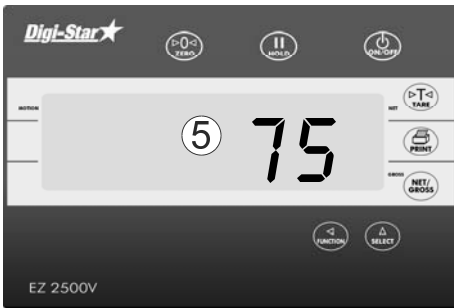
5. Display shows average of two weights in memory. After displaying average weight, indicator returns to gross weight mode.

Printing Average Weight

1. Press (PRINT) while average weight is displayed.

Sample output format shown below:

```
2CT    750LB AV
```

Counts   Average
                Weight
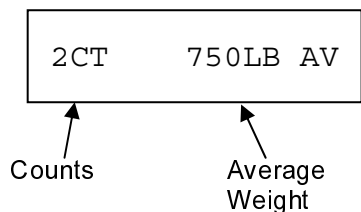
OTHER FUNCTIONS

Hold

Hold mode prevents displayed weight from changing while moving.

1. Press [HOLD].

2. Press [HOLD] indicator normal.

If weight added in hold mode, press [ON/OFF] to cancel hold.

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

Using Dimmer Option

1. Repeatedly press [SELECT] until *DIMMER* is displayed.

2. Press [FUNCTION] dims backlight.

Function and Select keys

1. Repeatedly press [SELECT] 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 [FUNCTION] to activate.

MENUS AND CALIBRATION

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

1. Repeatedly press (SELECT) until *MENU* is displayed.
2. Press (FUNCTION).
3. Repeatedly press (SELECT) selects Menu1,2,3,4 or calibrate
4. Press (ON/OFF) displays setting name and allows value changes.
5. Press (NET/GROSS) selects options for each setting/display.
6. Press (ON/OFF) 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** Dutch French German Italian Portuguese Spanish Danish Hungarian Spanish	*(ENGLSH)* *(NEDERL)* *(FRANCS)* *(DEUTSH)* *(ITAL)* *(PORT)* *(ESPAN)* *(DANSK)* *(MAGYAR)* *(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 buildup 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 *(1 ZERO)*	115	ON/**OFF**		If ON -press and hold Zero key to Zero/Balance scale.

SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD=DEFAULT	DESCRIPTION
MENU 2. CLOCK, PRINTER, COMMUNICATIONS FEATURES			
TARE AUTO PRINT *[TAREAP]*	211	ON/**OFF**	If ON -tare auto-prints displayed weight.
ONE LINE PRINT *[IL 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.
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

SETTING [display]	D.A.N NO.	OPTIONS [displayed] BOLD=DEFAULT	DESCRIPTION
ANALOG HIGH WEIGHT *(HIGHWT)*	242		Enter analog weight value to equal 20mA or 5 volts
ANALOG SELECT *(ANAOUT)*	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 *(WMA1-1)*	304	40000	Enter MAXIMUM weight measurable on scale.
MENU 4. PRESET, BATCHING & ROTATION COUNTER FEATURES			
Does not apply to 2500 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 (SELECT) until *SETUP* is displayed.

2. Press (FUNCTION).

3. Six digit setup number displayed. Change number, press (FUNCTION) moves flashing position left. Press (SELECT) changes number.

4. Press (ON) stores setup number. Indicator displays *CAL*, change number by pressing (SELECT) and (FUNCTION).

5. Press (ON) to exit.

INSTALLATION

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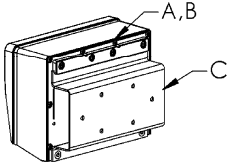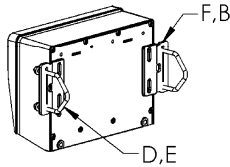
RAIL MOUNT   **WING MOUNT**   **WEDGE MOUNT**
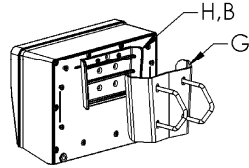
KEY	PART NUMBER	DESCRIPTION
A	404353	BRACKET-EZ3 PLASTIC RAIL *
B	403780	SCR-#10 X 5/8 FHSTS BLACK ZP
C	840459	SUPPORT-HAT BRACKET
D	405069	U-BOLT 1/4-20 X 3.25 ZP
E	405084	NUT-1/4-20 TOP LOCKING FLANGE
F	403770	BRACKET- WING MOUNT *
G	405124	PACK-WEDGE MOUNT BRACKET WITH U-BOLTS & FLANGE NUTS
H	405244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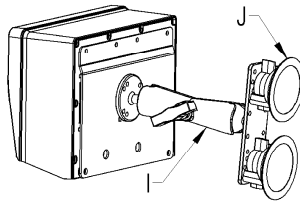
RAM MOUNT

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

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Cable Connection

Scale Indicator

Remote Indicator
(Optional)

Power Cord

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

See J-Box
Connections
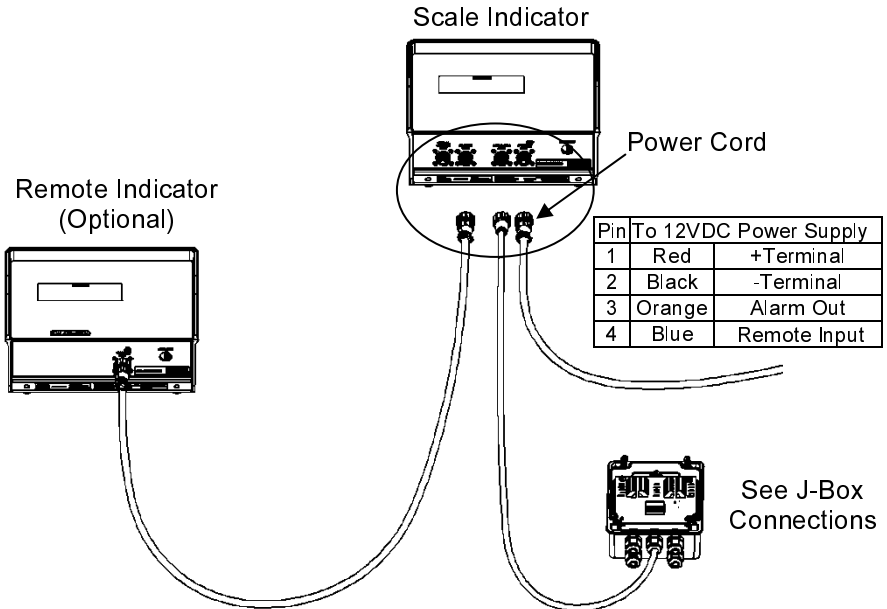
Indicator Connection Diagram

J-Box Connection

SERIAL/
COM1-2   REMOTE   LOAD CELL POWER
J905   J903   J902   J901

SN00000000

Digital Input/Output   Remote Indicator   Power Cord
Connection   Connection   Connection
(Optional)   (Optional)
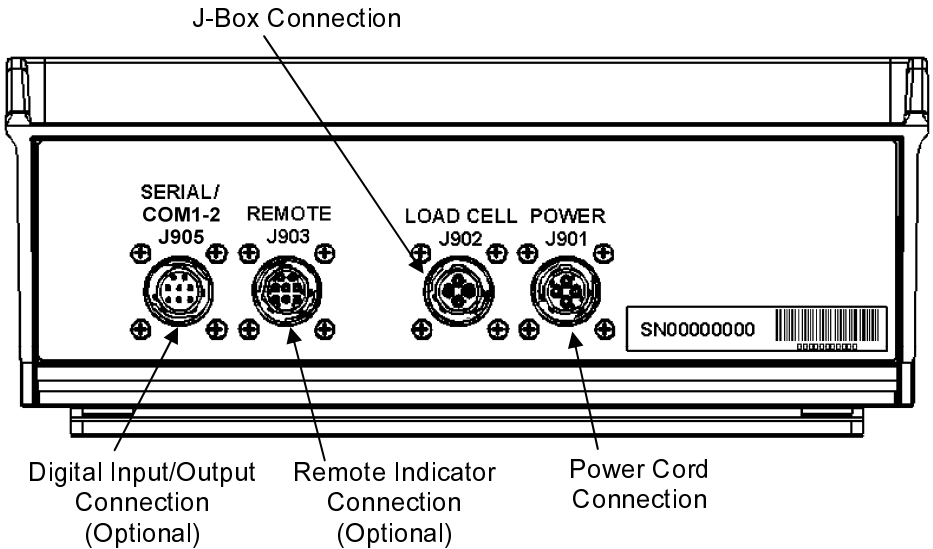
Bottom Panel Cable Connections

Connect Load Cells to J-Box

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

J-Box Illustrated for 4 Load Cell Installation

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

J-Box Cable

Tighten Nuts

Connect to Indicator bottom Panel.

Load Cell Cable

J-Box Connections

Load Cell Direction

BENDING DIRECTION

DIRECTION DE FLEXION

BIEGERICHTUNG

141815

Observe direction of arrow when installing load cell.

OPTIONAL EQUIPMENT

Remote Indicators

RD440 small remote display

RD2500V backlit remote display with 1.7" high numbers

RD2500V backlit remote display w/transmitter and installed receiver

RD4000 remote display

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TROUBLESHOOTING

FLOW CHART

START

Does the indicator come on? — YES / NO

YES → Is the reading on the Indicator stable?

NO → If your display is unstable, or flashes "±RANGE" disconnect the j-box cord from Indicator. Is display still unstable?

NO → Does the indicator come on? **NO →**

Poor Connection: Take them apart and clean connections. (Rust or paint should be wire brushed.) Then reconnect and tighten securely.
Bad Battery: Replace battery (weak battery may test good if tested with no load on battery)
Bad Power Cord: Make sure red wire is connected to (+) positive side and black wire is connected to (-) negative side. When using a multimeter to check for voltage, measure between pin 1 (pos) and pin 2 (neg). Meter should read between 10.5 and 14.5 volts DC if using a tractor power cord, black wire is positive and white wire is negative.
Bad Indicator: Try another Indicator. (Even a different model or set-up should come on.)

YES → Put your weight on each load cell. Does the indicator respond to your weight?

NO → Check all J-Box and Load Cell cables for cuts or pinched/flat spots.

YES → Your Indicator is probably defective. Try another Indicator to verify. **Note:** Be aware of electrical interference that might affect Indicator, such as mobile phones, CB radios, radio towers, electrical motors, etc. Make sure Load Cell cables are not attached to hydraulic lines or reservoir.

YES → Are the readings all positive? If not Load Cell is upside down.

Does the scale weigh you approx. the same over all Load Cells? (Weight will not be accurate)

NO → Remove the cover from your J-Box

Is there moisture inside the box? — YES → Dry out your J-Box (use a hairdryer). Check cable strain reliefs for tightness. Cables have drip loops. Is lid gasket damaged?

NO →

YES → Your Indicator is probably not set-up and calibrated correctly. Check the decal on the bottom of Indicator. It shows what type of Load Cells the Indicator was calibrated to. By pressing the on key while the Indicator is already on, you will get the Indicator's "Set-up" and "Cal" numbers. See if they compare to the set-up and calibration numbers on the Indicator. Contact Dealer for further information.

Look for loose connections. Watch your Indicator display while moving the wires and pressing on the circuit board inside the J-Box. You will see if there is a loose connection or bad solder joint.

Fix or replace the J-Box ← YES ← Did the J-Box have a bad connection or loose wire?

NO → See next Page

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

NO

2. Zero balance the Indicator. (Press "NET/GROSS" then "ZERO"). Indicator should display "0".

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.

Replace J-Box
(be aware of electrical interference that might affect your scale such as: mobile phones, CB radios, radio towers, electric motors, etc.).

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.