HMI INDICATOR USER'S MANUAL

(WITH TUF-PAD SCALES)

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SAFETY PRECAUTIONS

For safe operation of the weighing indicator, please follow these instructions:

- Please ensure that the indicator rests on a stable surface
- The indicator is a piece of static sensitive equipment; Please cut off power during electrical connections
- Touching the internal components by hand is prohibited
- DO NOT exceed the rated load limit of the unit
- DO NOT jump on the scale
- DO NOT use this product if any of the components are cracked
- DO NOT use for purposes other then weight taking
- Make sure the weight is not over the Max capacity as it could damage the load cells inside
- Material that has a static electric charge could influence the weighing. Discharge the static electricity of the samples, if possible.
- Another solution to the problem is to wipe both sides of the pan and the top of the case with an anti-static agent

Please take anti-static prevention measures

Any accumulated charge on the body of the human operator should be discharged first before opening the protective container with ESDS devices inside. The discharge can be accomplished by:

- Putting a hand on a grounded surface or, ideally, by wearing a grounded Anti-static Wrist Strap and an Anti-static Mat

FEATURES

- 7.0'' HMI Resistive & Capacitive Touch Display
- Painted steel enclosure
- Multiple weighing units: kg/lb (custom units optional)
- Gross/Tare/Zero/Print functions
- Auto Accumulation feature
- Can connect to a PC or printer for data logging (optional)
- Wireless capability (optional)
- Rechargeable battery (optional)
- Dimensions: 8.5" x 5.9" x 2.6"

SCREEN

TOTAL WEIGHT

123456.7

Distribution

CH. 1 ■L ■R %	CH. 2 ■L ■R %	CH. 3 ■L ■R %
50000	50000	50000
CH. 4 ■L ■R %	CH. 5 ■L ■R %	CH. 6 ■L ■R %
50000	50000	50000

PRINT

TARE

UNITS

CAL

OPERATING INSTRUCTIONS

Power On

- Turn on the power by pressing the power button for 2 seconds. The power button is located on the top of the power bank.

Zeroing

- The zero function is used only when the scale is empty and is not at gross zero due to material build up
- Pressing the ZERO key will reset your scale to 0

Unit Selection

- To switch between measuring units (kg/lb) press the UNITS key

Tare Function

- The Tare function is used when you only wish to see the current change in weight, not the entire amount of weight that is on the scale
- When the indicator is in gross mode pressing the TARE key will Tare the current weight on the scale and enter the net mode
- For example if you are using a container add the container to the scale, press tare and the display will reset back to 0
- Add your product to the scale to weigh without the weight of the container
- To exit Tare mode press the TARE key again to enter gross mode and you will see the total weight of the container and the product

Note: If you remove the container the scale will show the minus weight of the container

Gyroscope Feature

- Gyroscope feature is commonly used to balance a vehicles weight
- To use this feature you must assign a left or right value to each scale. For scales located on the left side of your vehicle, select the "L" value and for scales that will be located on the right side of your vehicle select the "R" value. If your scale is located under a centerd wheel (ex. airplane, boat) please select both values
- The gyroscope will rotate to indicate if the weight is distributed to the left of the vehicle, the right of the vehicle, or if it is evenly loaded

Print

- If the indicator is connected to a printer and the weight on the scale is stable press the PRINT key to print the current weight

CALIBRATION PROCEDURE

ENTER WEIGHT

CH. 1	CH. 2	CH. 3
CH. 4	CH. 5	CH. 6

ZERO CAL

ENTER

SAVE CAL

BACK

1. Select a channel to calibrate.
2. Ensure the scale is empty with zero weight on it
3. Press "Zero Cal" to zero calibrate
4. Add a calibration weight or a known weight that you will use to calibrate on to the scale (at least 10% of the max capacity of your scale is recommended)
5. Enter the weight you are using to calibrate by pressing in the "Enter Weight" box, a keypad will pop up for you to enter the weight
6. Press "Enter" to calibrate, followed by "Save Cal" to save the calibration
7. Repeat these steps for all channels you wish to calibrate

CONNECTORS

Connecting load cells to the wireless modules
- Each scale connects to a wireless module through a quick disconnect cable
- The cable has a 4 wire load cell connection
- Please contact us directly if you have other special needs for your application
- There are two connection methods between the load cell and indicator
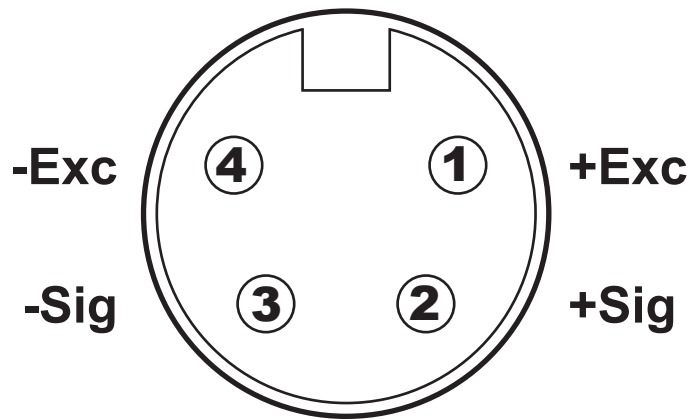
Quick Disconnect as shown below:

FIGURE 1: QUICK DISCONNECT CONNECTION DIAGRAM

Hardwire (Using Inner Terminal Block Connection:
Note: Make sure you follow all the anti-static rules to avoid damage to your indicator
- Excitation voltage: 5V DC
- Largest output current: 120 mA
- Excitation circuit: 5 VDC, 4 wire connection, 6 load cell of 350ohm maximum
- Open the back cover of the weighing indicator, and insert signal cable to the terminal block (see figure 3); Make sure the screw on terminal block is fixed tightly
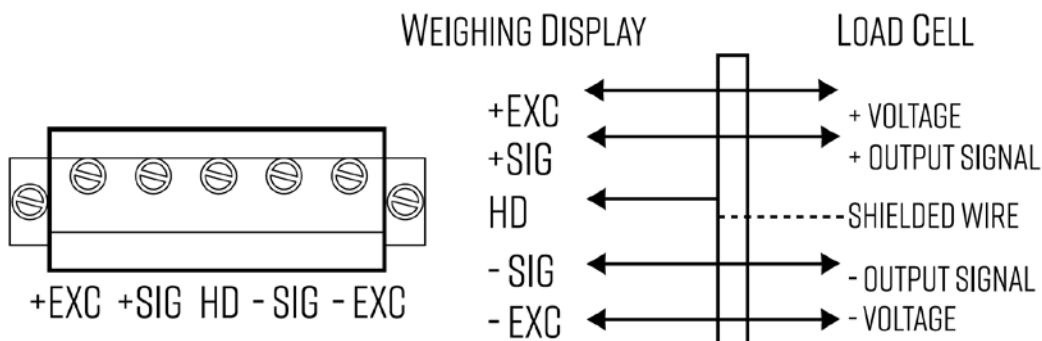

FIGURE 2: INNER TERMINAL BLOCK CONNECTION DIAGRAM

Table 1. Wiring Color Code

Signal Name	Color Code	Description
+Exe/ +EX	RED	Positive excitation voltage to load cell
+IN / +SIG	GREEN	Positive output signal from load cell
HD / SHLD	YELLOW/THICK BLACK	Shield Wire
-IN / -SIG	WHITE	Negative output signal from load cell
-EXC / -EX	BLACK	Negative excitation voltage to load cell

DB9 Connection (9 pin Serial Connector)

The DB9 9 pin serial connector is used for different purposes depending on the indicator model

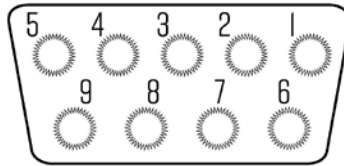- Figure 3 shows the pin assignment on the DB9 9 pin connector

FIGURE 3: DB9 SERIAL CONNECTOR PINOUT

PRINTING

Print to Ticket Printer

Normal weighing ticket printout example:

```
Date:    05/01/2017
Time:      11:30:52
Net:          25.6lb
Tare:         10.3lb
Gross:        35.9lb
```

Accumulation weighing ticket printout example:

```
Date:    05/01/2017
Time:      11:30:52

n001          15.4lb

n002          17.2lb

n003          35.6lb

Total         68.2lb
```

Print to Adhesive Label Printers

The following are the printing formats:

```
Date:        05/01/2017
Time:          11:30:52
Net:              25.6lb
Tare:             10.3lb
Gross:            35.9lb
```

Tufner Label Printer

```
Date:        XX.XX. XX (yy.mm.dd)
Time:        XX.XX.XX (hh.mm.ss)

NET          6.00kg (net weight)
TARE         2.88kg (tare)
GROSS        8.88kg (gross weight)
```

Zebra Label Printer

INDICATOR MAINTENANCE

1. **Cleaning**

Depending on operational conditions, the surface of the indicator screen may collect fine dust, lint or smudges from fingerprints over time. Occasionally, it may be necessary to clean the indicator screen to ensure flawless capacitive touch operation. Always use a clean microfiber cloth that has been dampened with a mild cleaner. Do NOT use heavy industrial cleaners to clean your wireless indicator. These may damage the display finish. Never spray directly onto the screen. Dampen the microfiber cloth first before wiping. Be careful to NOT allow overspray to contact any wires, cables or connector ports.

2. Operational Environment

- Operational Temperature: [Minimum] -20°C (-4°F) to 70°C (158°F) [Maximum]
- Operational Temperature: [Minimum] -30°C (-22°F) to 85°C (185°F) [Maximum]
- Operational Humidity: [Minimum] 10% RH to 90% RH [Maximum]

3. Water Damage and Submersion:

Avoid direct exposure of the indicator screen, wires, cables and connector ports to any liquids and
severe wet environments. Heavy splashes, direct sprays or submersion may damage the screen and its electrical components.

4. Troubleshooting

If your indicator screen fails to power-on:

1. Check all ports to ensure that there are no loose or frayed cables and that all connections are tight and secure.
2. Check if your indicator's battery life is low by safely removing and testing the battery itself
   (if applicable). Replace battery and power-on the indicator. Re-calibration may not be needed.

SCALE MAINTENANCE

1. Cleaning

Depending on operational conditions, the platform of the axle pad, as well as the underside and in
corners near load cells, may collect scuffs, dirt or mud after continuous use. Significant dirt and mud can interfere with normal operation. Regular cleaning of the platform, underside and load cells is
recommended to ensure consistently accurate weighing.
Always use a damp cloth or rag with a mild cleaner. Do NOT use heavy industrial cleaners or washdown jets to clean your axle pads. Do NOT use an abrasive cloth or steel wool. This may scratch the finish and reduce its life. Dampen the cloth or rag first before wiping. Be careful to NOT allow overspray to contact any wires, cables or connector ports.

2. Operational Environment
- Operational Temperature: [Minimum] -10°C (14°F) to 40°C (104°F) [Maximum]
- Storage Temperature: [Minimum] -20°C (-4°F) to 60°C (140°F) [Maximum]

3. Water Damage and Submersion:

TUF-PADS Portable Axle Pads are NOT protected against spray from water jets or submersion. Avoid splashes and washdown conditions. Keep axle pads out of heavy rains or high-humidity environments.

4. Operational Care

The TUF-PADS Portable Axle Pads are rated for normal intended use only. Take the following precautions when operating this scale:
1. Only weigh vehicles that likely fall within rated capacity (10,000 lbs each pad; 30,000 lbs combined)
2. Do NOT run over cables or wireless modules when operating vehicle.

5. Troubleshooting

If your TUF-PADS Portable Axle Pads are not giving consistent weight readings or fail to indicate weight:
1. Check all ports to ensure that there are no loose or frayed cables and that all connections are tight and secure.
2. A licensed calibration technician may also perform the "shift test". Check the load cells on each pad by positioning a calibration weight over each load cell on the platform while monitoring the indicator to discover the faulty load cell which is giving inconsistent or inaccurate readings.

CONTACT US

Please e-mail sales@tufner.com for any questions.

Don't forget to visit our website at:

www.tufner.com