TRANSCELL TECHNOLOGY, INC.

MODEL
TI-700

Digital Weight Indicator
(with wireless weighing capability)

User Manual

Revision 3.0 July 31, 2017

Table of Contents

THIS EQUIPMENT CONTAINS NO USER SERVICEABLE COMPONENTS.
- Servicing of the equipment must only be carried out by trained and authorized personnel.
- Use only the AC adapter supplied with the scale. Other adapters may cause damage.

Routine maintenance
- Harsh abrasives, solvents, scouring cleaners and alkaline cleaning solutions should <u>not</u> be used; especially on the display window.
- The outside of the product may be wiped down with a clean cloth, moistened with water containing a small amount of soap.

<u>This manual covers the following products:</u>

Model	Display	Enclosure	Power Source
TI-700	LCD	ABS	90-308 VAC, 50/60 Hz
TI-500 RFTM-B1	None	ABS	4-14 VDC
TI-500 RFTM-B1E	None	ABS	4-14 VDC

OVERVIEW

Scope of TI-700

Out of the box, the TI-700 indicator operates as a basic, cabled digital weight indicator. The load cell(s) and/or j-box is connected to the indicator's internal A/D convertor. This configuration is depicted in the following diagram:

Conventional Load Cell (with or without j-box)

TI-700

When sold with an external TI-500 RFTM (Radio Frequency Transceiver Module) and an optional wireless radio, your TI-700 indicator is transformed from "wired" to cable-free. This configuration is depicted in the following diagram:

Conventional Load Cell (with or without j-box)

RFTM

TI-700

Our products currently use reliable and popular Bluetooth® wireless technology.

This manual covers operation and troubleshooting. For installation, configuration and calibration of the RF indicators please refer to the separate installer's guide.

BASIC OPERATION

Getting Started – Cabled Systems

1. Press and hold the ON/PRINT key on the digital indicator unit for two seconds. After a brief initialization period, the scale will revert to a zero ("0") weight display.

   Your scale is now ready for operation!

Getting Started – Wireless Systems

1. Switch on the TI-500RFTM weighing module(s) by pressing the BLUE button once*.* The blue LED will turn solid for a few seconds and then start to flash.

2. Next press and hold the ON/PRINT key on the digital indicator unit for two seconds. After a brief initialization period, the scale will revert to a zero ("0") weight display.

   Your wireless scale is now ready for operation!

Operation – TI-700

Before weighing it is necessary to check if the scale is unloaded and indicating zero weight in the desired unit of measure, for example lb for pounds.

If the indicator is not displaying the desired unit of measure, press the UNITS key repeatedly until it is indicated, e.g. lb for pounds, kg for kilograms, etc.

The indicator features an automatic zero correction meaning that small deviations will be zeroed automatically. If the indicator does not automatically determine the zero point, please press the ZERO/OFF key once briefly.

Operation – TI-500 RFTM

The TI-500 RFTM contains two buttons and one LED.
- The BLUE button is used to power up the RF weighing module
- The RED button is used to immediately power down the RF weighing module

The TI-500 RFTM has several operating modes to save battery life and also to alert the user when it's time to replace the batteries. You can determine the operating mode by observing the blinking behavior of the blue LED:

LED Functionality – Blinking interval		
During Power-up (Initialization)	ON for 5 seconds	
FULL BATTERY	Blink interval	
Working Mode	1.5 seconds	
Sleep Mode (power savings)	4 seconds	
LOW BATTERY	Blink interval	
Working Mode	10 seconds	Double Flash
Sleep Mode	10 seconds	Double Flash

Please replace the batteries when the blink interval is 10 seconds!

NOTE 1: TI-500 RFTM will shut down completely within two hours of a lost connection with the indicator.
NOTE: 2: TI-500 RFTM will only enter sleep mode when the TI-700 indicator is OFF.

When shipped from the factory, the TI-700 digital indicator is configured to automatically switch off after 5 minutes if not in use.

Replacing the batteries – TI-500 RFTM

An optional cylindrical battery holder is available which requires 4 "C" cell alkaline batteries.

1. Turn the TI-500 RFTM OFF (Press the RED button)
2. Locate the metal battery cylinder
3. Unscrew either end cap to reveal batteries
4. Exchange the batteries – be careful to note polarity
5. Replace the end cap
6. Re-install the metal battery cylinder

Optional Rechargeable battery information

The TI-700 may contain an optional rechargeable battery which is internal to the unit. Before using the indicator for the first time, please charge the battery overnight.

The indicator's battery should operate for about 85 hours if left on continuously. The display unit is configured to power down after 5 minutes of inactivity but this parameter can be changed thru the A1-10 menu setting.

The battery can be charged while ON or OFF and the indicator can be operated while it's charging unless the state of charge is very low.

WHEN TO CHARGE THE INTERNAL BATTERY

The best time to charge the Lithium Ion battery is any time the indicator is not in use. You need not wait for the Low Battery Indication – in fact it's best that you don't. Charging the battery when not in use keeps the battery "fresh" and is the recommended way to manage it.

When the battery needs to be charged, the Low Battery Indicator will start blinking in the lower left-hand corner of the display. The indicator may be used for an additional 2 minutes before it automatically powers down. ***It is imperative that you charge the battery at this time to avoid permanent damage.***

HOW TO CHARGE THE INTERNAL BATTERY

This version ships with a pre-installed power connector and an external battery charger. Simply link the two up, and plug the battery charger into a suitable AC wall outlet. Note that the external battery charger is rated for IP54 only.

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DISPLAY & KEYPAD DETAILS

This model utilizes a 7-digit reverse LCD (Liquid Crystal Display) with adjustable LED backlight.
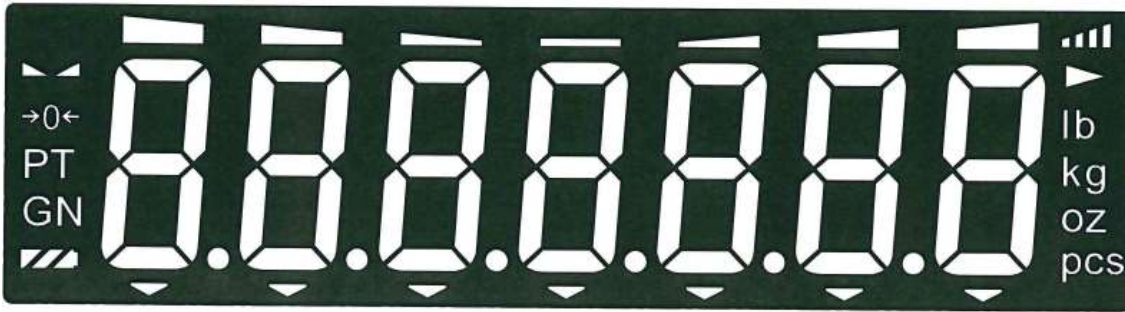
The Table below summarizes the display annunciators:

Symbol	Display
→0←	Indicates that the scale is on Zero.
N	Indicates that the indicator is displaying net weight (Gross weight minus Tare weigh).
G	Indicates that the indicator is displaying gross weight
T	Indicates that a push-button tare weight has been established in the system
P	Indicates that the indicator is in PEAK HOLD mode
lb	Indicates that the unit of the displayed weight is in pounds
kg	Indicates that the unit of the displayed weight is in kilograms
g	Indicates that the unit of the displayed weight is in grams
oz	Indicates that the unit of the displayed weight is in ounces
pcs	Indicates that the scale is in piece count mode and is displaying the current number of pieces on the platform
◣◢	This light is on whenever the scale is at rest (stable reading).
▨	Indicates approximate battery charge remaining. When blinking, indicates that the battery <u>needs to be recharged or replaced</u> soon.
▂▃▅	Indicates wireless signal strength

The capacitive touch keypad is composed of a total of five (5) function keys.

	Keypad Functions
Units	This key toggles the indicator between lb and kg.
Zero/Off	This key sets the indicator to display zero weight provided the following conditions are met: 1. The indicator is displaying Gross weight. 2. The scale is not in motion. 3. The scale is not in overload (see error codes). **Press and hold for five seconds to shut the unit OFF.**
Net/Gross	This key toggles the indicator between Gross weight and Net weight - but only if a Tare weight has been established first
Tare	This key is used to establish a Tare weight provided the following conditions are met: 1. The indicator is displaying a Gross weight above zero. 2. The scale is not in motion. 3. The scale is not in overload (see error codes). If a tare weight has already been established, this key <u>cancels</u> the current tare weight.
On/Print	Press and hold for two seconds to turn the unit ON. When the unit is on, this key is used to send weight information out to the serial port provided the following conditions are met: 1. The scale is not in motion. 2. The scale is not in overload (see error codes).
SET & arrows	Utilized in the various configuration menus (see installer guide for more information)

ADVANCED OPERATION

Hold operation:

This mode of operation is enabled by setting F30 to "5" in the Setup Menu (see separate installer's guide for more information). This mode captures the weight of an unstable load, e.g. livestock, by freezing the weight on the display. Use the Motion Band setting (F5) and the Percentage Hold setting (F36) to adjust this mode to your specific application. When the weight has been locked onto the display, two arrows beneath the weight display will be turned ON.

There are several specific hold modes, which are selected thru the F35 setting.

AUTOMATIC (F35 = 1) – Automatically locks weight on the display when stable. If the weight of the object on the scale changes by the F36 setting (e.g. 10%) then the sale unlocks the held reading and relocks onto the new weight. This occurs during both increasing and decreasing weight values.

MANUAL (F35 = 2) – Press the NET/GROSS key <u>before</u> applying any weight to the scale. After the load has stabilized, the display will hold the weight reading on the screen until the NET/GROSS key is pressed again. If the weight of the object on the scale changes by the F36 setting (e.g. 10%) then the sale unlocks the held reading and relocks onto the new weight. This occurs during increasing weight values only.

PEAK HOLD (F35 = 3) – The display updates as the load increases but not as the load decreases. The value shown on the screen is the maximum weight applied to the scale. Press the UNITS key to toggle between live mode and peak hold mode. The 'P' annunciator is used to indicate that you are in Peak Hold mode. When you exit out of peak hold mode, the old peak value is automatically cleared.

NET Weighing

Gross weight refers to the total weight of a product and its packaging. Conversely, **net weight** refers to the weight of the product alone, discounting the weight of its container or packaging; and **tare weight** is the weight of the packaging alone.

<u>NOTE</u>: This indicator stores the current tare weight in memory if the indicator is properly powered OFF. If a tare weight is present at startup, the indicator will revert to NET weighing mode and apply the stored tare weight.

1. If weighing an item in a container, place the empty container onto the scale's platter

2. After allowing the weight indication to stabilize, press the TARE key.
   The display shows zero weight and the NET annunciator is activated

3. Place the object to be weighed on the scale's platter and allow the weight indication to stabilize.
   The reading shown is the net value of the applied load

4. If necessary, toggle between the gross weight and the net weight by pressing the NET/GROSS key

5. Press the TARE key again to clear the tare value and return to gross weighing mode

Piece Counting

IMPORTANT NOTE: The piece counting function cannot be used in commercial (NTEP) applications.

This mode of operation is enabled by setting F30 to "3" in the Setup Menu (see separate installer's guide for more information). This mode is used to indicate the number of pieces of an item you have placed on the scale's platform and is accessed by pressing the UNITS key. To ensure accuracy, the parts you are counting must be consistent in weight.

The indicator uses the sampling method to determine the average piece weight (APW) of the items you wish to count. When sampling items, always count the parts in your hand and place them on the platform all at once. If the APW of the items is too light or the total weight of the sample is too light, accuracy cannot be guaranteed. You will get an error message, but piece counting will still be allowed. This indicator does not retain the piece weight when powered down.

1. If the items you will be counting require a container, you must first tare the container off by pressing the TARE key.
   NOTE: The TARE key is inoperative when in sampling mode.

2. Press the UNITS key until "5   0" is indicated on the display. If the screen does not show "5 0", press the ZERO key once. The indicator is prompting you to place five identical items on the platform.
   NOTE: If you wish to change the sample number, simply press the UNITS key repeatedly until the desired sample number appears. Available choices are 5, 10, 20, 50 and 100. If you continue to push the UNITS key, the indicator will resort back to weighing mode and you must start again from Step 2.

3. Place the sample items on the platform all at once and allow the weight indication to stabilize. Once this is done, the zero indicated after the sample number will change to a "−". For example, "5   −".

4. Press the NET/GROSS key to take the sample. If the sample size is large enough, the indicator now displays the number of pieces on the platform and the "PCS" annunciator is lit. If not, the indicator briefly displays "Lo" and automatically increments the sample size. Repeat Step #4 with the new sample size.
   NOTE: If the indicator continues to display "Lo" even after sampling 100 pieces, the unit weight of the items you wish to count is too light for your scale to process accurately.

5. To exit the piece count mode, press the UNITS key.
   NOTE: The APW will NOT remain in scale memory when you exit piece counting mode.

Peak Hold Mode

IMPORTANT NOTE: The peak hold function cannot be used in commercial (NTEP) applications.

This mode of operation is enabled by setting F30 to "5" in the Setup Menu and F35 to "3" in the User Menu (see separate installer's guide for more information). This mode is used to indicate and hold the peak weight recorded during a specific process. The most common application is testing the breaking point of a part or assembly. The TI-700 records both positive and negative peak weights.

1. Push the UNITS key to active peak hold mode; the "P" annunciator turns ON.

2. Apply force to the piece – the display indicates and holds the peak force applied.

3. To toggle between positive and negative peak weights, use the NET/GROSS key.

4. To reset both peak values to zero, press the ZERO key.

5. To exit peak hold mode, press the UNITS key again; the "P" annunciator turns OFF.

Accumulation (Totaling)

This mode of operation is enabled by setting F30 to "1" in the Setup Menu (see separate installer's guide for more information). The mode allows you to add weighments together to obtain a total weight. When a tare weight is active, the net weight is added automatically.

1. Load the system with the weight that is to be added.

2. Press the ON/PRINT key to add the current load to the weight accumulator.

3. The display briefly shows the message "ADDED" and then automatically returns to the weighing mode.

4. If a printer is installed, a printout will be made. The gross, net and tare weights are totaled.

5. No weight can be recorded twice. The system needs to be returned to the net zero-range before another weight can be added.

6. The subtotal can be checked by pressing the ON/PRINT key for 3 seconds.
    The display shows the net total weight and the number of weightings totaled so far repeatedly for 3 seconds.

7. If the PRINT key is pressed briefly during this period, the total is printed (if option is installed) and reset to 0.

8. If the PRINT key is pressed and held for 3 seconds during this period, the total is reset but not printed.

9. If no key is pressed during this period, the subtotal stays in memory and the system returns to the weighing mode after 60 seconds.

Printer

If the weighing system has been equipped with a printer, then weighing and time & date data can be printed.

Here is an example of a possible printout:

```
ID.NO.                123456
DATE             01/28/11
TIME             10:23 AM
GROSS              1067 lb
TARE                 67 lb
NET                1000 lb
PCS                1000
```

NOTES:
1. Some fields may not appear on your printout, depending upon your configuration settings

2. The TARE and NET fields are printed only when a tare has been established in the system.

Adjusting the Time and Date on the Printout

Your indicator will keep track of the current time and date for you, which can then be printed on the print ticket. To adjust the time and date, you must first enter the User Menu Mode.

1. Switch off the RF digital indicator by pressing and holding down the ZERO/OFF key for about 5 seconds.

2. Press and hold down the ON/PRINT key (about 20 seconds) until the screen shows "-F-".

3. Press the ON/PRINT (right) key once. The screen displays "-A-".

4. Scroll down using the ZERO/OFF (down) key to reach the parameter level. The scale shows "A1-1".

5. Move from A1-1 to A1-20 by pressing the TARE (left) key repeatedly until the screen shows "A1-20".

6. Once you have arrived at A1-20 press the ZERO/OFF (down) key once. The screen displays "ho_xx" where 'xx' is the current hour, e.g. "15". One digit will be flashing.

7. Use the four directional keys to adjust the displayed value to the actual hour value. Increase the flashing digit by pressing the UNITS key. Decrease the flashing digit by pressing the ZERO/OFF key. Pressing the TARE key or the ON/PRINT key will change the position of the flashing digit.

8. After entering the exact value, press the NET/GROSS key to save the value. The screen displays "n¬_xx" where 'xx' is the current minute, e.g. "55". One digit will be flashing.

9. Use the four directional keys to adjust the displayed value to the actual minute value. Increase the flashing digit by pressing the UNITS key. Decrease the flashing digit by pressing the ZERO/OFF key. Pressing the TARE key or the ON/PRINT key will change the position of the flashing digit.

10. After entering the exact value, press the NET/GROSS key to save the value. The screen displays "dA_xx" where 'xx' is the current day of the month, e.g. "14". One digit will be flashing.

11. Use the four directional keys to adjust the displayed value to the actual day value. Increase the flashing digit by pressing the UNITS key. Decrease the flashing digit by pressing the ZERO/OFF key. Pressing the TARE key or the ON/PRINT key will change the position of the flashing digit.

12. After entering the exact value, press the NET/GROSS key to save the value. The screen displays "n¬_xx" where 'xx' is the current month of the year, e.g. "02". One digit will be flashing.

13. Use the four directional keys to adjust the displayed value to the actual month value. Increase the flashing digit by pressing the UNITS key. Decrease the flashing digit by pressing the ZERO/OFF key. Pressing the TARE key or the ON/PRINT key will change the position of the flashing digit.

14. After entering the exact value, press the NET/GROSS key to save the value. The screen displays "yE_xx" where 'xx' is the current month of the year, e.g. "11". One digit will be flashing.

15. Use the four directional keys to adjust the displayed value to the actual year value. Increase the flashing digit by pressing the UNITS key. Decrease the flashing digit by pressing the ZERO/OFF key. Pressing the TARE key or the ON/PRINT key will change the position of the flashing digit.

16. After entering the exact value, press the NET/GROSS key to save the value and revert back up to the parameter level, e.g. "A1-20".

Checkweigher

NOTE: If you wish to drive a light tree or a set of buzzers/alarms, then this mode requires an optional digital I/O board. Use the A1-25 menu to set the logic of the outputs.

Optional Digital I/O
3 out
1 in
Logic level only (i.e. external relays are required to drive big loads)

This mode of operation is enabled by setting F30 to "6" in the Setup Menu (see separate installer's guide for more information). The mode allows you to accurately fill a vessel by weight.

For the operator, the only thing to do is to set the Low and High (Min/Max) weight values. This can be done from the front panel:

High/Low (Min/Max) Set Points

To enter new high/low (min/max) set point weight values:
1. Press the NET/GROSS key.
   The display briefly shows "Lo" followed by the current low weight value with one digit blinking. The pointer for SP1 is lit.
2. Use the four directional keys to adjust the displayed value to the desired low weight value. Increase the flashing digit by pressing the UNITS key. Decrease the flashing digit by pressing the ZERO/OFF key. Pressing the TARE key or the ON/PRINT key will change the position of the flashing digit.
3. After entering the exact value, press the NET/GROSS key to save the value.
   The screen displays "SET" and then "Hi" briefly, followed by the current high weight value with one digit blinking. The pointer for SP3 is lit.

4. Use the four directional keys to adjust the displayed value to the desired high weight value. Increase the flashing digit by pressing the UNITS key. Decrease the flashing digit by pressing the ZERO/OFF key. Pressing the TARE key or the ON/PRINT key will change the position of the flashing digit.
5. After entering the exact value, press the NET/GROSS key to save the value.
   The screen displays "SET" briefly. The high/low weight values are activated and the display returns to the weighing mode.

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<u>TI-700 checkweigher operation:</u>

If the displayed weight (net or gross) is less than the Low (Min) value, then:
- Digital Output #1 is activated
- SP1 light is ON
- Backlight colors is BLUE

If the displayed weight (net or gross) is more than the High (Max) value, then:
- Digital Output #3 is activated
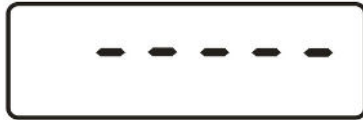- SP3 light is ON
- Backlight colors is RED

If the displayed weight (net or gross) is within the low / high (Max /Min) range, then:
- Digital Output #2 is activated
- SP2 light is ON
- Backlight colors is GREEN

ERROR MESSAGES

`00000`	Indicates that the weighing capacity of the scale has been exceeded.
`-----`	Indicates that the weight on the scale is negative. Press the **Zero/Off** key.
`ERR BT1`	TI-500 RFTM #1 not found; ensure that it is powered ON or move it closer to the digital indicator. **WIRELESS SYSTEMS ONLY**
`ERR BT2`	**NOTE**: Dual systems only TI-500 RFTM #2 not found; ensure that it is powered ON or move it closer to the digital indicator. **WIRELESS SYSTEMS ONLY**
`123.4 lb`	TI-500 RFTM #1 batteries have been depleted and need to be replaced. **WIRELESS SYSTEMS ONLY**
`123.4 lb`	TI-500 RFTM #2 batteries have been depleted and need to be replaced. **WIRELESS SYSTEMS ONLY**
`123.4 lb`	Both TI-500 RFTM #1 *and* #2 batteries have been depleted and need to be replaced. **WIRELESS SYSTEMS ONLY**
`123.4 lb`	Battery in TI-700 indicator need to be recharged or replaced.
`123.4 lb`	Battery in digital indicator need to be recharged or replaced *and* TI-500 RFTM #1 batteries need to be replaced.
`123.4 lb`	Battery in digital indicator need to be recharged or replaced *and* TI-500 RFTM #2 batteries need to be replaced.

Battery in digital indicator need to be recharged or replaced *and* both TI-500 RFTM batteries need to be replaced.

Err 24	Value for SP1 is greater than value for SP2.
Err 99	Parameter menus blocked. Toggle calibration switch back to its original position.
No-ad	Weighing platform not detected

SPECIFICATIONS

Digital Indicator Specifications – TI-700
- ABS enclosure rated for IP67
- 1.0", 7-digit reverse LCD w/LED backlight
- Operating temperature -4°F to 104°F (-20°C to 40°C)
- Internal connection port for optional printer
- Tilt adjustable bracket included
- AC Power: 90-308 VAC, 50/60 Hz
- DC Power: 5-15 VDC

OPTIONAL Bluetooth Specifications (RFTM)
- 2.0, Class I
- Up to 100m unobstructed
- (ISM) band at 2.4 to 2.485 GHz

Optional Digital Indicator Battery – TI-700
- 7.4 volt 3 Ah internal Li-Ion rechargeable battery
- 85+ continuous hours of operation on full charge under typical operating conditions

OPTIONAL TI-500 RFTM Battery Holder
- Holds 1.5-volt x 4 "C" alkaline
- User replaceable
- 130+ continuous hours of operation under typical operating conditions

TROUBLESHOOTING

Issue / Recommendation

"Low Battery" icon blinks on the digital readout, then the indicator powers off.
Replace or recharge the batteries.

Weight reads out lower at one end of the weighing platform than the other end.
- Check for any type of mechanical binding or impingement of scale that is displaying the lower weight
- Check underneath the scale for any obstructions or foreign debris
- Make sure that the scale feet are not screwed in so far as to restrict downward movement of the scale.
- Adjust platform corners using variable trimmer junction box (if supplied)

Indicator displays seven small zeros.
- Scale is overloaded. Remove weight from scale.
- Cut, damaged, loose, pinched cable between indicator and platform or within platform with multiple load cells (*cabled configuration only)
- Load cell damaged on platform
- Internal fault with indicator; call Transcell Tech Support

Scale turns off on its own.
The indicator has a power conservation feature, set to automatically power off the scale after 30 minutes of non-use. If your needs require a different setting, call Transcell Tech Support or installer.

Display is erratic.
- A battery may be fully depleted. If so, this condition can cause erratic displays. Power off the indicator and replace or recharge the battery.
- Check underneath the scale for any obstructions or foreign debris

Transcell Tech Support: (847) 419-9180

Limited 12-month Warranty

This product is warranted by Transcell Technology against manufacturing defects in material and workmanship under normal use for twelve (12) months from the date of purchase. For complete warranty details and service information, please contact us at the address below.

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