



TRANSCCELL TECHNOLOGY, INC.

TC-2005 Series

Digital Counting Scale – Dual Channel

Setup & Operation Manual

Revision 2.9
October 10, 2003

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Contents subject to change without notice.

Transcell Technology, Inc.
975 Deerfield Parkway
Buffalo Grove, IL 60089
Tel (847) 419-9180
Fax (847) 419-1515
E-mail: transcell@transcell.net
Web: www.transcell.net

Electromagnetic Compatibility Statement for North America

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

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CHAPTER 1: INTRODUCTION TO THE TRANSCCELL TC-2005 SERIES DIGITAL COUNTING SCALE

The Transcell Model TC-2005 Series Digital Counting Scale is an easy to use, high-resolution counting scale featuring a remote scale channel and a large (1") LED screen for easy readout.

This model also features one full duplex serial port for connection to a computer, handheld barcode scanner or remote display. A second serial port allows connection to a serial barcode label or receipt printer.

Optional features include a rechargeable battery for portable applications.

The scale is available in four avoirdupois weight capacities and four metric weight capacities. Table 1-1 shows the TC-2005 series product matrix.

Prior to using the scale, please read this user's guide carefully and completely. Store the manual in a safe and convenient place so it will be available if you have questions concerning the operation of the scale.

MODEL	CAPACITY / GRADUATION	MODEL	CAPACITY / GRADUATION
TC-2005-12	12 x 0.001 lb	TC-2005-6M	6 x 0.0005 kg (0.5 g)
TC-2005-30	30 x 0.002 lb	TC-2005-15M	15 x 0.001 kg (1 g)
TC-2005-60	60 x 0.005 lb	TC-2005-30M	30 x 0.002 kg (2 g)
TC-2005-120	120 x 0.01 lb	TC-2005-60M	60 x 0.005 kg (5 g)

TABLE 1-1: TC-2005 Series Product Matrix

FIGURE 1-1: TC-2005 Series Front Panel

CHAPTER 2: GETTING STARTED

After unpacking the scale, a small amount of preparation is required before the scale can be used. Please refer to Figure 2-1 below as needed.

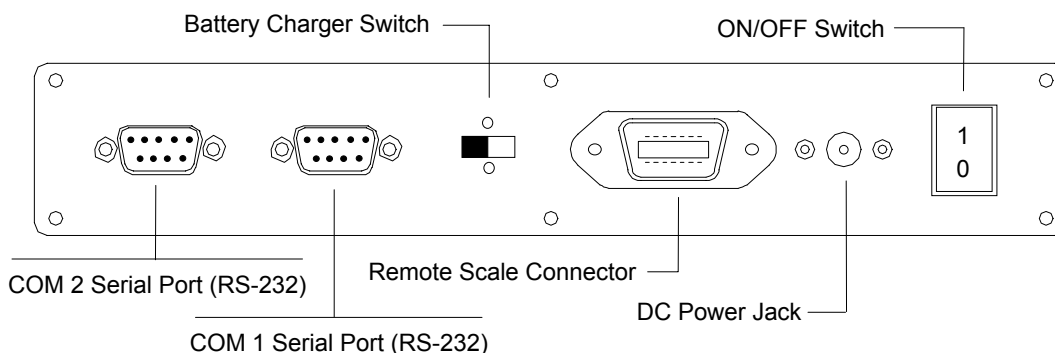


Figure 2-1: TC-2005 Rear Panel

Step 1. Position the scale in its area of intended use. Observe the following guidelines for suitable location.

1. Choose a firm, stable floor or table.
2. Do not share an AC outlet with electrical noise producing equipment, such as refrigeration units. This includes products with electrical motors and/or relays.
3. Do not place the scale in an area with changing ambient temperature and/or high humidity.
4. Do not place the scale in an area prone to exposure to direct sunlight, wind, or dust.
5. Do not place the scale in an area with vibrating equipment.

Step 2. Install the power supply - Non-battery-powered Units Only

1. After placing the scale in its area of use, locate the AC Adapter.
2. Connect the female end of the AC Adapter to the connector on the rear of scale, and then plug the adapter into an AC outlet. **Make sure that the AC voltage appearing at the wall outlet matches the input voltage marked on the AC adapter.**

Step 3. If applicable, install the serial device(s).

1. Connect the optional serial printer to the COM1 port using the serial cable supplied with the printer.

NOTE: If interfacing to a printer not supplied by Transcell, see Appendix B for pin outs.

2. Connect the optional scanner or TC Series scale to the COM2 port. The optional scanner has its own built-in cable. The TC Series scale should be connected using the optional NMC-2 serial cable.

NOTE: If interfacing to a computer or remote display, see Appendix B for pin outs.

3. Configure the communication parameters and select the device type as detailed in Section 5.3.

NOTE 1: If using a printer with your system, be sure to set the time and date. See Sections 5.4.3 and 5.4.5.

NOTE 2: The COM1 and COM2 ports cannot be used at the same time.

Step 4. If applicable, install the remote scale.

1. Connect the remote scale to the TC-2005's remote scale port using the provided remote scale cable. Consult Appendix D for proper cabling.
2. Configure the remote scale's parameters in the User Menu as detailed in Chapter 5.
3. Calibrate the remote scale as detailed in Chapter 6.
4. Enable the remote scale in the User Menu as detailed in Chapter 5.

Step 5. Switch the scale ON to begin use.

1. Locate the power switch on the rear panel and switch to the ON (1) position.
2. Push the ON/OFF key on the scale's front panel.

CHAPTER 3: OPERATION

3.1 DISPLAY

The Model TC-2005 scale utilizes a 6 digit LED (Light-Emitting Diode) Display to display the weight and system information.

3.1.1 LIGHT EMITTING DIODE DISPLAY (LED)

Figure 3-1 shows the display detail of the LED display. Table 3-1 lists the various annunciators you may see and their meanings.

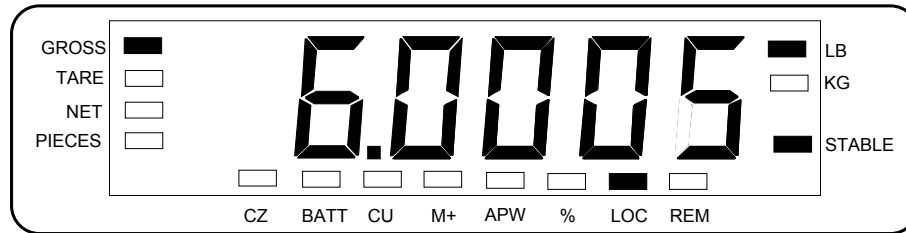


FIGURE 3-1: TC-2005 Display Detail

Annunciator	MEANING
GROSS	Indicates that the scale is displaying Gross weight.
TARE	Indicates that a tare has been established in the system.
NET	Indicates that a tare has been established in the system and the scale is displaying Net weight.
PIECES	Indicates the number of pieces on the platform.
LB	Indicates the unit of the displayed weight. "lb" stands for pounds.
KG	Indicates the unit of the displayed weight. "kg" stands for kilograms.
STABLE	Indicates that the scale is in a stable weighing mode and sees no motion.
CZ	Indicates that the scale is within the center of zero band.
BATT	Indicates that the scale batteries need to be re-charged. NOTE: Re-chargeable battery is an option with this scale. See Section 4.3.
CU	Indicates the unit of the displayed weight. "CU" stands for custom unit.
M+	Indicates that the scale is in the memory accumulation mode.

TABLE 3-1: TC-2005 Series Annunciator Definitions

Continued =>

APW	Indicates that the scale is displaying the Average Piece Weight of the items you are counting.
%	Indicates the present level of sample accuracy, if enabled in the User Menu. See Chapter 5.
LOC	Indicates the weight currently on the TC-2005 scale ("local").
REM	Indicates the weight currently on the remote scale, if configured.

TABLE 3-1a: TC-2005 Series Annunciator Definitions - Continued

3.2 KEYBOARD

The keyboard is composed of six function keys and sixteen function/numeric keys. Refer to Figures 3-2 and 3-3 for the overall layout and key locations.

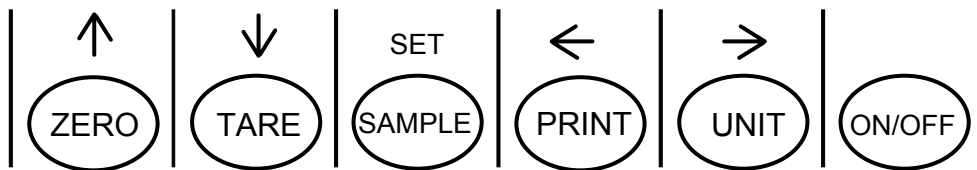


FIGURE 3-2: Function Keys Layout

3.2.1 FUNCTION KEYS

ZERO - This key sets the scale to display zero.

TARE - This key is used to establish a Tare provided the scale is not at or below Gross zero. See Section 3.3.3 below for more information.

SAMPLE – This key is used to sample the items currently on the scale’s platter for piece counting. Refer to Section 3.3.6 for more information.

PRINT - This key is used to send weight information out to the serial interface port provided the scale is in a state of stability.

UNIT – This key toggles the scale among pound (lb), kilogram (kg) and custom unit (CU) weight units when in Gross weight mode. When an APW (Average Piece Weight) exists, this key toggles the scale among piece count (PIECES), weight units mentioned above, APW and Sample Accuracy (%). NEW FOR VERISON 2.8 – remote scale will toggle between count – gross weigh – net weigh.

ON/OFF - When the scale is OFF, turns scale ON. When the scale is ON, turns the scale OFF if pressed and held for five seconds, then released.



FIGURE 3-3: Function/Numeric Keys Layout

3.2.2 FUNCTION/NUMERIC KEYS

SETUP/CAL - This key sets the scale to display zero.

LOCAL/REMOTE - This key is toggle the weight indication between local scale (TC-2005) and remote scale, if configured. See Section 3.3.2 below for more information.

KEY TARE – This key is used to enter a known tare value utilizing the numeric keyboard. Refer to Section 3.3.4 for more information.

CLR - This key is used primarily to clear the current APW (Average Piece Weight) and tare weight from the scale. This key can also be used to clear a numeric entry in case an error has been made.

Dec Pt - This key is used to enter a decimal point during numeric entry.

ENT - This key is used to enter the currently keyed-in value into the system.

3.3 GENERAL SCALE OPERATION

3.3.1 WEIGHING AN ITEM ON THE TC-2005

1. Ensure that the LOC annunciator is lit. If it is not, press the Local/Remote key once.
2. If necessary, press the Zero key to obtain a weight reading of zero.
3. Place the object to be weighed on the scale’s platter and allow the weight indication to stabilize. If the item weight exceeds the scale’s weight capacity, it displays “o o o o”.
4. Read the weight shown on the display.

Note: If you wish to change the unit of measure, press the UNIT key.

Continued =>

3.3.2 WEIGHING AN ITEM ON THE REMOTE SCALE

Note: The remote scale must be installed and configured properly for this feature to work. For instructions, refer to Chapter 2.

1. Ensure that the REM annunciator is lit. If it is not, press the Local/Remote key once.
2. If necessary, press the Zero key to obtain a weight reading of zero.
3. Place the object to be weighed on the scale's platter and allow the weight indication to stabilize. If the item weight exceeds the scale's weight capacity, it displays "o o o o".
4. Read the weight shown on the display.

Note: If you wish to change the unit of measure, press the UNIT key.

3.3.3 TARING AN ITEM OF UNKNOWN WEIGHT

To weigh an item in a container, the weight of that container must first be subtracted from the overall weight to obtain an accurate weight reading. This is known as taring.

1. Ensure that the proper Local/Remote annunciator is lit, depending on which scale you wish to use. If it is not, press the Local/Remote key once.
2. If necessary, press the Zero key to obtain a weight reading of zero.
3. Place the empty container on the scale's platter and allow the weight indication to stabilize.
4. Press the Tare key. The scale briefly displays "tArE", the NET and TARE lights come on and the scale displays a weight reading of zero.
5. Place the material to be weighed in the container and allow the weight indication to stabilize.
6. Read the weight shown on the display.

3.3.4 TARING AN ITEM OF KNOWN WEIGHT

If the weight of the container or object is known, you may enter this weight via the numeric keyboard. This value must be rounded to the nearest scale division. For example, on a 60 x 0.002 lb scale, you must enter the tare weight to the nearest 0.002 lb.

1. Ensure that the proper Local/Remote annunciator is lit, depending on which scale you wish to use. If it is not, press the Local/Remote key once.
2. Press the Key Tare key. The scale displays a zero.
3. Using the numeric keys, key-in the known tare weight and press ENT. The scale displays a negative (minus) weight reading and the NET and TARE lights come on.
4. Place the material to be weighed in the container and allow the weight indication to stabilize.
5. Read the weight shown on the display.

3.3.5 CLEARING A TARE

1. To clear a tare, press the CLR key at any time. The NET and TARE annunciators disappear and the gross weight is displayed.

NOTE: Enabling the Auto Tare Clear feature in the User Menu (Chapter 5) can eliminate this step.

3.3.6 PIECE COUNTING

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 SAMPLE key. To ensure accuracy, the parts you are counting must be consistent in weight.

The scale 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.

1. Ensure that the proper Local/Remote annunciator is lit, depending on which scale you wish to use to perform the sampling. If it is not, press the Local/Remote key once.
2. If the items you will be counting require a container, you must first tare the container off by pressing the TARE key.
3. Press the SAMPLE key. The scale will display "10 0". The scale is prompting you to place ten identical items on the platform.

NOTE: If you wish to change the sample number, simply press the SAMPLE key repeatedly until the desired sample number appears. Available choices are 5, 10, 25, 50 and 100.

4. Place the sample items on the platform all at once. Once the scale stabilizes, the scale will display "10 -".
5. Press the SAMPLE key to take the sample. The scale will now display the number of pieces on the scale. To see how accurate your piece counting will be based upon the sample, press the UNIT key until the screen shows the % annunciator. If you are not happy with the results, you should use a higher sample amount to achieve better piece count accuracy.

NOTE 1: If the scale displays an "Add" message, the unit weight of the items you wish to count or total sample weight is too light for your scale to process at all.

NOTE 2: You can eliminate the need to press the SAMPLE key in Step 4 by enabling the Auto Sample feature in the User Menu (Chapter 5).

NOTE 3: You can have the scale automatically switch from local to remote after sampling by enabling the Auto Switch Channel feature in the User Menu (Chapter 5).

3.3.7 CLEARING THE PIECE COUNT

1. To clear the piece count, press the CLR key to erase the sample.

CHAPTER 4: ADVANCED FEATURES AND OPERATION

4.1 AVERAGE PIECE WEIGHT ENTRY

If you already know the Average Piece Weight or APW of the items you wish to count, then use one of the following procedures.

4.1.1 APW ENTRY FROM SCALE KEYBOARD

1. Press the SAMPLE key. The display shows "10 0".
2. Press the UNIT key. The display will show "0"
3. Use the numeric keys to key-in the APW and press the ENT key. The display will show "SET" momentarily and the scale will now display the number of pieces on the scale. If the scale briefly displays an error message instead, please see Appendix C for an explanation of the error message.

4.1.2 DOWNLOAD APW FROM TC SERIES SCALE¹

To use this method, you must have either a TC-100 or a TC-200 scale connected to COM2. Also, TC Scale must be enabled in the User Menu. See Appendix B for pin outs. See Chapter 5 for User Menu information.

NOTE: The TC-100 or TC-200 scale must be configured for "Transmit APW Mode". See scale manual for more information.

1. Press the CLR key on the TC-2005 scale to clear current APW.
2. Perform the sampling on the TC-100 or TC-200 scale.
3. Press the PRINT key on the TC-100 or TC-200 scale. The TC-2005 briefly displays the downloaded APW. If the scale briefly displays an error message instead, please see Appendix C for an explanation of the error message.
4. Place your parts on the TC-2005 scale. The scale will now display the number of pieces on the scale.

4.1.3 APW ENTRY FROM SCANNER

To use this method, you must have a working scanner plugged into the COM2 port and the Transcell TC-2005 scale must have printed the barcode you are scanning. Also, Scanner must be enabled in the User Menu. If you have a printer installed, you must unplug it at this time.

1. Press the CLR key to clear current APW from scale.
2. Aim the scanner at the APW barcode you wish to scan and press the trigger. When the scanner beeps, the TC-2005 scale will briefly display the scanned-in APW. If the scale briefly displays an error message instead, please see Appendix C for an explanation of the error message.
3. Place your parts on the TC-2005 scale. The scale will now display the number of pieces on the scale.

¹ Also works with PBS Series scale.

4.2 MEMORY ACCUMULATOR

Your scale comes equipped with a handy memory accumulator, which can be used in conjunction with the piece counting feature. As with a hand-held calculator, the memory accumulator can be added to, displayed and cleared at anytime.

NOTE: Make sure the scale is in piece counting mode. If it is not, follow the sampling procedure found in Section 3.3.6 or the alternative sampling procedure found in Section 4.1.

4.2.1 ACCESSING THE MEMORY ACCUMULATOR

1. Press the UNIT key several times until the M+ annunciator becomes lit.

4.2.2 ADDING TO THE MEMORY ACCUMULATOR

1. Press the SAMPLE key. The scale adds the current number of pieces to the memory accumulator, briefly shows “-ACC-“, and then briefly displays the total number of pieces.
2. Repeat Step 1 as needed – up to 999,999 pieces.

4.2.3 PRINTING THE MEMORY ACCUMULATOR

1. Press the PRINT key.

4.2.4 CLEARING AND EXITING THE MEMORY ACCUMULATOR

1. Press the CLR key. This will clear the accumulator AND take you out of accumulator mode.

4.3 CHARGING THE BATTERY

If your scale came equipped with the optional battery pack, follow this procedure to properly charge your batteries.

NOTE: You should perform this procedure whenever the scale’s low battery annunciator (BATT) turns on.

1. Push and hold the ON/OFF key for five seconds, then release or use the power switch to shut the scale OFF.
2. Locate the battery charger switch on the rear panel of the scale.

NOTE: This may be hidden behind a metal plate held on by two drilled-head screws.



3. Position the switch as shown here:
4. Locate the AC adapter that shipped with the scale.
5. Connect the female end of the AC Adapter to the connector on the rear of scale, and then plug the adapter into an AC outlet. **Be sure to use the 24 VDC, 2A AC adapter that shipped with the scale. Any other AC adapter may cause damage to the scale.**
6. Allow at least three hours for the batteries to become fully charged. At the end of the charging period, simply disconnect the AC adapter and resume normal use.

NOTE 1: The batteries will be charged regardless of the setting of the power switch (ON or OFF). You may continue to use the scale while the batteries are charging if you wish.

NOTE 2: After charging the batteries, you may leave the battery charger switch in the position shown above. If, however, you wish to store or ship the scale, you should position it the opposite way.

CHAPTER 5: CONFIGURATION

5.1 CONFIGURATION OVERVIEW

The scale contains three main setup menus: The Setup (“F”) menu configures the factory settings for your scale. The Remote (“R”) menu configures the settings for the remote scale. The User (“A”) menu configures the COM1 and COM2 serial communication ports and enables some user options. The Setup, Remote and User menus consist of several menu selections, each with its own sub-menu of choices.

To set up the scale, you must first enter the appropriate menu mode. Once there, four of the front panel keys become directional navigators to move around in the menus, and one key is used to save or SET the selections.

5.2 SETUP (“F”) MENU

To **ENTER** “F” menu, turn scale off. Press and hold the TARE key while pressing ON. Scale displays F1. Use the LEFT or RIGHT arrow keys to change F number, the DOWN arrow key to enter parameter, the LEFT or RIGHT arrow keys to change the existing value, the SET key to save and return to “F” menu. To **EXIT** “F” menu, press the UP arrow key from any “F” number. Scale resumes normal weighing mode.

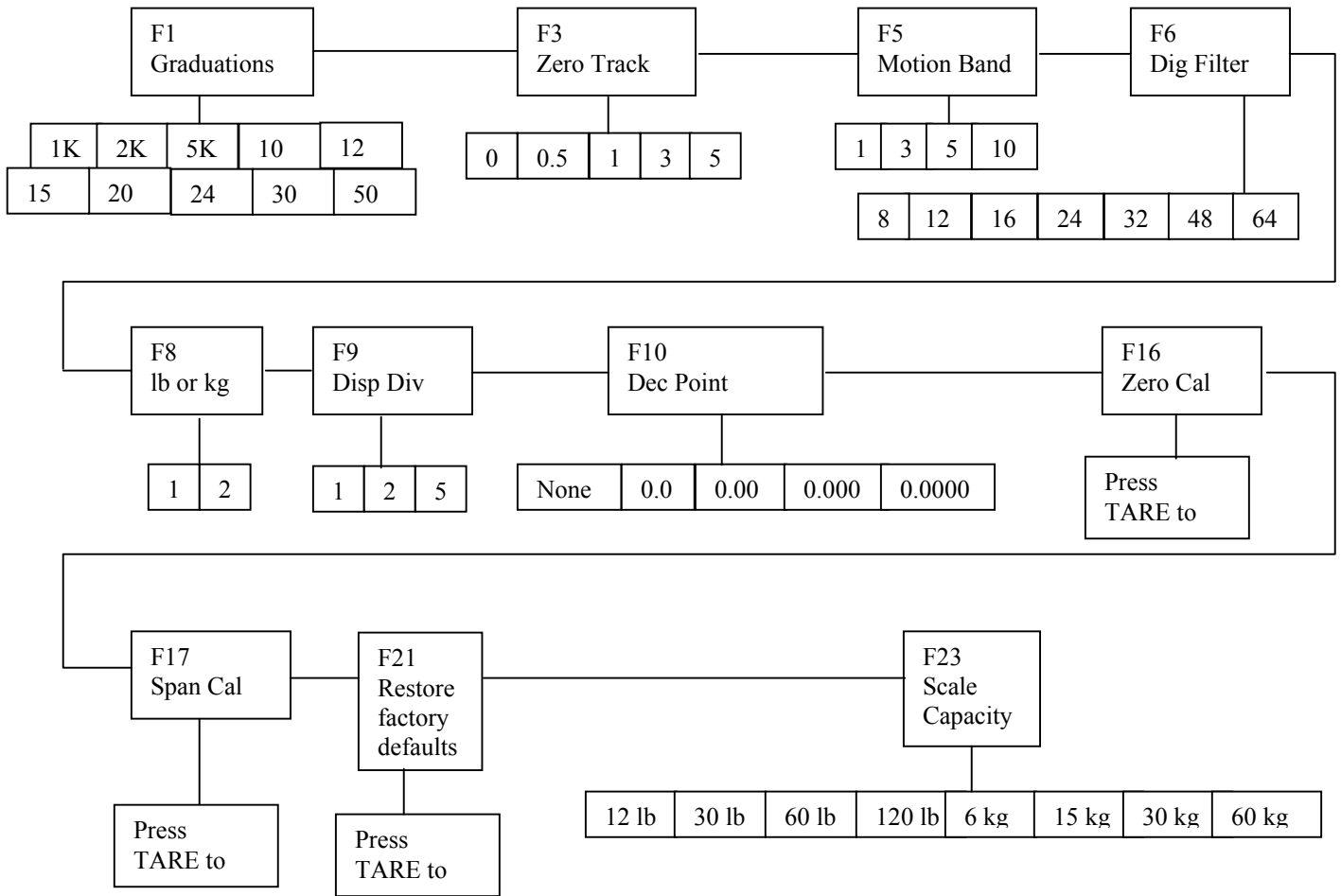


Figure 5.0 F menu flow chart

PARAMETER (Soft Key Text)	DESCRIPTION	AVAILABLE CHOICES
F1 Graduations	Specifies number of full-scale graduations. Value should be consistent with legal requirements and environmental limits on the useful system resolution. Note – default for 30 lb or 15 kg is 15000 divisions.	1000, 2000, 5000 10000, 12000 √ 15000, 24000 30000, 50000
F3 Zero Track	Selects the range within which the scale will automatically zero. Note that the scale must be in standstill to automatically zero. Selections are in Display Divisions.	0d 0.5d 1d 2d√ 3d 5d
F5 Motion Band	Sets the level at which motion is detected by comparing the present display update with the previous one. If motion is not detected for two seconds or more, scale is in standstill and can process a Print or Zero command. Maximum value varies depending on local regulations.	1d √ 3d 5d 10d
F6 Digital Filter	Averages weight readings to produce higher stability. The higher the filter setting, the greater the stability but the slower the indicator's response time. Choose 8 unless a very fast response is needed.	8, 12, 16, 24, 32 √ 48, 64
F8 lb or kg	Sets the starting unit during power up	1 = lb √ 2 = kg
F9 Display Divisions	Determines the desired weight increments. Value should be consistent with legal requirements.	1 2 5
F10 Decimal Pt.	Determines location of the decimal point.	0 0.0 0.00 0.000 0.0000
F16 Zero Calibration	Sets zero calibration. See chapter 6 for calibration instructions	
F17 Span Calibration	Performs scale calibration. See chapter 6 for calibration instructions	
F21 Restore factory default	Restores all parameters to factory defaults	
F23 Scale Capacity	Selects capacity of scale	12 lb, 30 lb, 60 lb, 120 lb, 6 kg, 15 kg, 30 kg, 60 kg

5.3 REMOTE (“R”) MENU

5.3.1 ENTERING THE REMOTE MENU

1. Press the SETUP/CAL key at any time. The scale prompts for a password (“000000”).
2. Key-in the password (336699) and press ENT. The scale displays “CAL-L”.
3. Press the UNIT key until the scale displays “- R --”.
4. Press the TARE key to enter the User (“R”) Menu. The scale shows “R 1”.

5.3.2 NAVIGATING IN THE REMOTE MENU

Use the directional keys shown in Figure 5-1 to move around in the Remote Menu Chart shown in Figure 5-2 on the following page. Detailed descriptions of the Remote Menu can be found in Table 5-1.

1. To move to a new “R” heading, use the PRINT (left) or UNIT (right) key to move right or left in the Remote Menu Chart.
2. To move to the selection level, press the TARE (down) key once. The current saved selection is shown.
3. To view the available selections for the current “R” heading, use the PRINT (left) or UNIT (right) key to move through the selection field.
4. To save a new selection, press the SAMPLE (Set) key .To exit without saving, press the ZERO (up) key to return to the current “R” heading.
5. Repeat Steps 2 through 5 until the Remote Menu is programmed.

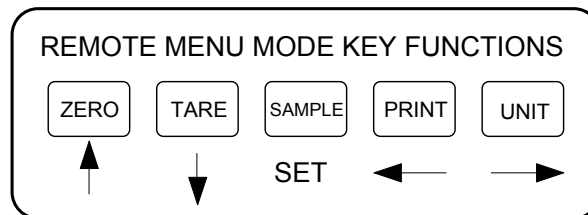


Figure 5-1: Remote Menu Key Assignments

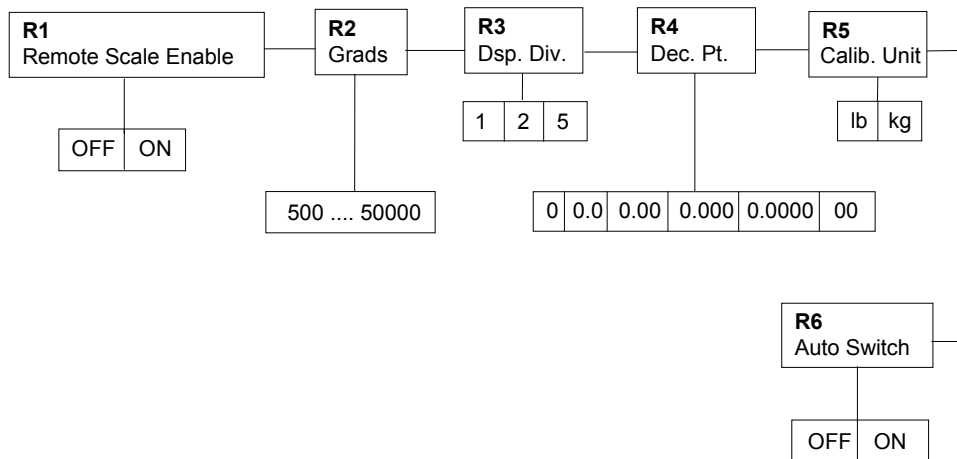


Figure 5-2: Remote Menu Chart

5.3.3 EXITING THE REMOTE MENU

1. Push the ZERO key a few times to get to the "-- R --" level, then press the ZERO key once more. The display will go through a digit check, then settle into Normal Operating mode. All front panel keys will now return to their normal mode of operation.

NAME/CODE	DESCRIPTION	CODE/VALUE
R1 Remote Scale Enable	Used to enable or disable the remote scale. "OFF" = Disable remote scale "ON" = Enable remote scale	OFF √ ON
R2 Graduations	Specifies number of full-scale graduations. Value should be consistent with environmental limits on the useful system resolution.	500 1,000 1,500 2,000 2,500 3,000 4,000 5,000 √ 6,000 8,000 10,000 12,000 20,000 30,000 40,000 50,000
R3 Display Divisions	Determines the desired weight increments. Value should be consistent with legal requirements.	1 √ 2 5
R4 Decimal Pt.	Determines location of the decimal point.	0 √ 0.0 0.00 0.000 0.0000 00
R5 Calib. Unit	Selects the primary base unit to be used in the calibration process. Also the default unit for normal operation. "1" = primary unit is lb. "2" = primary unit is in kg.	1 √ 2
R6 Auto Switch Enable	Used to enable or disable the auto switch channel feature. "OFF" = Disable auto switch "ON" = Enable auto switch	OFF √ ON

5.4 USER (“A”) MENU

5.4.1 ENTERING THE USER MENU

1. Press the SETUP/CAL key at any time. The scale prompts for a password (“000000”).
2. Key-in the password (336699) and press ENT. The scale displays “CAL-L”.
3. Press the UNIT key until the scale displays “- A -”.
4. Press the TARE key to enter the User (“A”) Menu. The scale shows “A 1”.

5.4.2 NAVIGATING IN THE USER MENU

Use the directional keys shown in Figure 5-3 to move around in the User Menu Chart shown in Figure 5-4 on the following page. Detailed descriptions of the User Menu can be found in Table 5-2 and Table 5-2a.

1. To move to a new “A” heading, use the PRINT (left) or UNIT (right) key to move right or left in the User Menu Chart.
2. To move to the selection level, press the TARE (down) key once. The current saved selection is shown.
3. To view the available selections for the current “A” heading, use the PRINT (left) or UNIT (right) key to move through the selection field.
4. To save a new selection, press the SAMPLE (Set) key. To exit without saving, press the ZERO (up) key to return to the current “A” heading.
5. Repeat Steps 2 through 5 until the User Menu is programmed.

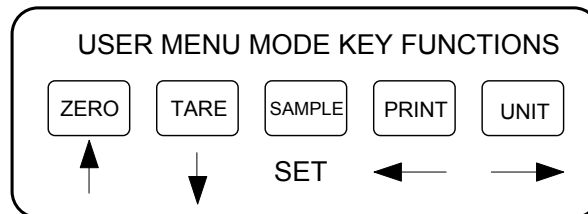


Figure 5-3: User Menu Key Assignments

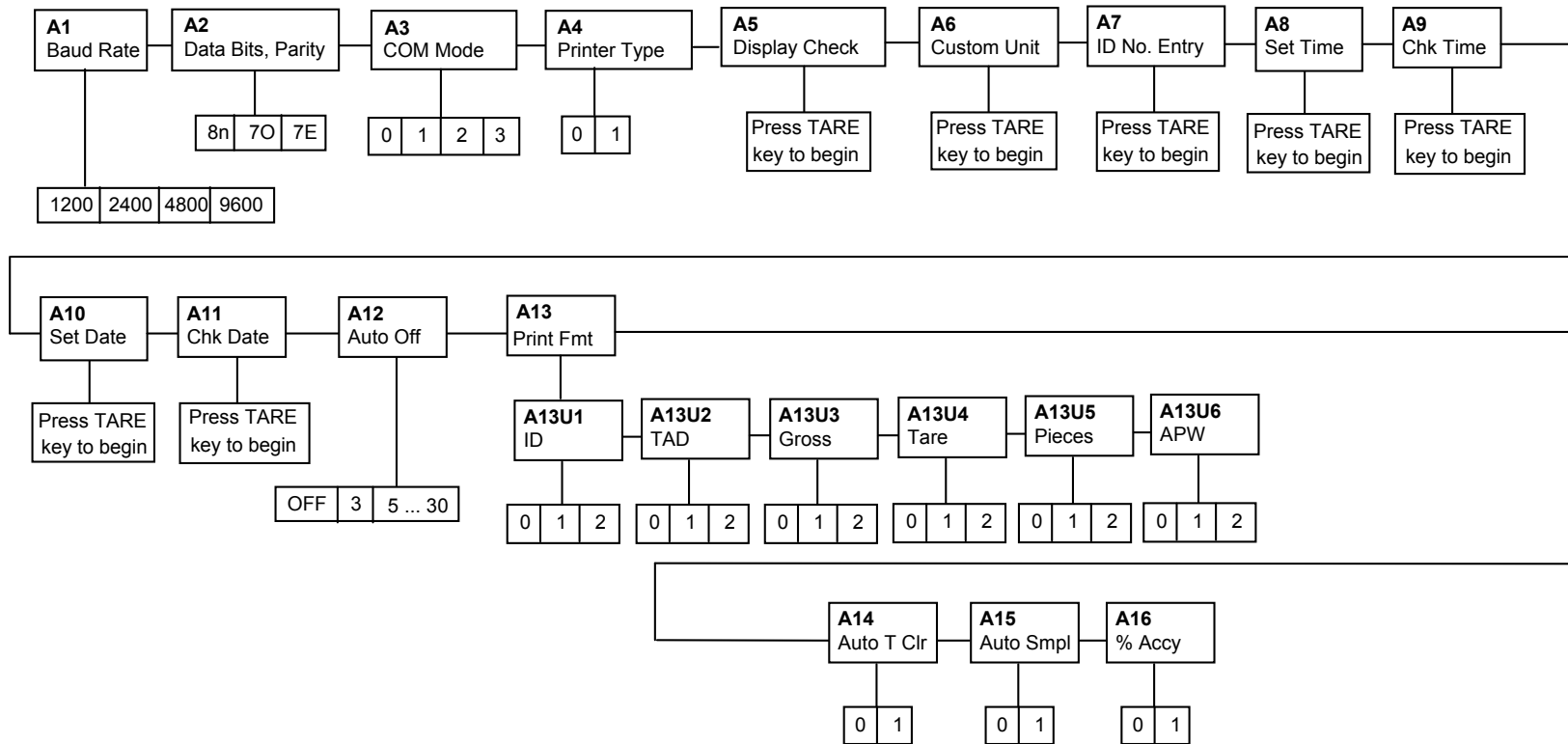


Figure 5-4: User Menu Chart

5.4.3 EXITING THE USER MENU

1. Push the ZERO key a few times to get to the "-- A --" level, then press the ZERO key once more. The display will go through a digit check, then settle into Normal Operating mode. All front panel keys will now return to their normal mode of operation.

NAME/CODE	DESCRIPTION	CODE/VALUE
A1 Baud Rate	Selects the baud rate for data transmission through the serial port.	1200 2400 4800 9600 √
A2 Data Bits and Parity	Selects the number of data bits and parity of serial transmission. "8n" = 8 data bits with no parity bit "7O" = 7 data bits with odd parity bit "7E" = 7 data bits with even parity bit	8n √ 7O 7E
A3 COM Port Device	Selects the device and function of the COM1 and COM2 serial ports: "0" = Printer (COM1) "1" = TC Scale for APW Download (COM2) "2" = Scanner (COM2) "3" = Computer (COM2)	0 √ 1 2 3
A4 Printer Type	Selects the type of printer connected to COM1: "0" = Non-barcode (Text) Printer (MP-20, Epson TM295.) "1" = Barcode Printer (Eltron 2742, 2842)	0 1 √
A5 Display Check	Actuates the function that illuminates all digit segments, decimal points, and LCD annunciators in a test sequence. Pressing the TARE key to scroll down one level begins the test sequence.	Press TARE key to begin sequence
A6 Custom Unit	Actuates the function that allows you to enter a multiplier for the custom unit. Pressing the TARE key to scroll down one level begins the test sequence.	(1.0)√
A7 ID No. Entry	Actuates the function that allows entry of a one ID No. up to 6 characters long. Pressing the TARE key to scroll down one level begins the sequence.	(123456)√
A8 Set Time	Actuates the function that allows entry of the current time. Pressing the TARE key to scroll down one level begins the sequence.	Press TARE key to begin sequence
A9 Check Time	Allows you to check the present time set on the scale. Pressing the TARE key to scroll down one level begins the sequence.	Press TARE key to begin sequence
A10 Set Date	Actuates the function that allows entry of the current date. Pressing the TARE key to scroll down one level begins the sequence.	Press TARE key to begin sequence

Table 5-2: User Menu Descriptions – A1 to A10

NAME/CO DE	DESCRIPTION	CODE/VALUE
A11 Check Date	Allows you to check the present date set on the scale. Pressing the TARE key to scroll down one level begins the sequence.	Press TARE key to begin sequence
A12 Auto Power Off	Selects the auto power off time period in minutes: "Off" = Disabled (Always ON)	Off ² 3, 5, 10, 15, 20, 30
A13 Print Format	Selects which of the available fields will be printed on the print ticket and their format. This menu selection has six sub-menus: A13U1 = ID A13U2 = Time and Date A13U3 = Gross Weight A13U4 = Tare Weight A13U5 = Pieces A13U6 = APW All: "0" = Not printed "1" = Text Only "2" = Both (Text and Barcode)	A13U1: 0√ A13U2: 2√ A13U3: 2√ A13U4: 2√ A13U5: 2√ A13U6: 2√
A14 Auto Tare Clear	Allows you to program the Auto Tare Clear feature ON or OFF. "0" = Disabled and "1" = Enabled	0√ 1
A15 Auto Sample	Allows you to program the Auto Sample feature ON or OFF. "0" = Disabled and "1" = Enabled	0√ 1
A16 Sample Accuracy	Allows you to program the scale to disallow the user to view the Sample Accuracy from the front panel keypad. "0" = Disabled and "1" = Enabled	0 1√

Table 5-2a: User Menu Descriptions – A11 to A16

5.5 USER MENU PROCEDURES

This section provides instructions for all of the User Menu procedures.

5.5.1 Custom Unit Multiplier Entry (A6)

The custom unit multiplier is the conversion factor that you would multiply the calibration unit by in order to obtain the custom unit of weight. For example, if your scale is calibrated in pounds and you wish to display weight in ounces, you would enter in a multiplier value of 16.0. The scale automatically determines the proper display increment for your custom unit.

1. While in the User Menu mode, scroll to "**A 6**", then scroll down once using the TARE key to enter the custom unit multiplier menu.
2. The display will momentarily show "**CU PT**" for the custom unit, followed by the current value for the custom unit multiplier with the decimal point.

² Non-battery powered scales only. For battery-powered scales, this is preset to 3 minutes at the factory.

3. Use the left or right directional keys (shown in Figure 5-1 above) to move the decimal point position to the correct position. Pressing the PRINT key or the UNIT key will change the position of the decimal point.
4. After setting the correct decimal point position, press the SAMPLE key to save it.
5. The display will momentarily show "CU" and then a value with one flashing digit. This value will be the current multiplier value with the decimal point position programmed above.
6. Use the four directional keys (shown in Figure 5-1 above) to adjust the displayed value to the actual custom unit multiplier value. Increase the flashing digit by pressing the ZERO key. Decrease the flashing digit by pressing the TARE key. Pressing the PRINT key or the UNIT key will change the position of the flashing digit.
7. After setting the exact value, press the SAMPLE key to save the custom unit multiplier value. The display will show "Set-CU" momentarily, then revert back up to A6.

5.5.2 ID Number Entry (A7)

1. While in the User Menu mode, scroll to "A 7", then scroll down once using the TARE key to enter the ID Number menu.
2. The display will momentarily show "ID NO", followed by a value with one flashing digit. This value will be the current ID number value.
3. Use the four directional keys (shown in Figure 5-1 above) to adjust the displayed value to the actual ID Number value. Increase the flashing digit by pressing the ZERO key. Decrease the flashing digit by pressing the TARE key. Pressing the PRINT key or the UNIT key will change the position of the flashing digit.
4. After setting the exact value, press the SAMPLE key to save the ID Number value. The display will show "SET" momentarily, then revert back up to A7.

5.5.3 Set Time (A8)

Your scale will keep track of the current time for you, which can then be printed on the print ticket. Use this procedure to set the current time, which must be set in military (24-hr) format. For example, for 9:00 AM, you would enter 9.00.00. For 5:00 PM, you would enter 17.00.00. The extra zeroes are for seconds.

1. While in the User Menu mode, scroll to "A 8", then scroll down once using the TARE key to enter the time entry menu.
2. The display will momentarily show "SET T", followed by a value with one flashing digit. This value will be the current time in military (24-hr) format.
3. Use the four directional keys (shown in Figure 5-1 above) to adjust the displayed value to the actual time value. Increase the flashing digit by pressing the ZERO key. Decrease the flashing digit by pressing the TARE key. Pressing the PRINT key or the UNIT key will change the position of the flashing digit.
4. After setting the exact value, press the SAMPLE key to save the time value. The display will show "SET" momentarily, then revert back up to A8.

5.5.4 Check Time (A9)

Use this menu to verify the current time set on the scale.

1. While in the User Menu mode, scroll to "**A 9**", then scroll down once using the TARE key to enter the check time menu.
2. The display will momentarily show "**t - -**", followed by the current time in military (24-hr) format.
3. After checking the time, press the SAMPLE key to exit and revert back up to A9.

5.5.5 Set Date (A10)

Your scale will also keep track of the current date for you, which can then be printed on the print ticket. Use this procedure to set the current date, which must be set in mm/dd/yy format. For example, for January 7, 1998, you would enter 01.07.98. For November 30, 1998 you would enter 11.30.98.

1. While in the User Menu mode, scroll to "**A 10**", then scroll down once using the TARE key to enter the date entry menu.
2. The display will momentarily show "**SET D**", followed by a value with one flashing digit. This value will be the current date in mm/dd/yy format.
3. Use the four directional keys (shown in Figure 5-1 above) to adjust the displayed value to the actual date value. Increase the flashing digit by pressing the ZERO key. Decrease the flashing digit by pressing the TARE key. Pressing the PRINT key or the UNIT key will change the position of the flashing digit.
4. After setting the exact value, press the SAMPLE key to save the date value. The display will show "**SET**" momentarily, then revert back up to A10.

5.5.6 Check Date (A11)

Use this menu to verify the current date set on the scale.

1. While in the User Menu mode, scroll to "**A 11**", then scroll down once using the TARE key to enter the check date menu.
2. The display will momentarily show "**d- -**", followed by the current date in mm/dd/yy format.
3. After checking the date, press the SAMPLE key to exit and revert back up to A11.

CHAPTER 6: CALIBRATION

6.1 CALIBRATION OVERVIEW

Your TC-2005 scale ships from the factory fully calibrated. There is no need to calibrate the scale unless you feel that it has become inaccurate. It is a good idea to check the calibration of your scale from time to time with a precision test weight. Transcell recommends that you perform a new calibration on your digital scale at least once a year.

During calibration, at least two values are saved in the scale's memory – the zero value (deadweight) and the up to three span values (test weights). See Table 6-1 for a listing of minimum and recommend test weights.

If you plan to use a remote scale, you must calibrate it before use. The remote scale calibration allows only one span value (test weight). The recommended test weight is 67% of full scale and the minimum test weight is 1% of full scale.

6.2 CALIBRATION MODE – TC-2005 SCALE

1. Press the SETUP/CAL key at any time. The scale prompts for a password ("000000").
2. Key-in the password (336699) and press ENT. The scale displays "CAL-L".
3. Press the TARE key. The scale shows "C 0" followed by a value. The value shown is for troubleshooting purposes only. Allow a 20-minute warm-up period for the load cell and electronic components to become thermally stable.
4. Remove all items from the scale's platter. Press ZERO to zero the value.
5. Press the SAMPLE key to save the zero point value. The scale briefly shows "SAVE", followed by "SET" and "ENDC0". The scale then shows "C 1" followed by "0.000". The "C 1" indicates that the scale is prompting for the first span calibration value.
6. Use the four directional keys (shown in Figure 6-1 below) to adjust the displayed value to the actual test weight value. Increase the flashing digit by pressing the ZERO key. Decrease the flashing digit by pressing the TARE key. Pressing the PRINT key or the UNIT key will change the position of the flashing digit.
7. Place the test weight(s) onto the scale's platter, then press the SAMPLE key. The scale briefly shows "SAVE", followed by "SET" and "ENDC1". If the calibration was successful, the display will prompt for the next span calibration value.
8. If you wish to use up to two more calibration test weights, repeat Step 7 twice. Each subsequent test weight must be greater than the last. If you do not wish to use more calibration test weights, simply press SAMPLE twice.
9. Press the ZERO key once to exit calibration mode and enter Normal Operating Mode. Remove the test weight from the platter

NOTE: If you encounter a failure, consult Appendix C for possible causes and remedies.

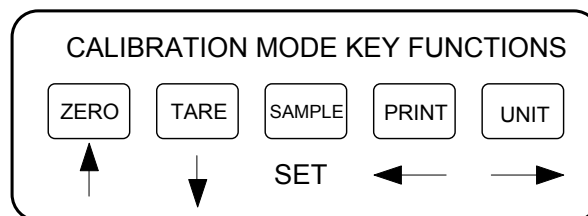


Figure 6-1: Calibration Mode Key Assignments

MODEL	Capacity / Graduation	Minimum Test Weight	Recommended Test Weight
TC-2005-12	12 x 0.0005 lb	0.12 lb	8 lb to 12 lb
TC-2005-30	30 x 0.001 lb	0.3 lb	20 lb to 30 lb
TC-2005-60	60 x 0.002 lb	0.6 lb	40 lb to 60 lb
TC-2005-120	120 x 0.005 lb	1.2 lb	80 lb to 120 lb
TC-2005-6M	6000 g x 0.2 g	60 g	4 kg to 6 kg
TC-2005-15M	15000 g x 0.5 g	150 g	10 kg to 15 kg
TC-2005-30M	30 x 0.001 kg (1 g)	300 g	20 kg to 30 kg
TC-2005-60M	60 x 0.002 kg (2 g)	600 g	40 kg to 60 kg

TABLE 6-1: Minimum / Recommended Calibration Test Weights

6.3 CALIBRATION MODE – REMOTE SCALE

1. Press the SETUP/CAL key at any time. The scale prompts for a password (“000000”).
2. Key-in the password (336699) and press ENT. The scale displays “CAL-L”.
3. Press the UNIT key until the scale shows “CAL-R”.
4. Press the TARE key. The scale shows “R 0” followed by a value. The value shown is for troubleshooting purposes only. Allow a 20-minute warm-up period for the load cell and electronic components to become thermally stable.
5. Remove all items from the scale’s platter. Press ZERO to zero the value.
6. Press the SAMPLE key to save the zero point value. The scale briefly shows “SAVE”, followed by “SET” and “ENDRO”. The scale then shows “R 1” followed by “0”. The “R 1” indicates that the scale is prompting for the first span calibration value.
7. Use the four directional keys (shown in Figure 6-1 below) to adjust the displayed value to the actual test weight value. Increase the flashing digit by pressing the ZERO key. Decrease the flashing digit by pressing the TARE key. Pressing the PRINT key or the UNIT key will change the position of the flashing digit.
8. Place the test weight(s) onto the scale’s platter, then press the SAMPLE key. The scale briefly shows “SAVE”, followed by “SET” and “ENDR1”.
9. Press the ZERO key once to exit calibration mode and enter Normal Operating Mode. Remove the test weight from the platter

NOTE: If you encounter a failure, consult Appendix C for possible causes and remedies.

APPENDIX A: SPECIFICATIONS

CONSTRUCTION:

Housings: Gray ABS
Sub-Platform: Metal
Platter: Stainless Steel
Feet: Non-skid Hard Rubber

DISPLAY:

6 Digit, 7-Segment LED

KEYPAD:

6-key Tactile Keypad

OVER CAPACITY ANNUNCIATION:

103% of Full Scale Capacity

OPERATING TEMPERATURE RANGE:

32°F to 104°F
(0°C to 40°C)

POWER SOURCE:

AC Adapter, 12VDC, 800 mA,
included

OPTIONAL POWER SOURCE:

Two 12VDC, 1200 mAh NiMH
battery packs
Charger: 24VDC, 2 A
Charge Period: 3 hours, max.
Battery Life: 24 hours, approx.

COM1 SERIAL PORT:

Full Duplex RS-232, DSUB9M

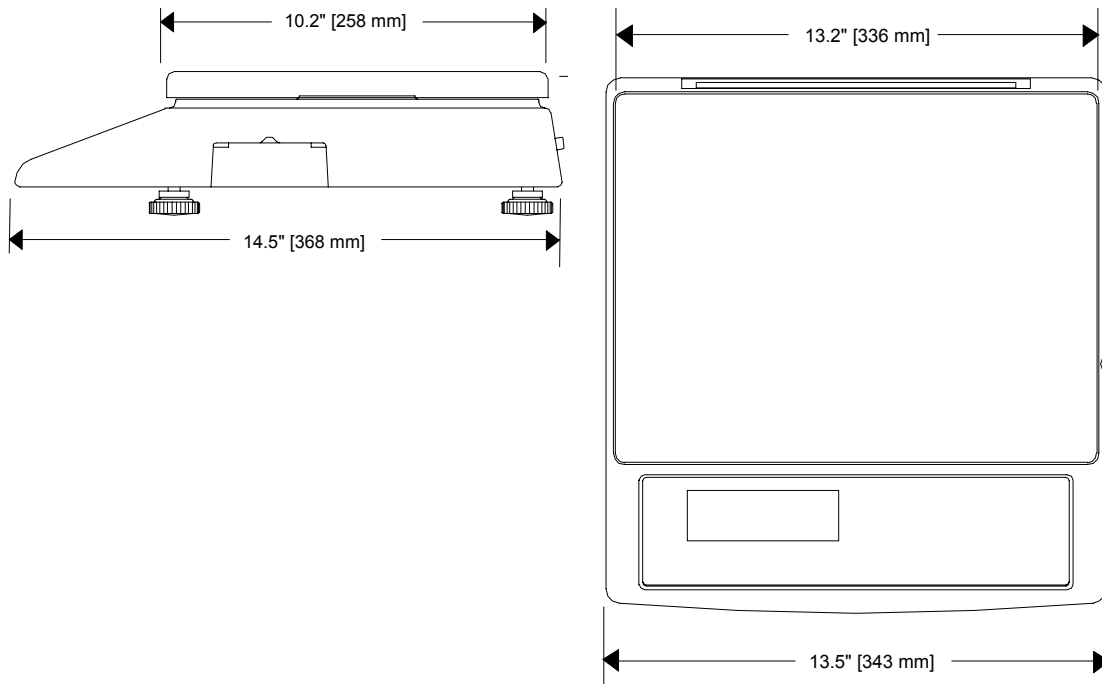
COM2 SERIAL PORT:

Full Duplex RS-232, DSUB9F

WEIGHT:

Net Weight: 23.0 lb (10.4 kg)
Shipping Weight: 24.0 lb (10.8 kg)

PHYSICAL DIMENSIONS:



APPENDIX B: SERIAL PORT INFORMATION

B.1 COM1 SERIAL PORT

B.1.1 CONNECTING THE SERIAL DEVICE

The COM1 serial port is a full duplex RS-232 port designed for connection to one of the following:

- Serial barcode printer - label or receipt
- Serial non-barcode printer - label, ticket or receipt

Figure B-1 shows the serial port pin out. Use the cable that came with your optional printer or consult the printer's user guide to fashion one of your own.

1. Plug the serial device cable (not included) directly into the DSUB9 serial port connector.

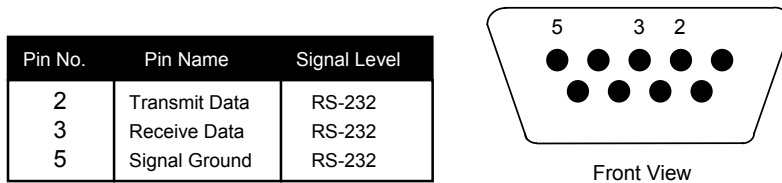


Figure B-1: Pin assignments for the COM1 serial port connector

B.1.2 DEFAULT PRINT FORMAT

Figure B-2 shows the fixed format of the print format. The TC-2005 scale prints all barcodes in Code 39 format.

NOTE: The PCS and APW fields are blank when an APW has not been established in the system.



FIGURE B-2: Default Print Format

B.2 COM2 SERIAL PORT

B.2.1 CONNECTING THE SERIAL DEVICE

The COM2 serial port is a full duplex RS-232 port designed for connection to one of the following:

- Computer
- Remote display
- Transcell TC-100, TC-200 or PBS Series scale
- Scanner

Figure B-3 shows the serial port pin out. To connect to a PC-type computer, use the optional Transcell cable – Model NMC-1. To connect to a Transcell scale, use the optional Transcell cable – Model NMC-2.

1. Plug the serial device cable (not included) directly into the DSUB9 serial port connector.

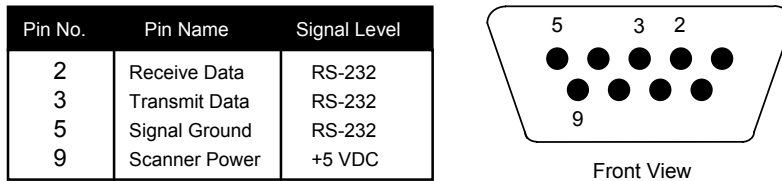


Figure B-3: Pin assignments for the COM2 serial port connector

B.2.2 FULL DUPLEX MODES FOR COM2

B.2.2.1 CONTINUOUS MODE

The Continuous mode is used to interface to computers, scoreboards and other remote devices requiring constant data updating. The transmission occurs at the end of each display update. Set A3 to “3” to get this output. Figure B-4 shows the serial data format for the Continuous Mode. Table B-1 shows the recognized host commands.

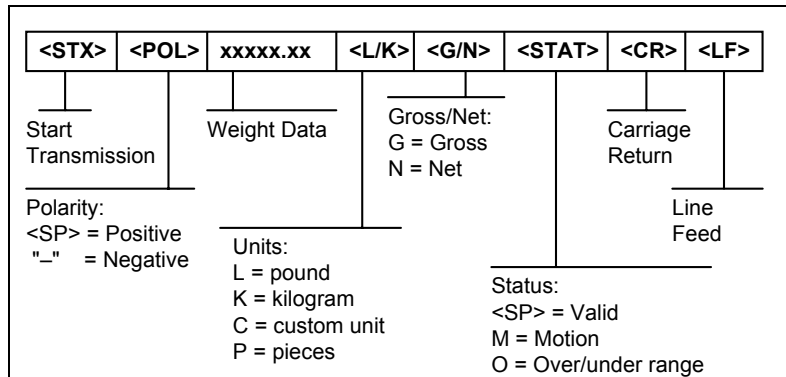


FIGURE B-4. Consolidated Controls Continuous Mode

“z” - This command is sent to the scale to zero the scale. If the scale is in motion, the scale will wait until a state of equilibrium is achieved. The scale will not respond at all if the scale is in positive overload or negative overload.

“t” - This command is sent to the scale to tare the scale. If the scale is in motion, the scale will wait until a state of equilibrium is achieved. The scale will not respond at all if the scale is in positive overload or negative overload. The scale will also not respond if it displaying a negative gross value.

“c” - This command is sent to the scale to toggle among the configured units.

TABLE B-1. Recognized Host Commands

NOTE 1: Host device must send lower case characters to scale.

NOTE 2: No output for APW or % modes at this time.

APPENDIX C: ERROR MESSAGES

C.1 ERROR MESSAGES

If the scale encounters an error condition, it will display a message alerting the operator. A description of each display follows:

C.1.1 OPERATOR ERRORS

<i>Message</i>	Explanation
□□□□□□	Indicates that the weighing capacity of the selected scale has been exceeded.
Add	Indicates that there is not enough internal resolution to calculate the APW of an item. This means that the items you are counting are too light for the scale to process at all.
OL	The result is too large to display. You are most likely to see this while piece counting on a high capacity remote scale.
Err 9	Span calibration value has been lost. Re-calibrate scale.
Err 14	The keyed-in value for APW is equal to zero or exceeds the capacity of the scale. Key-in a valid APW value.
tErr 6	Indicates that the tare weight value you are entering is not rounded to the nearest scale division. For example, you cannot enter 0.01 lb for a 0.05 lb increment scale.
tErr 1	Indicates that the tare weight value or APW value you are entering exceeds the capacity of the scale.

C.1.2 CALIBRATION ERRORS

Message	Explanation
Err 0	Indicates that the test weight value you have chosen exceeds the scale's capacity.
Err 1	Indicates that the test weight value you have chosen is less than 1% of the scale's capacity.
Err 2	Occurs when you do not place the test weight on the scale during calibration. Can also indicate that there is an internal error in the scale.

APPENDIX D: REMOTE SCALE WIRING

D.1 REMOTE SCALE WIRING

The TC-2005 ships with a 15 ft shielded load cell cable for connection to the remote platform's load cell(s) or junction box. The TC-2005 supplies enough current to drive up to 4-350 Ω load cells.

1. Plug the cable's 14-pin Centronics-type connector into the load cell port on the rear panel of the scale.
2. Wire the bare wires and shield to the remote platform's load cell(s) or junction box using the color codes shown in Figure D-1.

Color	Wire Name
RED	+Excitation
BLK	-Excitation
GRN	+Signal
WHT	-Signal

Figure D-1: Color Codes for Shielded Load Cell Cable

3. If you do not wish to use the shielded load cell cable, you may use own, following the pin assignments shown in Figure D-2. (A 14-pin Male Centronics-type connector is required).

Pin Nos.	Pin Name
1/8	+Excitation
3/10	-Excitation
5/12	+Signal
7/14	-Signal

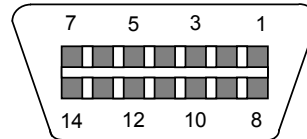


Figure D-2: Pin assignments for the Load Cell Port

LIMITED WARRANTY

Seller warrants that the TC Series Digital Counting Scale line will conform to written specifications, drawings, and other descriptions made by the manufacturer, including any modifications thereof. The Seller warrants the goods against faulty workmanship and defective materials. If any goods fail to conform to these warranties, Seller will, as its sole and exclusive liability hereunder, repair or replace such goods if they are returned within the following warranty period:

Twelve (12) months from date of shipment from manufacturer.

These warranties are made upon the following TERMS and CONDITIONS:

This warranty is limited to the original equipment manufactured by TRANSCCELL TECHNOLOGY, INC. Items not covered under this warranty are batteries and normal wear items like connectors, shrouds, front panels and fuses.

For the first sixty (60) days from the date of installation, the warranty covers parts, on-site labor, and limited travel time and mileage. (3 hrs/150 miles maximum per occurrence). After sixty (60) days, the warranty covers the cost of replacement parts only. However, at the discretion and prior approval of TRANSCCELL, certain equipment may be returned , freight pre-paid, for repair, free of any parts or labor charges.

TRANSCCELL's responsibility is confined to repair, replacement or credit of equipment of parts. The warranty does not extend coverage to labor, material, freight or service charges involved in removal, shipping or reinstallation of equipment or parts.

CONDITIONS WHICH VOID LIMITED WARRANTY:

This warranty shall not apply to equipment which:

- A. Examination of such goods discloses that the nonconformity exists and was caused by accident, misuse, neglect, alteration, improper installation improper or unauthorized repair, improper testing, or an act of GOD including lightning and such goods have not been modified, altered, or changed by any person other than the Seller or its duly authorized repair agents.

Transcell Technology, Inc. will have a reasonable time to repair or replace such goods.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ORAL OR WRITTEN, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SELLER WILL NOT IN ANY EVENT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

IN ACCEPTING THIS WARRANTY, THE PURCHASER OR BUYER AGREES TO WAIVE ANY AND ALL OTHER CLAIMS FOR RIGHT TO WARRANTY FROM TRANSCCELL TECHNOLOGY, INC. SHOULD THE SELLER BE OTHER THAN TRANSCCELL TECHNOLOGY, INC., THE BUYER AGREES TO LOOK ONLY TO THE SELLER FOR WARRANTY CLAIM OR CLAIMS.

No terms, conditions, understanding, or agreements purporting to modify the terms of this warranty shall have any legal effect unless made in writing and signed by a corporate officer of the Seller.