

Operating Guide

TS-700 Series Digital Indicators

Includes Appendix for Scale Technicians
Set Up • Calibration • Connectivity



TS 700-MS
Series 2



TS 700-SS
Series 3



TS 700-WB

Compatible with DataLog™ Scale-to-PC Data Logging Software

!!!! CALIBRATION WARNING !!!!

Calibration AND inspection of calibration properties
is prohibited unless done so by
a qualified scale technician.

ATTENTION



WARNING

The indicator has static sensitive components.

Do not make any connections without powering off the indicator.



DANGER

Electric shock risk.

Take necessary precautions to avoid risk of shock.

Triner Scale & Mfg.Co., Inc.
8411 Hacks Cross Road
Olive Branch, MS 38654
(800) 238-0152
www.trinerscale.com

Table of Contents

Specifications

TS-700 MS, SS and WB	2
----------------------------	---

Quick Start: Connecting and Powering On

TS-700 MS	3
TS-700 SS	5
TS-700 WB	7

Operation

Keys and Functions: TS-700 MS, SS and WB.....	9
---	---

Parameters and Settings

How to Access and Adjust Parameters	12
Example: How to Set Time & Date	12
Parameters Charts	14

Compatible Receipt Printers

MP-20 Model & SP-500 Model Printers.....	19
--	----

APPENDIX FOR SCALE TECHNICIANS

Calibration Procedure	A-1
------------------------------------	-----

Load Cell Connections

TS-700 MS & WB	A-9
TS-700 SS.....	A-9

Serial Port/RS-232 Connections

TS-700 MS	A-10
TS-700 SS.....	A-11
TS-700 WB	A-11

Data Output Formats, TS-700 MS, SS & WB

Remote Display Format	A-12
PC Computer Continuous Sending Format	A-13
Serial Interface Reception Command	A-13

Error Codes

TS-700 MS, SS and WB	A-15
----------------------------	------

Factory Default Parameter Settings

TS-700 MS, SS and WB	A-16
----------------------------	------

Specifications

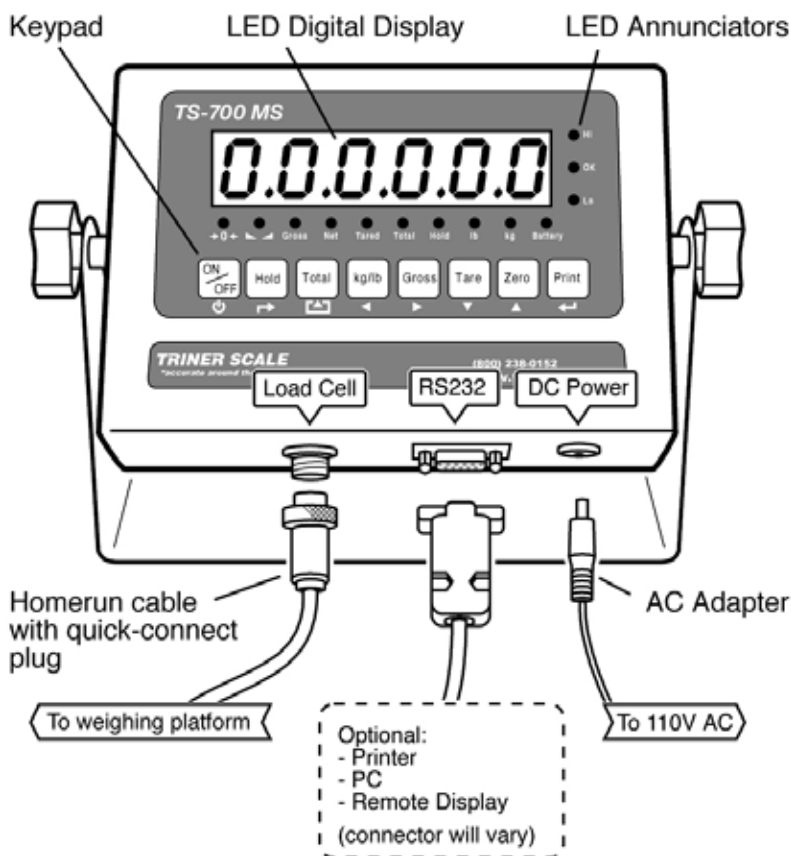
Resolution	Display: 30,000
ADC	2,000,000
Zero stability error	$TK_0 < 0.1 \mu V/K$
Span stability error	$TK_{spn} < \pm 6 \text{ ppm/K}$
Sensitivity (internal).....	$0.3 \mu V/d$
Input voltage	-30~30mV DC
Excitation circuit	5 VDC
Load Cell Max	(8) 350 Ω
AC power	AC100~250V
Operation temp	- 10 °C ~ + 40 °C
Operation humidity	$\leq 90\% \text{ RH}$
Storage temp	- 40 °C ~ + 70 °C

KEYPAD KEYS

KEY	FUNCTION
On/Off	Powers on, powers of the indicator
Hold	Hold weight on scale, or Hold peak weight*, or Hold unstable/animal weight*
Total	Total Weight: total of multiple weighings
Kg/lb	Display weight in pounds or kilograms
Gross/Tare	Tare container weight, display gross or net weight
Zero	Returns the indicated weight to "0"
Print	Prints receipt (requires optional printer)
PC connectivity requires Triner Scale's DataLog PC™ software.	

*requires adjustment of parameter settings

Quick Start: Connecting & Powering On TS-700 MS



Connect Weighing Platform Cable

Attach the home run cable from the weighing platform to the loadcell port located on the underside of the digital indicator.

Connect Any Optional Devices

Referring to the manual provided with optional device (such as a receipt printer), connect the

Quick Start: Connecting & Powering On

TS-700 MS

device to the RS-232 port located on the underside of the digital indicator. Power on the device.

Connect AC Adapter

Plug the AC adapter included with the digital indicator into the 9VDC 1200ma port located on the underside of the digital indicator.

Power On The Digital Indicator

Press and hold the ON/OFF key for 2+ seconds to power on the indicator. A self-test routine will run, followed by “0” indicated weight. If a small amount of weight displays, press the Zero (word) key. Scale is ready to operate.

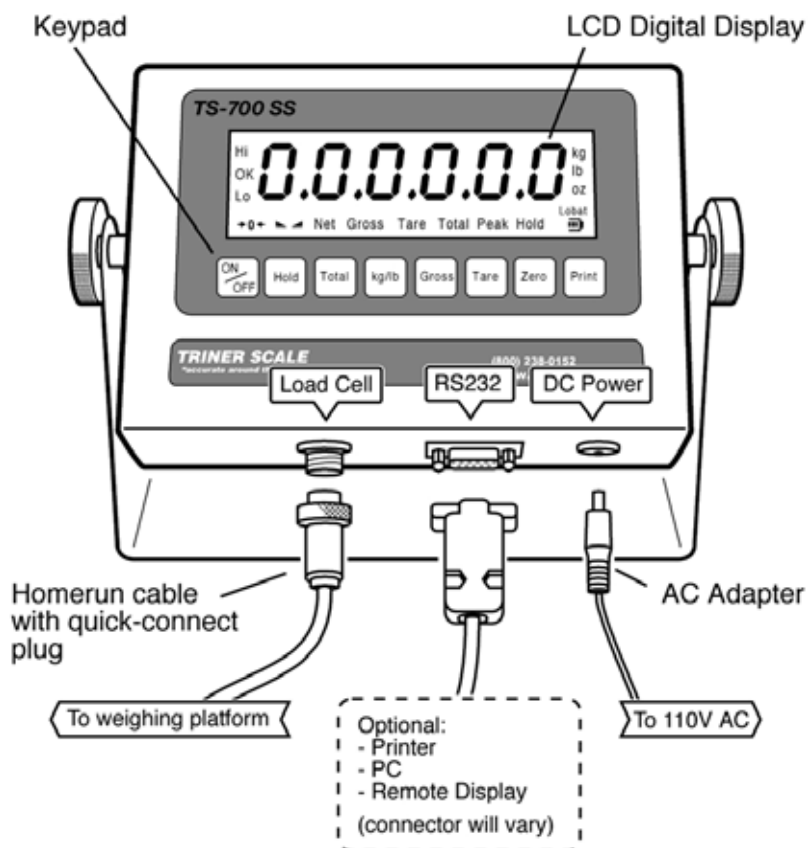
IMPORTANT NOTE: if equipped with optional built in rechargeable battery, fully charge for 18 hours before operating on battery power.

Operation

Refer to page 9 for operating instructions and functions details.

Certain settings in the TS-700 MS can be adjusted according to user preferences. Refer to page 14 for a listing of adjustable parameters and available settings options.

Quick Start: Connecting & Powering On TS-700 SS



Connect Weighing Platform Cable

Attach the home run cable from the loadcell port to the weighing platform junction box. Refer to installation instructions provided with the Triner Scale weighing platform.

Quick Start: Connecting & Powering On

TS-700 SS

Connect Any Optional Devices

Referring to the manual provided with optional device (such as a receipt printer), connect the device to the RS-232 port located on the underside of the digital indicator. Power on the device.

Connect AC Adapter

Plug the AC adapter included with the digital indicator into the 9VDC 1200ma port located on the underside of the digital indicator.

Power On The Digital Indicator

Press and hold the ON/OFF key for 2+ seconds to power on the indicator. A self-test routine will run, followed by “0” indicated weight. If a small amount of weight displays, press the ZERO (word) key. Scale is ready to operate.

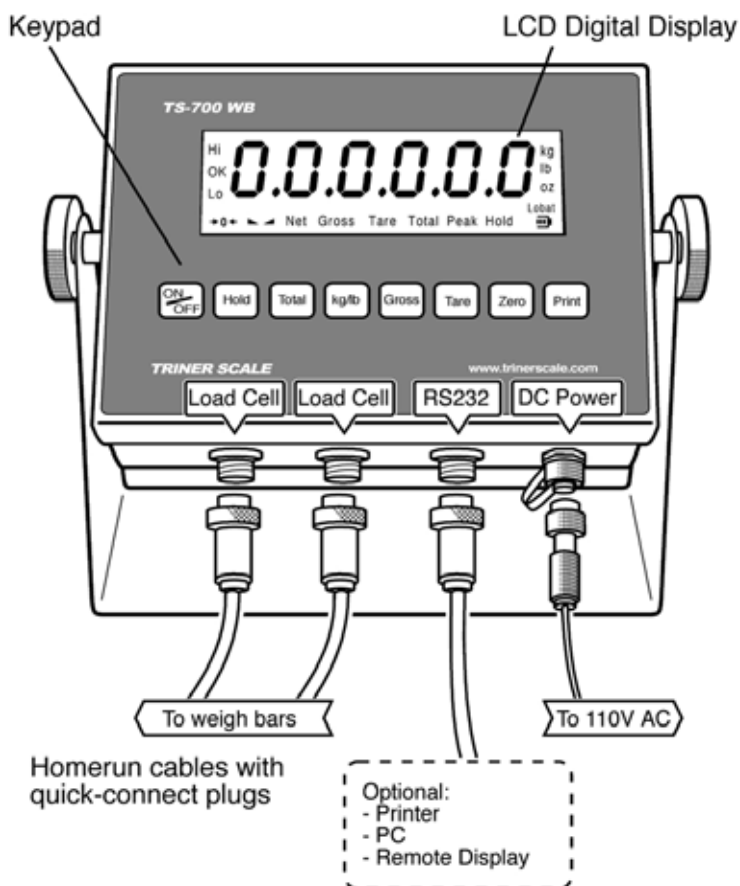
IMPORTANT NOTE: Fully charge for 18 hours before powering the indicator from the built in rechargeable battery.

Operation

Refer to page 9 for operating instructions and functions details.

Certain settings in the TS-700 MS can be adjusted according to user preferences. Refer to page 14 for a listing of adjustable parameters and available settings options.

Quick Start: Connecting & Powering On TS-700 WB



Connect the Weigh Bar Cables

Attach the home run cables to the loadcell ports and to the weigh bars. For weigh bar set up, refer to the User's Guide included with livestock the scale.

Quick Start: Connecting & Powering On

TS-700 WB

Connect Any Optional Devices

Referring to the manual provided with optional device (such as a receipt printer), connect the device to the RS-232 port located on the underside of the digital indicator. Power on the device.

Connect AC Adapter

Plug the AC adapter included with the digital indicator into the 9VDC 1200ma port located on the underside of the digital indicator.

Power On The Digital Indicator

Press and hold the ON/OFF key for 2+ seconds to power on the indicator. A self-test routine will run, followed by “0” indicated weight. If a small amount of weight displays, press the ZERO (word) key. Scale is ready to operate.

IMPORTANT NOTE: Fully charge for 18 hours before powering the indicator from the built in rechargeable battery.

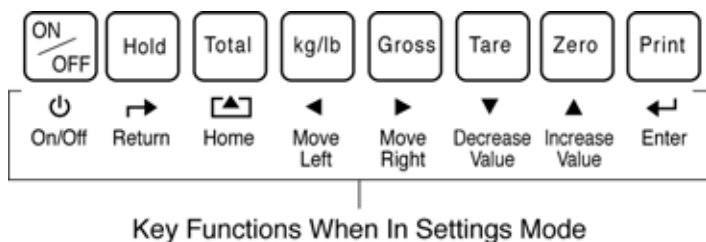
Operation

Refer to page 9 for operating instructions and functions details.

Certain settings in the TS-700 MS can be adjusted according to user preferences. Refer to page 14 for a listing of adjustable parameters and available settings options.

Operation

KEYS AND FUNCTIONS: TS-700 MS, SS & WB



KEY	FUNCTION/OPERATION
On/Off	Press and hold for 2+ seconds to operate.
Hold	Livestock Hold (animal weight hold): <u>If set up for livestock weighing, the animal's weight will automatically hold.</u> To Hold Weight on Scale (manual hold): With weight on scale, press Hold key. To Hold Peak Weight of Multiple Weighings (auto hold)*: To enable, press Hold key before loading scale. To Release the Hold Function: Press hold key again to return to normal operation. *Requires adjustment of parameter #11
	In Settings Mode: Return Key - Previous - Pressed with other key(s) for functions.

KEY	FUNCTION/OPERATION
Total NOTE: Before placing the next weight on scale to be added to total, make certain that the indicator has returned to "0" weight, and the scale is stable.	To Add Weights: With weight on scale, press the Total key to place weight and count in memory. Remove weight, place next item on scale, press Total to add weight to total weight and total count. To View Accumulated Total: Press Total and Print key at the same time. The total weight will flash continuously. To Print Accumulated Total: Press and hold the Print key for 3 seconds while in View Totals mode (requires optional printer). To Go Out of View Accumulated Total Mode: Press and hold the Total key. "Clr n" will display. If you wish to continue adding to the totals, press the Print to accept the "Clear-No" prompt. Continue weighing and adding items as required. To Clear the Totals Memory: Press the Zero/Up Arrow key to change the "Clr n" display to "Clr y". Press the Print key to accept the "Clear-Yes" prompt. In Settings Mode: Previous/Home Key  First press = previous Second press = home
kg/lb	Press to change pounds/kilograms In Settings Mode: Left Arrow Key  Press to move active digit one unit over to the left

KEY	FUNCTION/OPERATION
Gross	For use after a TARE weight has been stored in the indicator. Press key to toggle view between gross and net weight. PLEASE NOTE that there may be a momentary pause in the display when going from gross to tare weight.
	In Settings Mode: Right Arrow Key ► Press to move active digit one unit over to the right
Tare	With weight on the scale, press to Tare the weight. Press again to remove Tare weight.
	In Settings Mode: Down arrow key ▼ Press to reduce value of active (flashing) digit.
Zero	Press key to zero the scale.
	In Settings Mode: Up arrow key ▲ Press to increase value of active (flashing) digit.
Print	Press key to print a ticket (requires optional printer).
	In Settings Mode: Enter Key ◀ Press to accept entry. Press to proceed to next item.

IF EQUIPPED WITH INTERNAL RECHARGEABLE BATTERY: Fully charge the battery for 18 hours before operating on battery power.

Parameters and Settings

CAUTION: Use care when accessing and adjusting your indicator's parameters. Several parameters can be accessed that, if altered, will change your indicator's operations.

HOW TO ACCESS AND ADJUST THE TS-700 MS PARAMETERS

Press and hold down the PRINT and HOLD keys. "C" will display. Release the keys. "C08" or "C01" will display*, with last digit flashing. The digit flashing is the active digit, and can be adjusted up or down by using the Zero/up arrow key or Tare/down arrow key. Use the kg-lb/left arrow key and the Gross/right arrow key to change which digit is active (flashing).

***TIP:** Parameters C01 through C07 are for typically locked out and are only accessible by scale technician during calibration.

Navigate to the setting parameter you wish to adjust and use the arrow keys to change the settings values. Press the Print/enter key to accept your settings, then press the Total/home key to exit.

EXAMPLE: To adjust the date setting in parameter C16:

With the 8 flashing in "C08", press the Tare/down arrow key to reduce the 8 to 6.

Press the kg-lb/left arrow key to move the active digit from the 6 to the 0 (the 0 will flash).

Use the Zero/up arrow key to increase the 0 to 1 (C16 will display).

Press the Print/enter key.

The display will show digits for month, day and year. Use the arrow keys as discussed above to navigate to and change the digits.

Press the Print/enter key to accept your settings.

Press the Total/home () key to exit.

PARAMETERS CHART

(For calibration parameters, see Appendix for Scale Technicians, page A-4)

PARAMETER	FUNCTION	OPTIONS
C08	Warning tone	0 = Disable warning tone 1 = warning tone on
C09	Automatic Power-off	0 = Disable auto off 10 = Power off in 10 minutes. 30 = Power off in 30 minutes. 60 = Power off in 60 minutes.
C10	Power saving setting (display backlight on/off)	0 = Disable power saving setting 3 = Display off in 3 min. 5 = Display off in 5 min.
C11	Hold function	0 = Disable hold function 1 = Hold peak weight 2 = Hold weight on scale 3 = Hold animal weight 4 = Reserved Note: "hold peak weight" will display the max. load of multiple weighings.
C12	Kg/lb conversion	0 = kg/lb conversion disabled 1 = kg/lb conversion enabled
C13	Upper/lower limit alarm	Enter numeric values for upper and lower checkweighing limits.
C14	Lower limit alarm value	

PARAMETER	FUNCTION	OPTIONS
C15	Inner Code display	Enter C15 to check the inner code.
C16	Date	Set the date, from left to right: year/month/day
C17	Time	Set the time from left to right: hour/min./sec.
C18	Communication setting (Serial interface data output method)	0 = Serial interface data output disabled 1 = Continuous sending, remote display 2 = Print key sends data to printer or PC. 3 = PC command request (DataLogPC software) 4 = PC continuous sending. 5 = Remote display continuous sending format.
C19	Baud rate	0 = 1200 1 = 2400 2 = 4800 3 = 9600
C20 CAUTION: <i>Changing these parameters will affect the indicator's performance.</i>	Zero range (amount that can be zeroed out with the Zero key)	0 = Disable manual zero setting 1 = $\pm 1\%$ max capacity 2 = $\pm 2\%$ max capacity 4 = $\pm 4\%$ max capacity 10 = $\pm 10\%$ max capacity 20 = $\pm 20\%$ max capacity 100 = $\pm 100\%$ max capacity
C21	Zero range at power-up	0 = no initial zero setting 1 = $\pm 1\%$ max capacity 2 = $\pm 2\%$ max capacity 5 = $\pm 5\%$ max capacity 10 = $\pm 10\%$ max capacity 20 = $\pm 20\%$ max capacity

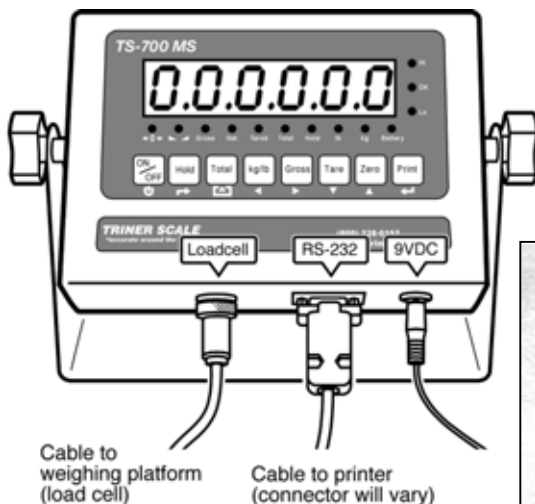
PARAMETER	FUNCTION	OPTIONS
C22 CAUTION: <i>Changing these parameters will effect the indicator's performance.</i>	Automatic Zero: tracking range	0 = Disable zero tracking 0.5 = $\pm 0.5d$ 1.0 = $\pm 1.0d$ 2.0 = $\pm 2.0d$ 3.0 = $\pm 3.0d$ 4.0 = $\pm 4.0d$ 5.0 = $\pm 5.0d$ Note: • d = division • The zero tracking range cannot be more than manual zero range.
C23	Automatic Zero; tracking time	0 = Disable zero tracking time 1 = 1 second 2 = 2 seconds 3 = 3 seconds
C24 CAUTION: <i>Changing these parameters will effect the indicator's performance.</i>	Overload range	00 = close overload range 01d -- 99d (d = division)
C25	Negative display	0 = -9d 10 = 10% max. capacity 20 = 20% max. capacity 50 = 50% max. capacity 100 = 100% max. capacity

PARAMETER	FUNCTION	OPTIONS
C26 CAUTION: Changing these parameters will affect the indicator's performance.	Standstill time	0 = quick 1 = medium 2 = slow
C27	Standstill range	1 = 1d 2 = 2d 5 = 5d 10 = 10d (d = division)
C28 CAUTION: Changing these parameters will affect the indicator's performance.	Digital filter To compensate for unstable loads on the weighing platform (for example, animal weighing).	0 = close dynamic filter 1 = 1 digital filter strength 2 = 2 digital filter strength 3 = 3 digital filter strength 4 = 4 digital filter strength 5 = 5 digital filter strength 6 = 6 digital filter strength
C29 CAUTION: Changing these parameters will affect the indicator's performance.	Noise filter	0 = disable noise filter 1 = 1 digital filter strength 2 = 2 digital filter strength 3 = 3 digital filter strength
C30	Format of date print out	0 = yy.mm.dd 1 = mm.dd.yyyy 2 = dd.mm.yyyy 3 = yyyy.mm.dd
C31	OPTIONAL output setting	0 = 0~5Voutput 1 = 4~20mA output
C32	RESERVED	-----

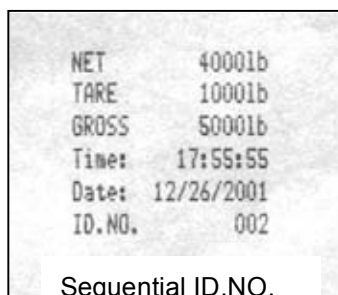
PARAMETER	FUNCTION	OPTIONS
C33	OPTIONAL Relay output setting	0 = Close relay output 1 = Open relay output function 1 2 = Open relay output function 2 3 = Reserved menu
C34	RESERVED	-----
C35	RESERVED	-----
C36 CAUTION: <i>Changing these parameters will affect the indicator's performance.</i>	Gravity of calibration location (Only available to technician during calibration)	C36 = 9.7000 -- 9.9999
C37 CAUTION: <i>Changing these parameters will affect the indicator's performance.</i>	Gravity of destination (Only available to technician during calibration)	C37 = 9.7000 -- 9.9999
C38	Reserved	-----

TIP: When in parameter settings mode, you can move forward through all parameters and view the settings by pressing the Print () key repeatedly.

Using A Receipt Printer



SP-500 printer receipt



SP-500 model only

To print receipts with an optional printer:

- With power off, attach the printer cable to the connector socket on the underside of the indicator.
- Power on the printer & indicator.
- Place weight on the scale and press the Print key.
- If receipt does not print, settings may need to be adjusted in parameters C18 & C19.
- To adjust the format of how the date prints, see options in parameter C30.

IMPORTANT NOTE: TS-700 series indicators cannot be programmed for adhesive label printing.

Appendix For Scale Technicians

Calibrating a TS-700 Series Indicator

NOTICE: The TS-700 SS, MS & WB are NTEP Class III Legal for Trade approved and certified. Unlocking the calibration parameters is not allowed by persons other than qualified scale technicians.

DEFAULT SETTINGS CAUTION

Placing the indicator in calibration mode enables access to the Default Settings Parameter, CO7.

NEVER activate Parameter C07 unless you are a qualified scale technician, and:

- A) You understand that all custom settings will be deleted permanently, and
- B) You understand how to restore all custom parameters to the required settings based on the scale's specifications and usage.

ALL MODELS: Place the Indicator in Calibration Mode and Determine if the Calibration Parameters are Accessible:

1. Power on the indicator.
2. Press the PRINT and HOLD keys. "C" will display. Release the keys.
3. If the calibration parameters are accessible, "C01" will display, with the 1 flashing. Proceed to page A-3, "CALIBRATION PROCEDURE".
4. If "C08" displays, disconnect the AC adapter and adjust the calibration switch as follows:

Appendix For Scale Technicians

Calibration Switch, TS-700 MS: Remove the screws and the back plate of the enclosure. A white-capped calibration switch is located at the bottom left corner of the circuit board. Press the switch fully in and release. This will place the switch in the up position, allowing access to the calibration parameters. Loosely reattach the rear plate.

Calibration Switch, TS-700 SS: Remove the screws and the back plate of the enclosure. A calibration switch is located at the bottom left corner of the circuit board. Move the switch to the “On” position, allowing access to the calibration parameters. Loosely reattach the rear plate.

Calibration Switch, TS-700 WB:

Enclosure With No Bolts: Power off the unit. To open the enclosure, place the indicator upside down (not face down) on a work surface. Locate the two slotted holes near the connection sockets. Insert a flat blade screwdriver into each slot (one at a time), pushing the blade inward while angled towards the back of the indicator. This will release the retaining prong and enable removal of the front cover. Carefully open the enclosure.

A white-capped calibration switch is located at the bottom left corner of the circuit board. Press the switch fully in and release. This will place the switch in the up position, allowing access to the calibration parameters. Close the enclosure.

Enclosure With Bolts: Power off the unit. Unfasten and remove the four bolts from the enclosure back. Carefully open the enclosure.

Appendix For Scale Technicians

A small calibration switch is located at the bottom left corner of the circuit board. Move the switch to the “On” position. Close the enclosure.

ALL TS-700 MODELS: After enabling access to calibration parameters, proceed as follows:

CALIBRATION PROCEDURE

- 1) Power on the indicator.
- 2) Press the PRINT and HOLD keys. “C” will display. Release the keys.
- 3) “C01” will display, with the 1 flashing. The indicator is now in Parameter Settings mode.

Navigating in Settings Mode

When the indicator is in settings mode, refer to the graphic printed below the key to determine the keypad key's function.

The ▲ and ▼ arrow keys are used to increase/decrease the value of the flashing digit, or to navigate up and down a list of preset options.

The ◀ and ▶ arrow keys are used to move the active digit over to the left or to the right.

The ⏪ key and ⏩ key can be used to move forward or backward through the parameters. Also, the ⏴ key is used to enter/accept changes after they have been made to the parameter settings.

The ⏶ key can be used to exit settings mode.

With the indicator in settings mode and the calibration weight nearby, proceed with the calibration process while referring to the following chart:

Appendix For Scale Technicians

PARAMETER	FUNCTION	OPTIONS
C01	Default weighing unit	1 = kg 2 = lb Description: With C01 flashing, press the  key, then use the up or down arrow keys to change the parameter setting as needed. Press the  key to accept the setting and continue on to the next parameter.
C02	Decimal location	0 = none 1 = one decimal place 2 = two decimal places 3 = three decimal places Description: With C02 flashing, press the  key, then use the up or down arrow keys to change the parameter setting as needed. Press the  key to accept the setting and continue on to the next parameter.

Appendix For Scale Technicians

PARAMETER	FUNCTION	OPTIONS
C03	Graduations	1 = one unit 2 = two units 5 = five units 10 = ten units 20 = twenty units 50 = fifty units Description: With C03 flashing, press the  key, then use the up or down arrow keys to change the parameter setting as needed. Press the  key to accept the setting and continue on to the next parameter.
C04	Capacity	Description: With C04 flashing, press the  key, then use the left and right arrow keys to select the active digit, then use the up and down keys to adjust the digits to the desired capacity, i.e., 5,000. Press the  key to accept the setting and continue on to the next parameter.

Appendix For Scale Technicians

PARAMETER	FUNCTION	OPTIONS
C05	Zero Calibration	0 = skip zero calibration 1 = proceed with zero calibration Description: With C05 flashing, press the  key, then use the up arrow key to change the 0 parameter setting to 1. Press the  key to proceed. The zero cal will count down from 10. Press the  key to proceed to the next parameter.

Appendix For Scale Technicians

PARAMETER	FUNCTION	OPTIONS
C06	Calibration	0 = skip calibration 1 = proceed with calibration Description: With C06 flashing, press the  key, then use the up arrow key to change the 0 parameter setting to 1. Press the  key to proceed. "Span" will briefly display, then all digits will display. Load the weighing platform, then adjust the displayed digits to match the weight on the platform, i.e., 4,000. Press the  key to proceed. The indicator will calibrate, then display "CalEnd". PRESS THE  KEY TO ACCEPT THE CALIBRATION AND EXIT SETTINGS MODE.
CAUTION -- IMPORTANT NOTICE!! <i>After calibrating, be sure to exit settings mode without activating parameter C07!</i> Parameter C07 is the parameter that can DELETE all custom settings and reset the indicator to factory settings.		

Appendix For Scale Technicians

PARAMETER	FUNCTION	OPTIONS
C07 CAUTION!!	FACTORY RESET... Erases all custom settings!	0 = skip reset to factory defaults 1 = proceed with reset to defaults Description: To reset to factory defaults, change the 0 setting to 1 and press the  key.

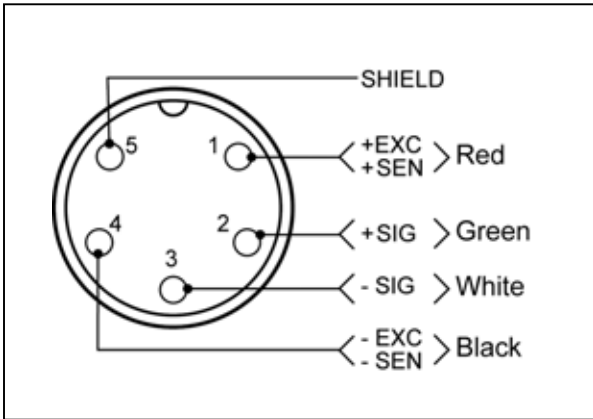
Appendix For Scale Technicians

Load Cell Connections

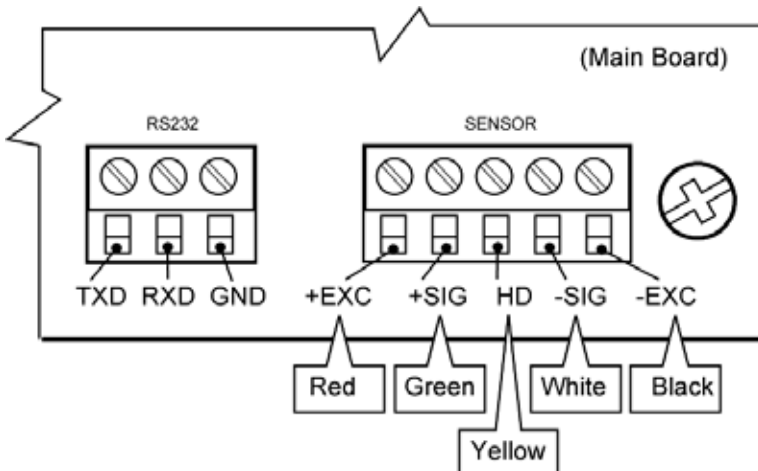
The indicator can connect with a maximum of eight (8) 350Ω load cells, 4 wire or 6 wire configurations.

Excitation voltage for the load cell is 5VDC, the maximum output current is 120mA.

TS-700MS/WB Load Cell Quick-Connect Pins



TS-700 SS Load Cell (sensor) Terminal Block Wiring



Appendix For Scale Technicians

Serial Port Connection

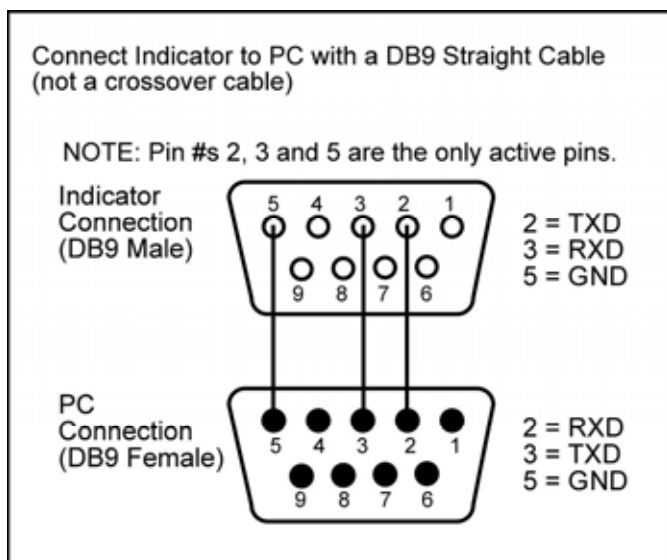
RS232 CONNECTION

TS-700 MS

The RS232 DB9 serial port can be utilized to connect the indicator to a peripheral device such as a printer or remote display, or to interface the indicator with a PC.

NOTE: PC interface requires Triner DataLog PC™ software to be installed on the PC.

Indicator to PC Connection



Com Port Settings on PC

Baud Rate.....9600

Data Bits8

ParityNone

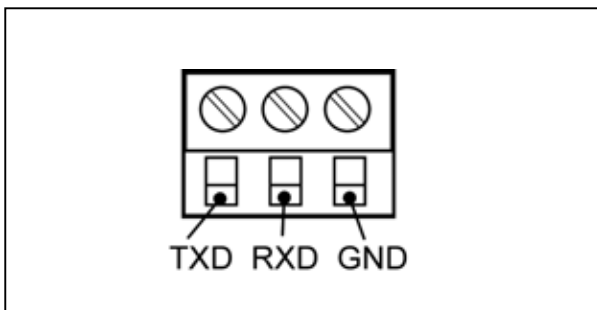
Stop Blts1

Flow Control ..None

Appendix For Scale Technicians**TS-700 SS**

The 3-wire terminal block located on the main board can be utilized to connect the indicator to a peripheral device such as a printer or remote display, or to interface the indicator with a PC.

NOTE: PC interface requires Triner DataLog PC™ software to be installed on the PC.

TS-700 SS RS-232 Terminal Block**TS-700 WB**

The RS232 3-pin quick-connect serial port can be utilized to connect the indicator to a peripheral device such as a printer or remote display, or to interface the indicator with a PC.

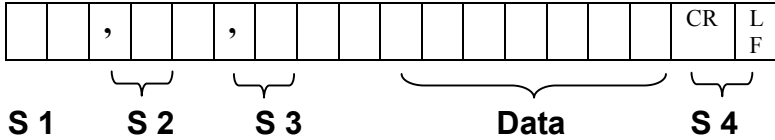
NOTE: PC interface requires Triner DataLog PC™ software to be installed on the PC.

Appendix For Scale Technicians**Data Output Formats****REMOTE DISPLAY FORMAT**

State A			
Bits: 0,1,2			
0	1	2	Decimal point position
1	0	0	XXXXXX0
0	1	0	XXXXXXX
1	1	0	XXXXX-X
0	0	1	XXXX-XX
1	0	1	XXX-XXX
Bits: 3,4			Division
0	1		X1
1	0		X2

State B	
BITS	FUNCTION
Bits0	Gross = 0, net=1
Bits1	Symbol: positive = 0,negative = 1
Bits2	Overload (or under zero)=1
Bits3	Dynamic = 1
Bits4	Unit: lb=0, kg=1
Bits5	Constant 1
Bits6	Constant 0

State C			
Bit2	Bit1	Bit0	unit
0	0	0	Kg or lb
0	0	1	g
0	1	0	t
Bit 3			printing=1
Bit 4			Extend display=1
Bit 5			Constant 1
Bit 6			Constant 0

Appendix For Scale Technicians**PC COMPUTER CONTINUOUS SENDING
FORMAT**

S1: Weight status:
 ST = standstill
 US = not standstill
 OL = overload

S2: Weight mode:
 GS = gross mode
 NT = net mode

S3: Weight of positive and negative,
 “+” or “-”

S4: “kg” or “lb”

Data: Weight value, including decimal point

CR: Carriage return

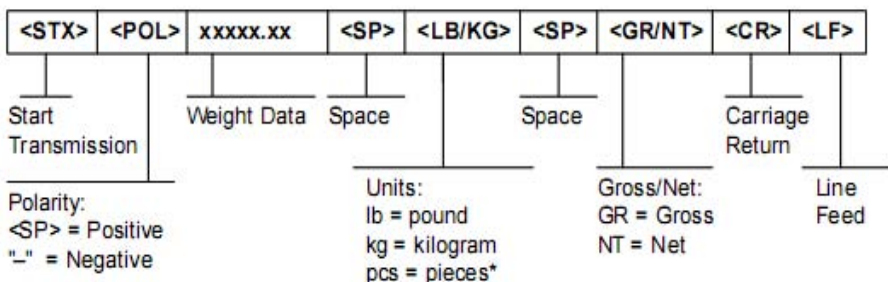
LF: Line feed

Appendix For Scale Technicians**SERIAL INTERFACE PC COMMAND REQUESTS**

RS232COM serial interface can receive simple ASCII commands.

Command word and role as follows:

Command	Name	Function
T	TARE	Save and clear tare
Z	ZERO	Zero gross weight
P	PRINT	Print the weight
R	G.W/N.W	Read gross weight or net weight
C	Kg/lb	Kg/lb conversion
G	G.W	Check gross weight at net weight mode

PRINT RECEIPT DATA FORMAT**Print Format**

ID.NO..... 004 (sequential #)

Date: XX.XX. XX (yy.mm.dd)

Time: XX.XX.XX (hh.mm.ss)

GROSS..... NNNNNN lb/kg

TARE NNNNNN lb/kg

NET NNNNNN lb/kg

Appendix For Scale Technicians**Error Codes**

ERROR	CAUSE	SOLUTION
uuuuuu	1. Overloaded condition. 2. Wrong connection at load cell. 3. Defective load cell.	1. Reduce the weight. 2. Check load cell connection 3. Inspect load cell. Check the input and output resistance of load cell.
nnnnnn	1. Calibration is incorrect. 2. Bad connections. 3. Defective load cell.	1. Check scale is resisted or not, foot is kept level or not. 2. Check load cell connection. 3. Check input and output resistance of load cell.
ERR1	Overweight calibration error. Incorrect weight input or incorrect weight on weighing platform.	1. Input weight correctly during calibration. 2. Place correct weight on weighing platform.
ERR2	Underweight calibration error. Incorrect weight input or incorrect weight on weighing platform.	The calibration weights Minimum is 10% of Max. cap. Recommend 60%-80% of Max. Cap.
ERR3	During calibration, the input signal is negative.	Check all connections. Check load cell. If connections and load cell are okay, PCB needs replacing.

Appendix For Scale Technicians

ERROR	CAUSE	SOLUTION
ERR4	During calibration, the signal is unstable.	After the platform is stable, start calibration.
ERR5	Circuitry error	Replace the PCB.
ERR6	Zero point error	Check all cables and connections. Recalibrate the scale.

Factory Default Settings

PARAMETER	FUNCTION	DEFAULT
C01	Calibration	1
C02	Decimal digits	0
C03	Resolution	1
C04	Max. capacity	10000
C05	Empty calibration	0
C06	Capacity calibration	0
C07	Restore default	0
C08	Warning tone	1
C09	Power-off automatically	0
C10	Power saving mode	0

Appendix For Scale Technicians

PARAMETER	FUNCTION	DEFAULT
C11	Hold function	0
C12	Disable kg/lb conversion	1
C13	Upper limit alarm	000000
C14	Under limit alarm	000000
C15	Inner code	----
C16	Date setting	----
C17	Time setting	----
C18	Serial interface data output	0
C19	Serial interface Baud rate	3(9600)
C20	Zero manually	10
C21	Initial zero	10
C22	Zero tracking range	0
C23	Zero tracking time	1
C24	Overload range	9
C25	Negative range	10
C26	Standstill time	1
C27	Standstill range	2

Appendix For Scale Technicians

PARAMETER	FUNCTION	DEFAULT
C28	Dynamic filter	0
C29	Noise filter	2
C30	Print format	0
C31	Analog signal options	1
C32	4~20mA testing	4
C33	Relay output setting	1
C34	Reserved	0
C35	Reserved	6
C36	Calibration location gravity	9.7936
C37	Destination gravity	9.7936
C38	Version No.	----
C39	Reserved menu	----

Triner Scale & Manufacturing Co. Inc.
8411 Hacks Cross Road
Olive Branch, MS 38654
(800) 238-0152

www.trinerscale.com