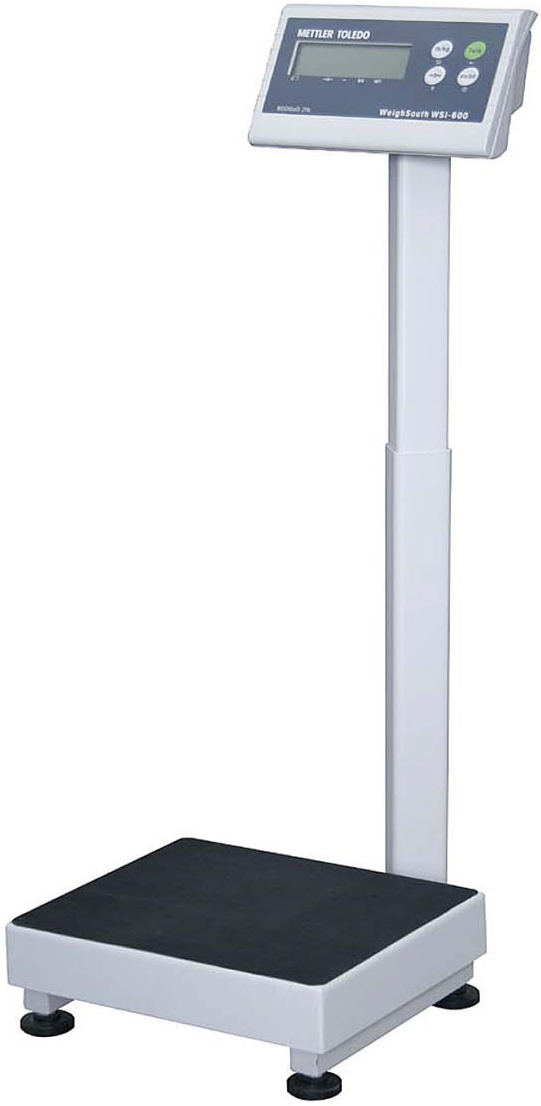
METTLER TOLEDO

Xpress™

Operation and Service Manual
WeighSouth WSI-600 Person Weigher



About this manual and METTLER TOLEDO Xpress

Thank you for purchasing a METTLER TOLEDO Xpress product.

All of our equipment is assembled and packed with great care. If you should find any incorrect item, please contact the dealer from whom you purchased this product immediately.

METTLER TOLEDO Xpress products are precision weighing instruments, many of which are Weights & Measures approved. However, you may want to obtain confirmation of official certification through your supplier or local Weights & Measures office.

This METTLER TOLEDO Xpress product was developed, produced, and tested in a METTLER TOLEDO facility that has been audited and registered according to international ISO 9001 quality standards and ISO 14000 environment control program. Properly used and maintained, this product will provide years of accurate weighing.

Handle it as you would any piece of precision electronic equipment. Please **read** this manual **before** operating or servicing this equipment. Follow the instructions carefully and save this manual for future reference. We at METTLER TOLEDO Xpress want to make sure you received the product you expected. It is important to us that you are satisfied with your purchase. If there is anything we can help you with, or if you are not satisfied with either your product or the services received from your METTLER TOLEDO dealer or reseller, please let us know.

How can you reach us?

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FCC APPROVAL

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- this device may not cause harmful interference;and
- this device must accept any interference received, including interference that may cause undesired operation.

Contents

Page

1 Safety notice

▲ Read this manual before operating or servicing the scale. Save this manual for future reference.

▲ Do not allow untrained personnel to operate, clean, inspect, maintain, service or tamper with the scale.

▲ Observe safety warnings located throughout this manual.

DANGER!
Electric shock hazard!

➜ Always disconnect all power before performing any work on the scale.

CAUTION!
The scale may only be serviced by qualified personnel, otherwise the warranty is void.

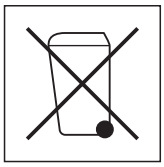
➜ Exercise care when moving, testing or adjusting the scale.

CAUTION!
Handle the scale with care. It is a precision instrument.

➜ Do not put excessive loads on the scale.

➜ When the platter has been removed, never clean the area under the platter with a solid object.

➜ Avoid banging the scale.



Disposal

➜ Observe the valid environmental regulations when disposing of the scale.

Batteries contain heavy metals and therefore must not be disposed with normal waste.

➜ Observe the local regulations for disposing of environmentally hazardous materials.

2 Preparing your scale for use

2.1 Unpacking

➜ Insure that all parts are accounted for.

Contents:

- WeighSouth WSI-600 indicator
- Weighing platform
- Column (option)
- Wheel kit (option)
- Required parts bag
- Quick Start Guide
- Installation Instructions
- Operation and Service Manual

2.2 Selecting or changing the location

The correct location is crucial to the accuracy of the weighing results.

➜ Select a stable, vibration-free and level location.

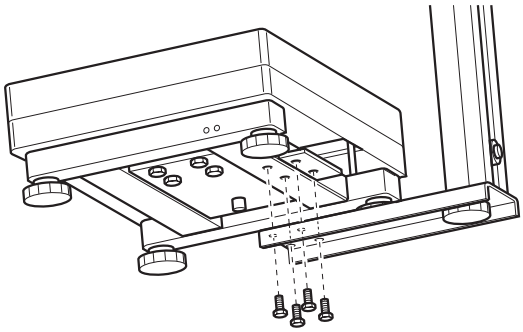
The ground must be able to safely bare the weight of the fully loaded scale.
Observe the following environmental conditions:

- No direct sunlight
- No strong drafts
- No excessive temperature fluctuations

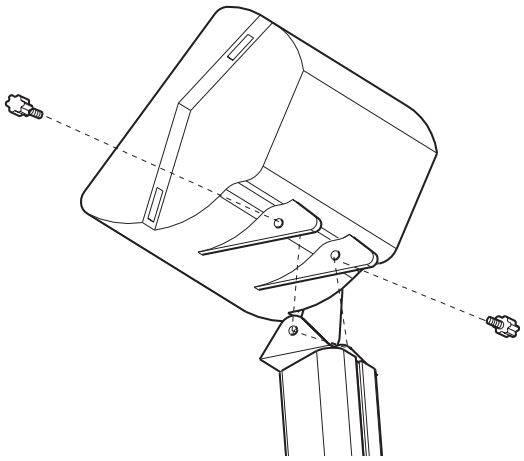
2.3 Assembling

Assembling scale with optional column

1. Set the weighing platform on the selected workplace.
2. First remove the platter and then remove and discard the red plastic shipping tabs located in each corner of the weighing platform. **The scale will not function if these red shipping tabs are not removed prior to use.**



3. Attach the optional column bracket near to the edge of the underneath bottom frame by using the 4 hexagon head screws supplied.
4. Tuck any excess load cell cable into the column.



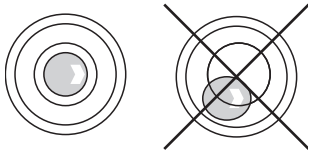
5. Attach the indicator on the column by inserting and tightening the two finger screws.
6. If it has not already been completed, attach the end of the load cell cable with the DB9 connector to the terminal and secure it by tightening down the two connector screws.
7. Adjust the height of the column and fix it at the desired position by tightening the locking screw.

Assembling scale without column

1. Set the weighing platform on the selected workplace.
2. First remove the platter and then remove and discard the red plastic shipping tabs located in each corner of the weighing platform. **The scale will not function if these red shipping tabs are not removed prior to use.**
3. If the indicator is to be wall-mounted: First attach the supplied wall bracket to the wall, and then attach the indicator to the bracket by inserting and tightening the two finger screws.
4. If it has not already been completed, attach the end of the load cell cable with the DB9 connector to the terminal and secure it by tightening down the two connector screws.

Leveling the weighing platform

Only weighing platforms that have been properly leveled provide accurate weighing results.



➜ Turn the adjustable feet of the weighing platform to level the scale using the leveling bubble gauge located on the side of the base. The unit is leveled correctly when the bubble indicator is in the center of the reference circle. The foot screws should not make contact with the frame.

Gravity adjustment

The manufacturer adjusts each scale with a Geo value of 16. For the Geo value of your specific geographical area refer to the table on page 27. If there is another Geo value for your area, this setting must be adjusted, see page 15.

2.4 Insert/change batteries

The scale may be operated with 6 D-cell batteries. Batteries are not provided with the scale.

CAUTION!

Damage to the scale!

➜ Allow the scale to adjust to room temperature before connecting the power supply.

CAUTION!

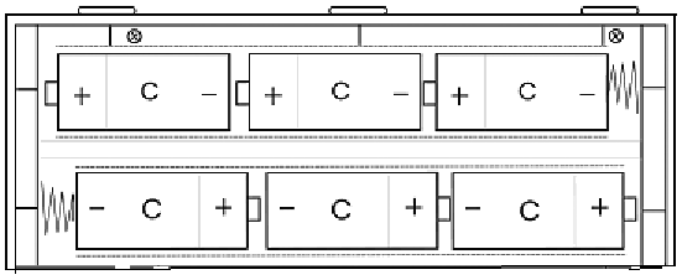
Risk of explosion!

➜ Never replace batteries by an incorrect type.

➜ Always install the batteries as shown in the picture on the next page.

➜ Disposal of used batteries according to local laws and regulations.

1. Open the battery case at the back of the indicator enclosure.
2. Pull the battery cover away from the indicator. Set the cover aside.
3. Carefully remove the batteries.
4. Insert the new or recharged batteries, three on each side. Make sure that the polarity corresponds to the drawing below.



5. Replace the cover.
6. Close the battery case.

2.5 Switching scale on and off

2.5.1 Switching on

Prerequisite
Before switching on the scale always make sure the platform is free of any obstructions or foreign objects.

➜ Press (On/Off) to switch on the scale.

The scale goes through a series of self-tests when it is turned on. These tests confirm normal internal operation.

The power-up sequence is as follows:
While the display is checked by displaying all numbers 0 – 9, a diagnostic self-test is performed on the memory and microprocessor.

An error message is displayed if any component fails the test.

The program number (125362) is shown next, followed by the revision (Sr. 2.2).

If everything tests okay, the display shows 0 and the scale is ready for operation.

Notes

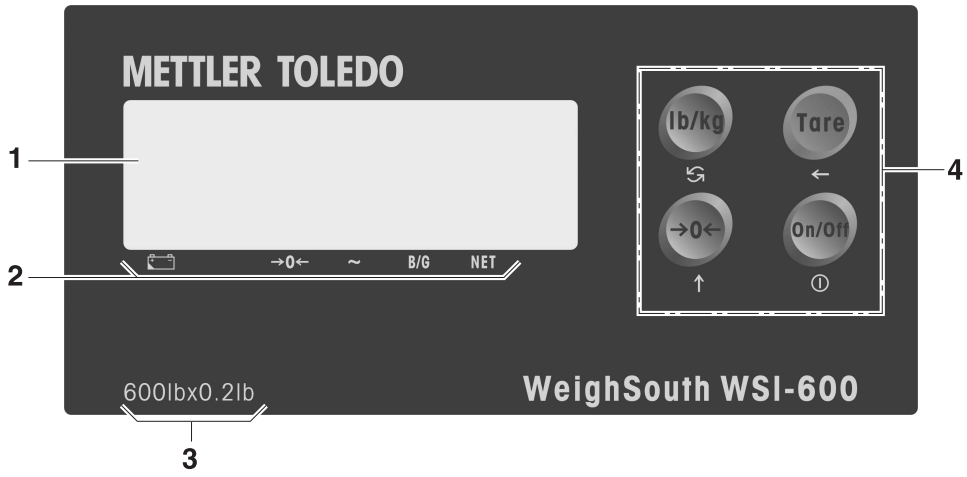
- The scale should be running for about 15 minutes before operation.
- If the scale does not automatically zero upon power up, first insure the red plastic shipping tabs have been removed, and the platform is properly leveled and/or recalibrate the scale, see page 15.

2.5.2 Switching off

➜ Press and hold (On/Off) until in the weight display "OFF" is shown.

3 Your scale at a glance

3.1 General



1 Weight display

2 Cursors (LCD)

3 Weights & measures marking

4 Keys

3.2 Cursors

Cursor	Description
Battery	Indicates low-battery condition. The battery should be replaced when the battery symbol appears.
→0←	Indicates the indicator is within ±0.25 increments of the center of gross or net zero.
~	Indicates the scale is in motion according to the motion sensitivity, which is set in setup mode.
B/G	Indicates the displayed value. Represents gross weight.
NET	Indicates the displayed value. Represents net weight.

3.3 Keypad

Key	Name	Function
	Unit	Switching unit Quickly pressing and releasing will switch the unit between "lb" and "kg" mode but only after the unit of measure switching has been activated via the setup mode.
	Tare	Taring the container weight Subtracts the weight of the object on the weighing platform, this is most often the weight of an empty container, from subsequent indications of weight. This key is also used to clear the previously entered tare value if the scale is in net mode.
	Zero	Setting scale to gross zero Captures a new center of zero if the indicator is in gross mode and weight on the scale is stable. The center of zero reference captured by this key is temporary and is lost when the indicator is turned off.
	On/Off Print	Turning scale on and off Also used to transmit data from the serial port according to the data output configured in setup. The indicator processes a print command when the weight on the scale is stable.

4 Operating your scale

4.1 Zeroing

For best weighing results reset the empty scale to zero before having an individual to be weighed stand on the scale.

4.1.1 Zeroing when switching on

The scale is automatically set to zero each time it is switched on.
The zero setting range is ±10 % of the scale capacity.
If there is a weight on the scale more than +10 % or less than −10 % of the scale's capacity the scale will not be set to zero and the weight display shows "-----".

➜ Step off the platform and/or make sure the platform is free of obstructions.

The scale will then zero itself.

4.1.2 Pushbutton zero

Setting to zero with →0← is only possible if:

- the displayed weight value is within ±2 % of the scale capacity,
- the scale is in gross weighing mode, i.e. the NET cursor must be off,
- the scale is not in motion, i.e. the motion cursor must be off.

➜ Press →0←.

The weight display is set to zero.

4.2 Straight weighing

CAUTION
Use care when stepping onto and off the scale.

1. Make sure that with an empty platform and no individual standing on the scale "0 lb" is displayed.
2. The individual to be weighed should carefully step up onto the platform and remain motionless.

   The weight is displayed.

4.3 Weighing with taring

Tare weighing provides a net weight by first subtracting the weight of any container which may be used – such as a baby car seat or baby carrier.

1. Place the empty container onto the platform.
2. Press (Tare).

   The weight display is set to zero and the NET cursor is lit.
3. Place the actual weight including the tared container onto the platform.

   The weight displayed is the weight of the actual item only and does not include the container.

4.4 Switching weight unit

Prerequisite
A second weight unit of measure that can be displayed must first be activated in the setup mode, see page 18.

➜ Press (lb/kg).

The actual weight value is displayed in the alternative weight unit.
Increment size and decimal point are automatically adjusted.

4.5 Printing

Prerequisite
Printing must first be enabled in setup mode, see page 19. For detailed questions on printing capabilities and/or connecting the WeighSouth WSI-600 to a printer, contact the dealer from whom you purchased the unit.

➜ Press (On/Off).

The data is printed according to the data output configuration, see page 19.

Note
Printing is disabled while the scale is in motion or in expanded display mode.

4.6 Cleaning

CAUTION!

Damage to the scale!

➜ Do not use any type of industrial solvents or chemicals.

➜ Do not spray cleaner directly onto the indicator.

➜ Always disconnect power to the scale while cleaning.

Cleaning the indicator

➜ Periodically clean the keybord and the display with a soft cloth that has been dampened with a mild window cleaner or detergent.

Cleaning the weighing platform

➜ Periodically clean the rubber mat with a mild household detergent and water solution. The rubber mat must be clean and dry before any individual should stand on the platform.

5 Setup mode

Most setup mode parameters should only be changed by a qualified technician. It is recommended that you first contact your supplying dealer before attempting to modify or change any of he scale's default settings.

The setup mode consists of various program blocks and sub-blocks which can be configured to determine how the scale will function.
In the setup mode you can modify parameters concerning your specific application.
The parameters of setup mode are arranged in blocks F1 … F3.
The setup mode is protected by a jumper and a parameter setting.
There are three setup mode access levels:

- Full access to modify all parameters
- Access to view scale parameters and to modify application and serial interface parameteres
- No access

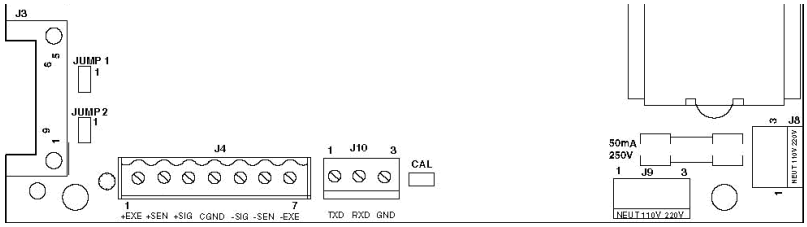
5.1 Entering the setup mode

➜ Press and release the keys (On/Off) and (→0←) simultaneously.

When the setup mode has been accessed, the [F1] prompt is displayed.

Full access to setup mode
For full access to the setup mode, the CAL jumper on the controller PCB must be set.

1. Open the indicator's enclosure using a Phillips screw driver.
2. Lift the bottom of the front panel completely out of the indicator.
3. Place the plastic CAL jumper over the two pins on the controller PCB thereby shorting the contacts.



4. Close the enclosure and fasten with the screws provided.

5.2 Operating the setup mode

In setup mode the keys have the following functions:

On/Off enter block/accept setting and go to the next step

Tare toggle between available parameters

→0← back to the previous block

lb/kg skip block and go to the next

The parameters are displayed in numerical order: F1.x, F2.x, F3.x

5.3 Setup mode overview

F1	**Scale parameters (see page 15)**	**F2**	**Application parameters (see page 18)**	**F3**	**Serial Interface parameters (see page 19)**
F1.1	Calibration Unit	F2.1	Alternative Unit	F3.1	Baud Rate
	Geo Code	F2.2	Auto Backlight	F3.2	Data Bits
F1.2	Calibration	F2.3	Tare	F3.3	Stop Bits
F1.3	Display X10	F2.4	PB Zero Range	F3.4	Parity
F1.4	Programming Mode Access	F2.5	AZM	F3.5	Data Format
		F2.6	Motion Sensitivity	F3.6	Checksum
		F2.7	Filtering	F3.7	Weight Legend
		F2.8	Sleep Mode		
		F2.9	Power Up Zero Range		SAVE (see page 19)

5.4 Setup mode parameters

5.4.1 Scale setup mode

Default settings are printed in **bold.**

Para.	**Function**	**Explanation**
F1.1	Calibration unit	1 lb **2 kg** 3 g
GEO	Gravity adjustment	To adjust the calibration to your specific geographic area, refer to the table in the appendix for your GEO code. Select your GEO code and the calibration will automatically be adjusted for your desired location. Possible settings: 0 .. 31 **Factory setting: 16**
F1.2	Scale calibration	**0** Skip calibration and proceed with F1.3, see page 17. 1 Enter the calibration procedure, see next page.

Calibration procedure

Calibration of this product should only be performed by a qualified technician. Please contact your supplying dealer first before attempting to re-calibrate the scale.
If the scale requires re-calibration, it must be calibrated with certified test weights to the capacity and increment size shown on the data plate.
The capacity and increment size is selectable in the setup mode in sub-block F1.2.
Calibration is also completed in sub-block F1.2.

Display	Press key	Description
CAP		Enter scale capacity. For possible settings see table on page 26.
	On/Off	Confirm displayed capacity and proceed with "INCR".
	– or –	
	lb/kg	Clear displayed value.
	lb/kg	Increment the blinking digit, press key repeatedly until the desired number is displayed.
	lb/kg	Move cursor one digit to the left.
		Repeat the last two steps for all digits.
	On/Off	Confirm entered capacity.
INCR	lb/kg – and/or – On/Off	Select the desired increment size – and/or – confirm the displayed increment size.
E SCAL		Empty scale.
	On/Off	Confirm empty scale.
15 CAL … 0 CAL		While counting down from 15 to 0 the scale captures zero. If in this step "E 30" is displayed, motion has been detected. Press On/Off to return to the E SCAL prompt.
ADD LD		Place test weight on the scale.
	On/Off	Confirm loading the test weight.

Display	Press key	Description
0000'0'		Enter test weight value.
	lb/kg	Increment the blinking digit: press key repeatedly until the desired number is displayed.
	lb/kg	Move cursor one digit to the left.
		Repeat the last two steps for all digits.
	On/Off	Confirm entered test weight value.
15 CAL ... 0 CAL *		While counting down from 15 to 0 the span is set. If in this step "E 30" is displayed, motion is detected. Press On/Off to return to the ADD LD prompt.
CAL d		Calibration done. Proceed to F1.3, see next page.

Scale setup mode, continued

Default settings are printed in **bold**.

Para.	Function	Explanation
F1.3	Expanded display	**0** **Normal** display mode 1 For service personnel only
F1.4	Setup mode access	With CAL jumper installed, this item has no effect. Programming is always accessible. With no CAL jumper installed: **0** **No access** to setup mode 1 Programming access to blocks F2 and F3, block F1 may only be viewed

5.4.2 Application setup mode

Para.	Function	Explanation
F2.1	Second weight unit of measure	**0** **No** unit switching 2 kg (only if calibration unit is lb)
F2.2	Automatic backlight	**0** **Disabled, no backlight option is offered with this product**
F2.3	Tare	0 Tare disabled **1** Tare enabled
F2.4	Pushbutton zero range	0 Pushbutton zero disabled **1** Pushbutton zero **enabled** within **±2 %** of the scale capacity 2 Pushbutton zero enabled within ±20 % of the scale capacity
F2.5	Auto zero maintenance (AZM)	Auto zero maintenance automatically compensates small changes in zero resulting from material build-up or temperature changes. In this block you select the weight range around gross zero within which the scale will be set to zero. If the weight on the scale exceeds this weight range, the scale will not be set to zero. 0 No AZM **1** AZM within **0.5 d** window 2 AZM within 1 d window 3 AZM within 3 d window AZM is disabled in net mode.
F2.6	Motion detection	To determine when a no-motion condition exists 0 Motion detection disabled **1** **1.0 d** motion sensitivity (more sensitive to any motion) 2 3.0 d motion sensitivity (less sensitive to any motion)
F2.7	Filter	To compensate environmental disturbances such as vibration or noise 0 None **1** **Light** 2 Normal 3 Heavy
F2.8	Sleep mode	**0** **Disabled** 1 Sleep mode automatically enabled after 5 minutes of stability or no weighments
F2.9	Power up zero range	0 Power up zero disabled **1** Power up zero range of **±2 %** of the scale capacity 2 Power up zero range of ±10 % of the scale capacity

5.4.3 Serial interface setup mode

Para.	Function	Explanation
F3.1	Baud rate	1200 (baud) 2400 (baud) 4800 (baud) **9600 (baud)**
F3.2	Data bits	**7** **7 data bits** 8 8 data bits
F3.3	Stop bits	1 1 stop bit **2** **2 stop bits**
F3.4	Parity	0 no parity 1 Odd parity **2** **Even parity**
F3.5	Data output format	0 Toledo continuous with STX 1 Demand, single line, displayed weight only **2** Demand, single line, **gross, tare, net** 3 Demand, three line gross, tare, net
F3.6	Checksum (only if F3.5 = 0)	0 No checksum **1** **Checksum**
F3.7	Gross weight legend	**0** **No** legend 1 B (brutto) 2 G (gross)

5.4.4 Exit setup mode

To exit setup mode you can toggle between 3 possibilities:

SAVE Save all changes in the setup mode and switch to weighing mode.

ABORT Any changes made in the setup mode will be discarded and the original programming will remain.

DEFAULT All settings are reset to factory defaults.

6 Servicing your scale

WARNING!
Damage to the scale or bodily harm!

➜ Before connecting or disconnecting any internal electronic components or interconnecting wiring between electronic equipment, always unplug the unit and remove batteries and wait at least 30 seconds before any connections or disconnections are made.

CAUTION!
The scale may only be serviced by a qualified technician. Otherwise the warranty is void.

➜ For the following services, please contact your supplying dealer or any authorized WeighSouth sales and/or service representative.

CAUTION!
Damage to the PCBs.

➜ When handling PCBs use proper static electricity precautions.

➜ Store PCBs in a protective static bag.

6.1 Keypad replacement

Note
If the keypad is defective, you have to replace the complete front cover.

1. Unplug the unit and remove batteries.
2. Remove the 4 screws securing the front and back parts of the indicator's cover.
3. Disconnect the keypad cable from the old controller PCB and discard the old front cover.
4. Connect the keypad cable of the new front cover to J5 of the controller PCB.
5. Secure the front cover to the back cover with the 4 screws.
6. Insert the batteries.
7. Press and hold On/Off for 3 seconds.
8. Test the operation of the new keypad.

6.2 Controller PCB replacement

1. Remove batteries.
2. Remove the 4 screws securing the front and back parts of the indicator's cover.
3. Disconnect the keypad tail from the controller PCB and set the front cover aside.
4. Disconnect the battery harness from the controller PCB.
5. Remove the 2 hexagon standoffs from the side of the enclosure which secure the serial RS232 output connector to the back cover of the indicator.
6. If present, disconnect the RS232 cable from J10.
7. Remove the 4 screws that secure the controller PCB to the back cover.
8. Remove the defective controller PCB.
9. Mount the new controller PCB using 4 screws.
10. Install the 2 hexagon standoffs to the side of the enclosure to secure the serial output connector on the back cover of the indicator.
11. Reconnect the battery harness.
12. Connect the keypad tail of the front cover to J5 of the controller PCB.
13. If desired, connect the wires of the RS232 cable to J10.
14. Mount the front cover to the back cover with 4 screws.
15. Plug in unit and/or insert the batteries.
16. Press and hold (On/Off) for 3 seconds.
17. Reprogram, recalibrate and test the operation of the new controller PCB.

6.3 Load cell replacement

1. Unplug the unit and remove batteries.
2. Remove the 4 screws securing the front and back parts of the indicator's cover.
3. Disconnect the load cell cable from the controller PCB.
4. Remove the platter.
5. Loosen and remove the top load cell mounting bolts that secure the top frame to the load cell.
6. Set the top frame and the load cell spacer aside.
7. Turn the scale on its side to access the bottom load cell bolts.
8. Loosen and remove the bottom load cell mounting bolts.
9. Remove the load cell from the bottom frame and pull the excess cable out through the bottom of the column.
10. Lubricate the threads under the head of the load cell mounting bolts.
11. Reinstall a new load cell by following the steps above in reverse order.
    Using a torque wrench, tighten the load cell mounting bolts to 30 Nm/22 ft/lb.
12. Plug in unit and/or insert the batteries.
13. Press and hold On/Off for 3 seconds.
14. Recalibrate and test the operation of the new load cell.

Final works

- Adjust the overload stops, see page 23.

6.4 Top and/or bottom frame replacement

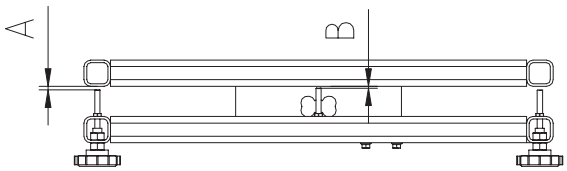
1. Unplug the unit and remove batteries.
2. Remove the platter.
3. Loosen and remove the top load cell mounting bolts that secure the top frame to the load cell.
4. Set the top frame and the load cell spacer aside.
5. Turn the scale on its side to access the bottom load cell bolts.
6. Loosen and remove the bottom load cell mounting bolts.
7. Remove the load cell from the bottom frame.
8. Lubricate the threads under the head of the load cell mounting bolts.
9. Reinstall a new top and/or bottom frame by following the steps above in reverse order.
   Using a torque wrench, tighten the load cell mounting bolts to 30 Nm/22 ft/lb.
10. Plug in unit and insert the batteries.
11. Press and hold On/Off for 3 seconds.
12. Recalibrate and test the operation of the new frame.

Final works

- Adjust the overload stops, see below.

6.5 Overload stop adjustment

1. Remove the platter.
2. Using the proper size feeler gauge, check all overload stops as shown in the figure below.
   Gap A 1 mm/0.04"
   Gap B 0.5 mm/0.02"

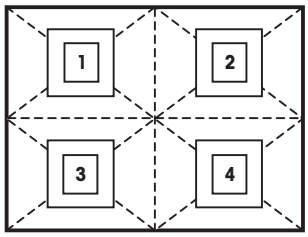


If the gaps are not set properly:

1. Loosen the overlod screw jam nuts, see figure above.
2. Using the proper size feeler gauge, turn the screw until you feel a slight drag on the feeler gauge.
3. Tighten the jam nut and recheck the gap. Readjust if necessary.
4. Adjust all overload stops using this procedure.
5. Reinstall the platter and make sure the scale weighs to full capacity.

6.6 Checking corner load

1. Check repeatability by placing a test weight on the same location on the platter several times to make sure that you get the same weight reading each time.



2. Place a test weight of 300 lb/150 kg at location 1 and record the weight reading.
3. Move the test weight to location 2 and record the weight reading.
4. Continue with locations 3 and 4.
5. Check if the readings are within the following tolerances
   ±0.2 lb/±0.1 kg for a new scale
   ±0.4 lb/±0.2 kg for a scale in service

If the readings are not within the tolerance:

➜ Replace the load cell.

7 Appendix

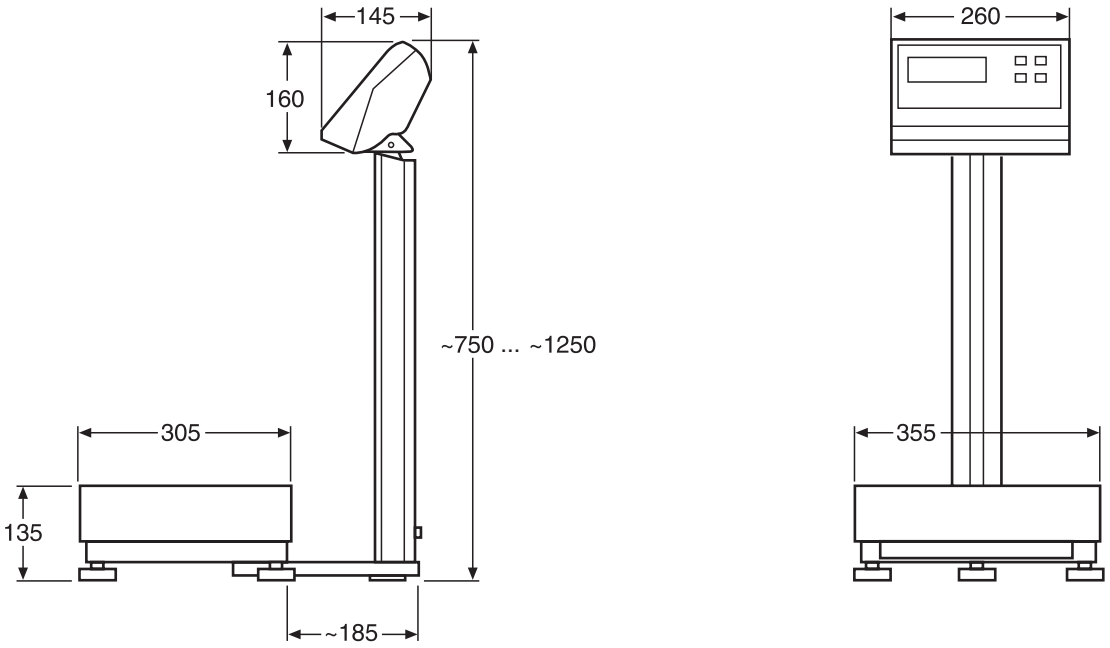
7.1 Error messages

Error Code	Fault	Remedy
E1	ROM error	➜ Check power supply voltages. ➜ Replace controller PCB.
E2	RAM error	➜ Check power supply voltages. ➜ Replace controller PCB.
E7	EEPROM error	➜ Check power supply voltages. ➜ Replace controller Logic PCB.
E30	Scale in motion during calibration	➜ Press (On/Off) to return to E SCAL or ADD LD.
E32	Insufficient calibration test weight or insufficient signal from load cell	➜ Press (On/Off), then add additional test weight. Recalibrate using more test weight.
E34	Calibration test weight too large	➜ Press (On/Off), then use test weight less than 100 % of scale capacity.
EEE	Scale not zeroed at power-up. Auto Zero on power up (F2.5) is enabled and the weight is greater than zero.	➜ Zero the scale or remove the weight until zero is captured. ➜ Recalibrate the scale.
–EEE	Scale not zeroed at power up. Auto Zero on power up (F2.5) is enabled and the weight is less than zero.	➜ Add weight until zero is captured (put platform on). ➜ Recalibrate the scale.
Weight display: 	Underload, i.e. weight below zero limit	➜ Increase load on the scale.
Weight display: 	Overlaod	➜ Decrease load on the scale.

7.2 Technical data

Display	• 6-digit LCD with 25 mm (1 inch) high characters and backlighting
Keypad	• 4 color-coded, tactile feel keys
Enclosure	• Indicator plastic • Platform mild steel, black rubber mat for slip proof
Power supply	• AC or 6 D-cell batteries • Battery life approx. 500 hours • Auto power down • Low battery indication
Operating temperature	• –10 °C ... +40 °C/14 °F ... 104 °F
Relative humidity	• Maximum relative humidity 10 % to 95 %, non condensing
(Shipping) weight	• Platform 33 lb / 15 kg • Indicator 3 lb / 1.5 kg • Column 10 lb / 4.5 kg
Data output	• ASCII via RS-232 standard • Connection on J10 on the controller PCB
Indication stabilization time	• < 10 s
Weighing units	• lb, kg
Tare function	• Pushbutton tare • Tare range 0 ... 100 % of the capacity
Zero function	• Pushbutton zero • Auto Zero Maintenance • Auto Zero Capture at power-up • Zero rang. ± 2 % of capacity or ±20 % of capacity
Calibration and setup	• Keypad calibration and setup
Capacity	• 600 lb/300 kg
Display increment	• 0.5 lb/0.1 kg
Calibration test weight	• 300 lb/150 kg
Tolerance	• New ±0.2 lb / ±0.1 kg • In service ±0.4 lb / ±0.2 kg

Dimensions



Dimensions in mm

7.3 Scale capacities

Incr.	Scale capacities (lb, kg or g)											
0.001	1	–	–	2	–	3	4	5	6	–	8	10
0.002	2	–	3	4	5	6	8	10	12	15	16	20
0.005	5	6	–	10	–	15	20	25	30	–	40	50
0.01	10	12	15	20	25	30	40	50	60	–	80	100
0.02	20	24	30	40	50	60	80	100	120	150	160	200
0.05	50	60	–	100	–	150	200	250	300	–	400	500
0.1	100	120	150	200	250	300	400	500	600	–	800	1000
0.2	200	240	300	400	500	600	800	1000	1200	1500	1600	2000
0.5	500	600	–	1000	–	1500	2000	2500	3000	–	4000	5000
1	1000	1200	1500	2000	2500	3000	4000	5000	6000	–	8000	10000
2	2000	2400	3000	4000	5000	6000	8000	10000	12000	15000	16000	20000
5	5000	6000	–	10000	–	15000	20000	25000	30000	–	40000	50000

7.4 Geo value table

Note

Geo values on this chart are accurate up to an altitude of 2000 m.

Northern and southern latitude in degrees and minutes	Height above sea-level in meters										
	0 325	325 650	650 975	975 1300	1300 1625	1625 1950	1950 2275	2275 2600	2600 2925	2925 3250	3250 3575
	Height above sea-level in feet										
	0 1060	1060 2130	2130 3200	3200 4260	4260 5330	5330 6400	6400 7460	7460 8530	8530 9600	9600 10660	10660 11730
0° 0′ – 5° 46′	5	4	4	3	3	2	2	1	1	0	0
5° 46′ – 9° 52′	5	5	4	4	3	3	2	2	1	1	0
9° 52′ – 12° 44′	6	5	5	4	4	3	3	2	2	1	1
12° 44′ – 15° 6′	6	6	5	5	4	4	3	3	2	2	1
15° 6′ – 17° 10′	7	6	6	5	5	4	4	3	3	2	2
17° 10′ – 19° 2′	7	7	6	6	5	5	4	4	3	3	2
19° 2′ – 20° 45′	8	7	7	6	6	5	5	4	4	3	3
20° 45′ – 22° 22′	8	8	7	7	6	6	5	5	4	4	3
22° 22′ – 23° 54′	9	8	8	7	7	6	6	5	5	4	4
23° 54′ – 25° 21′	9	9	8	8	7	7	6	6	5	5	4
25° 21′ – 26° 45′	10	9	9	8	8	7	7	6	6	5	5
26° 45′ – 28° 6′	10	10	9	9	8	8	7	7	6	6	5
28° 6′ – 29° 25′	11	10	10	9	9	8	8	7	7	6	6
29° 25′ – 30° 41′	11	11	10	10	9	9	8	8	7	7	6
30° 41′ – 31° 56′	12	11	11	10	10	9	9	8	8	7	7
31° 56′ – 33° 9′	12	12	11	11	10	10	9	9	8	8	7
33° 9′ – 34° 21′	13	12	12	11	11	10	10	9	9	8	8
34° 21′ – 35° 31′	13	13	12	12	11	11	10	10	9	9	8
35° 31′ – 36° 41′	14	13	13	12	12	11	11	10	10	9	9
36° 41′ – 37° 50′	14	14	13	13	12	12	11	11	10	10	9
37° 50′ – 38° 58′	15	14	14	13	13	12	12	11	11	10	10
38° 58′ – 40° 5′	15	15	14	14	13	13	12	12	11	11	10
40° 5′ – 41° 12′	16	15	15	14	14	13	13	12	12	11	11
41° 12′ – 42° 19′	16	16	15	15	14	14	13	13	12	12	11
42° 19′ – 43° 26′	17	16	16	15	15	14	14	13	13	12	12
43° 26′ – 44° 32′	17	17	16	16	15	15	14	14	13	13	12
44° 32′ – 45° 38′	18	17	17	16	16	15	15	14	14	13	13
45° 38′ – 46° 45′	18	18	17	17	16	16	15	15	14	14	13
46° 45′ – 47° 51′	19	18	18	17	17	16	16	15	15	14	14
47° 51′ – 48° 58′	19	19	18	18	17	17	16	16	15	15	14
48° 58′ – 50° 6′	20	19	19	18	18	17	17	16	16	15	15
50° 6′ – 51° 13′	20	20	19	19	18	18	17	17	16	16	15
51° 13′ – 52° 22′	21	20	20	19	19	18	18	17	17	16	16
52° 22′ – 53° 31′	21	21	20	20	19	19	18	18	17	17	16
53° 31′ – 54° 41′	22	21	21	20	20	19	19	18	18	17	17
54° 41′ – 55° 52′	22	22	21	21	20	20	19	19	18	18	17
55° 52′ – 57° 4′	23	22	22	21	21	20	20	19	19	18	18
57° 4′ – 58° 17′	23	23	22	22	21	21	20	20	19	19	18
58° 17′ – 59° 32′	24	23	23	22	22	21	21	20	20	19	19
59° 32′ – 60° 49′	24	24	23	23	22	22	21	21	20	20	19
60° 49′ – 62° 9′	25	24	24	23	23	22	22	21	21	20	20
62° 9′ – 63° 30′	25	25	24	24	23	23	22	22	21	21	20
63° 30′ – 64° 55′	26	25	25	24	24	23	23	22	22	21	21
64° 55′ – 66° 24′	26	26	25	25	24	24	23	23	22	22	21
66° 24′ – 67° 57′	27	26	26	25	25	24	24	23	23	22	22
67° 57′ – 69° 35′	27	27	26	26	25	25	24	24	23	23	22
69° 35′ – 71° 21′	28	27	27	26	26	25	25	24	24	23	23
71° 21′ – 73° 16′	28	28	27	27	26	26	25	25	24	24	23
73° 16′ – 75° 24′	29	28	28	27	27	26	26	25	25	24	24
75° 24′ – 77° 52′	29	29	28	28	27	27	26	26	25	25	24
77° 52′ – 80° 56′	30	29	29	28	28	27	27	26	26	25	25
80° 56′ – 85° 45′	30	30	29	29	28	28	27	27	26	26	25
85° 45′ – 90° 00′	31	30	30	29	29	28	28	27	27	26	26

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