

**STANDARD BENCH SCALE**

**OPERATION & SERVICE MANUAL**

Models XMC/XWS/XWT (-S) -XIS



## ABOUT THIS MANUAL AND MT EXPRESS

Thank you for purchasing an **MT Xpress** product.

All of our equipment is assembled and packed with great care. If you should find any incorrect item, please contact your **Xpress** dealer immediately.

**MT Xpress** products are Weights & Measures approved precision weighing instruments. However, you may want to obtain official certification through your supplier or local Weights & Measures office.

This **MT 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 fine 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 **MT 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 the **Xpress** representative, let us know.

### How can you reach us?

## XPRESS CUSTOMER CARE CENTER, USA

**24/7 Information and Support:** [www.mt.com/xpress](http://www.mt.com/xpress)  
[xpress@mt.com](mailto:xpress@mt.com)

**8 AM to 8 PM EST** Toll Free: 1-866-MTXPRESS

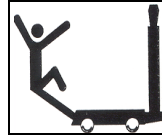
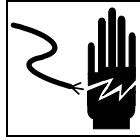
**Xpress**  
Mettler-Toledo, Inc.  
60 Collegeview  
Westerville, OH 43081

**FCC Approval**

**This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**

## CONTENTS

<b>SAFETY NOTICE</b> .....	<b>5</b>
<b>PREPARING THE SCALE FOR USE</b> .....	<b>6</b>
ENVIRONMENT .....	6
UNPACKING AND ASSEMBLY .....	6
POWER UP/DOWN SEQUENCE .....	8
<b>YOUR XPRESS SCALE AT A GLANCE</b> .....	<b>9</b>
DISPLAY .....	9
KEYPAD .....	9
CURSORS (LED) .....	9
<b>OPERATING YOUR SCALE</b> .....	<b>10</b>
STRAIGHT WEIGHING .....	10
RE-ZERO FUNCTION .....	10
TARE FUNCTION .....	10
<b>SPECIAL MODES - OVER/UNDER</b> .....	<b>11</b>
OVER/UNDER SETUP MODE .....	11
FUNCTION OF THE KEYS .....	11
SET OVER AND UNDER VALUES .....	11
OVER AND UNDER CURSORS .....	12
OPERATION .....	12
<b>SCALE SOFTWARE SETUP</b> .....	<b>13</b>
ACCESS TO SETUP MODE .....	13
FUNCTION OF THE KEYS .....	13
PARAMETER LIST .....	13
EXIT SETUP MODE .....	13
<b>CLEANING &amp; MAINTAINING YOUR SCALE</b> .....	<b>14</b>
CLEANING AND MAINTENANCE .....	14
TROUBLESHOOTING .....	14
<b>SERVICING YOUR INDICATOR</b> .....	<b>15</b>
VOLTAGE CHECKS .....	15
OPENING THE INDICATOR .....	15
LOAD CELL WIRING .....	16
KEYBOARD REPLACEMENT .....	16
CONTROLLER PCB REPLACEMENT .....	17
ACCESSING THE SERVICE MODE .....	17
FUNCTION OF THE KEYS .....	17
PARAMETER LIST .....	18
CALIBRATION .....	19
GRAVITY ADJUSTMENT .....	20
<b>SERVICING YOUR SCALE BASE</b> .....	<b>21</b>
LOAD CELL REPLACEMENT .....	21
OVERLOAD STOP ADJUSTMENT .....	22
SHIFT TEST .....	23
<b>APPENDIX</b> .....	<b>24</b>
ERROR MESSAGES .....	24
INDICATOR SPECIFICATIONS .....	24
BASE SPECIFICATIONS .....	25
GEO VALUE TABLE .....	26
PHYSICAL DIMENSIONS .....	27

**SAFETY NOTICE**

**Product safety is a fundamental concern at MT Xpress. Use common sense and follow the simple precautions listed below to ensure your safety and optimize the use and performance of this product.**

- Read this manual before operating or servicing this product. Save this manual for future reference.
- Observe safety warnings located throughout this manual.
- Use caution when lifting or moving heavy equipment.
- This product should be serviced by qualified personnel. Exercise care when moving, testing, or adjusting this product.
- Disconnect all power to this product before installing, servicing, or cleaning.
- Use only MT Xpress parts for repair.
- Observe electrostatic handling precautions for electronic components. Allow at least 30 seconds after power disconnection to allow charges to dissipate before servicing any electronic components.
- Allow the product to stabilize at ambient room temperature before applying power.

**FAILURE TO FOLLOW THESE PRECAUTIONS COULD RESULT IN DAMAGE TO EQUIPMENT OR BODILY HARM.**

## PREPARING THE SCALE FOR USE

**Xpress** Standard Bench Scales are designed to meet the real world requirements of manufacturing, agricultural, packaging, and general weighing applications, and are ready to use right out of the box.

The **Xpress** Standard Indicator is a rugged, reliable electronic weighing indicator in an IP65 washdown enclosure designed for easy operation in washdown applications. The **Xpress** Standard Bench stainless steel platforms (XMC-S, XWS-S and XWT-S) are also manufactured to be used in washdown applications.

**Xpress** Standard Bench mild steel platforms (XMC, XWS and XWT) are intended for use in general purpose industrial and commercial environments. For the best performance, they should not be used in environments requiring washdown, immersion in liquids, or exposure to corrosive chemicals

This chapter gives detailed instructions and important information regarding the successful installation of the **Xpress** Standard Bench Scale.

### ■ ENVIRONMENT

Before you install the scale, identify the best location for the equipment. The proper environment enhances its operation and longevity. Keep in mind the following factors, which might have a negative influence on the scale's operation:

**Vibration:** Vibration diminishes the scale's ability to measure accurately. Electrical machinery such as conveyors and drill presses can cause inaccurate and non-repeatable readings. The scale may also read inaccurately if it is not leveled properly.

**Air currents:** Moving air can cause the scale to read wind movement as an additional force and cause inconsistency in the weighing results.

**Friction:** A scale cannot measure accurately if an object is rubbing or pressing against the scale platform.

### ■ UNPACKING AND ASSEMBLY

Thank you for purchasing an **MT Xpress** product. Please inspect the package immediately upon receipt. If the box is damaged, check for internal damage and file a freight claim with the carrier if necessary. If the container is undamaged, open the box, remove the scale and place it on a solid, flat surface. Please keep the packing material and shipping insert in case you need to return the scale to an **Xpress** representative.

Package contents for all **Xpress** Standard Bench Scales include:

#### **Product**

- Xpress Standard Indicator
- Xpress Base
- Column kits
- Accessory bag (seal screws, lead seal wires, leads, column mounting screws, flat washers, spring washers, cable clamp, cable protective baffle, Allen key)

#### **Documents**

- Quick Start Guide
- Installation Instructions

#### **CD-ROM**

- Operation & Service Manual

## Instructions

1. Open the box and take out the scale.

Remove the packing material from each side of the scale.

Set the unit on a sturdy workplace.

2. Remove the platter, and remove the red plastic shipping tabs in the corner of the scale. (XMC (-S) model skip this step).

3. Models XWS (-S): Attach the column bracket beneath the bottom scale frame by tightening the four socket head screws.

Models XWT (-S): Attach the column bracket near to the side of bottom scale frame by tightening the two hex head screws.

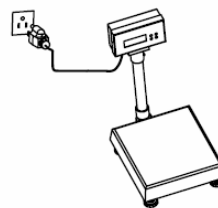
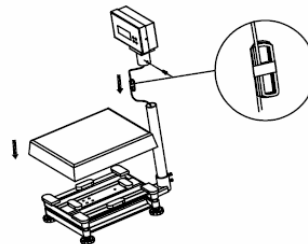
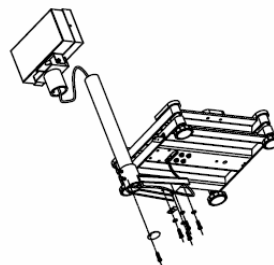
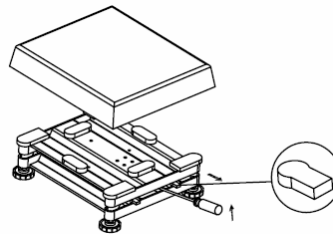
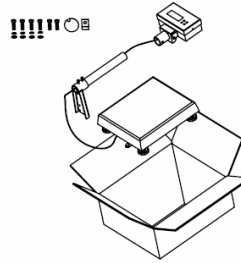
XMC (-S) model skip this step.

4. Coil the excess load cell cable and insert it into the column. A small length of tape applied to the ends of the coils allows the cable to slide into the column easier. Mount the indicator onto the column. Adjust the indicator to the proper angle and fasten the bolt. (XMC (-S) model skip this step).

5. Apply power to the indicator.

6. Level the scale by adjusting four adjustable feet.

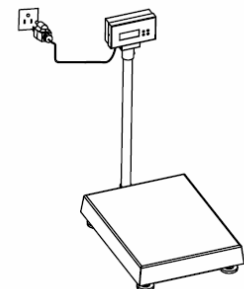
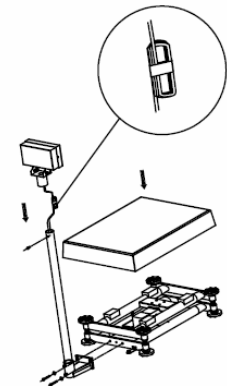
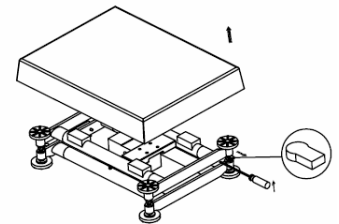
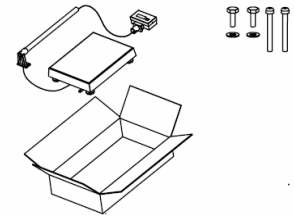
### Models XWS (-S)



Proper alignment




### Models XWT (-S)



Improper alignment



## POWER UP/DOWN SEQUENCE

**Power Up:** Press the power key  to turn on the Xpress XIS. It goes through a series of self-tests when it is turned on. The scale performs diagnostics on its internal memory, and precedes to normal the operating mode. The power up sequence is as follows:

- All segments of the display segments and cursors light to verify operation.
- Next the unit displays the software part number; revision number, geo value and country one by one.
- The unit captures zero and is ready for normal operation.

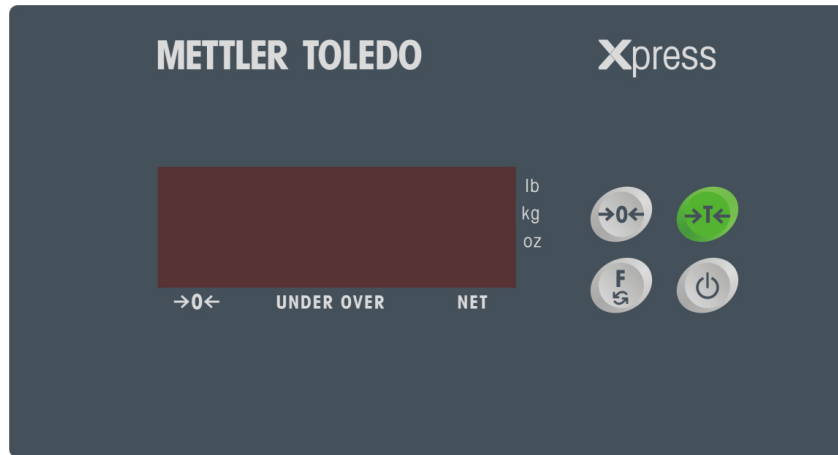
**Note:** Before switching on the scale, always make sure there is nothing on the platter. If you have powered up the unit with something on the scale, the scale may not find the zero value, and shows "-----". To clear this condition remove the item, press the power key until the unit displays "off", then press the power key again, the scale will then capture the correct zero value.

**Power Down:** Press the power key  until "OFF" is shown on the display to turn off the scale.



## YOUR XPRESS SCALE AT A GLANCE

### ■ DISPLAY



### ■ KEYPAD

Key	Name	Function	Over/Under Setting
>0<	Zero key	To return the scale to gross zero.	Setting complete exit
>T<	Tare key	To tare the scale. Pressing this key at zero clears the tare value from memory.	Increment one digit (up 1, 2, 3..) ↑
F	Function key	To enter OVER/UNDER mode.	Move to the next digit to the right →
⏻	Power key	To turn the scale on or off.	Confirm choice

### ■ CURSORS (LED)

Cursor	Description
>0<	Illuminates when weight is gross zero (0).
UNDER	Illuminates when the weight is less than the programmed UNDER value
OVER	Illuminates when the weight is more than the programmed OVER value.
Net	Illuminates to indicate the displayed value is net weight (gross minus tare).
lb, kg, oz	Indicates current weight unit associated with the displayed value.

## OPERATING YOUR SCALE

### STRAIGHT WEIGHING


- Place the item to be weighed on the platter.
- Remove the item from the platter and the display will return to 0.000.

### RE-ZERO FUNCTION


There are two ways to re-zero the scale:



- **Power-up Zero:** The scale will automatically capture zero when it is turned on. The power-up zero capture range is +/-10% of the scale capacity.

**Note:** When the scale is turned on with a weight on the platter is more than 10% of the capacity, the scale will not capture zero (the weight display will show "-----") to indicate that the scale will not be ready for use. After removing the weight the scale will capture "zero".

- **Push-button Zero:**  The ZERO key sets the gross zero value over a range of +/-2% of the scale capacity. To use this function, the scale must be in the gross weighing mode (NET cursor dark) and in a no-motion condition. When the weight on the platter is more than +/-2% of the scale capacity depressing the zero key will not yield a result until the weight is removed and the Zero key has been depressed a second time.


### TARE FUNCTION

The  key subtracts the weight of the container or wrapping material placed on the scale prior to weighing a desired item.

- Place the empty container or wrapping material on the platter, e.g. 5 lb.
- Press the  key, it show net weight 0 lb, the net weight cursor should light.
- Place the item to be weighed onto the platter or into the container or wrapping material.
- Note the net weight value and record it if necessary.
- Remove the weighed and container or wrapping material from the platter, the display will show the negative net weight of the container, e.g. -5 lb. This indicates the net weight of the container.
- Press  key to return the scale back to gross weighing mode, proper execution of this function is indicated when the net cursor is not illuminated.

## SPECIAL MODES - OVER/UNDER





### OVER/UNDER SETUP MODE

Press  key to access to over under zone setup mode. The display will show the default 0.000.

- The digits on the both sides of the decimal point vary with the capacity and resolution.
- Over/Under values will reset to zero if you change the scale's resolution.
- The Standard Bench Indicator will only permit over under values conforming to the minimum resolution of the scale.
- The Over cursor will light to select the "Over" value, and the Under will light to select the 'Under' value.










### FUNCTION OF THE KEYS

In Over/Under Setup Mode, the functions of the keys will be as follows:

Key	Function	Description
	Start, then Increment digit	Choose Over/Under Setup Increment the flashing digit one right.
	Increment	Increase the value in selected digit.
	Confirm choice	Confirm the choice and step forward
	End setup	End Setup mode and return the scale to weighing mode.

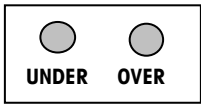
### SET OVER AND UNDER VALUES

Example: 5 lb scale, the Over Value is 0.506 lb, Under Value is 0.4 lb:

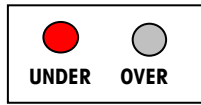
The Procedure	Display	Cursor	Action
Press  to access to Setup mode	[ 0.000 ]	OVER	Enable setup
Press  1 time	[ 0.000 ]	OVER	Increment digit right
Press  5 times	[ 0.500 ]	OVER	Increase digit value
Press  twice	[ 0.500 ]	OVER	Increment to the next digit
Press  6 times	[ 0.506 ]	OVER	Increase digit value
Press  to proceed	[ 0.000 ]	UNDER	Select UNDER range
Press  1 time	[ 0.000 ]	UNDER	Increment digit right
Press  4 times	[ 0.400 ]	UNDER	Increase digit value
Press  to back to weighing mode	[ 0.000 ]		Ready to weigh

At zero, both the Over and Under Cursors are dark. At the first increment over zero, the Under cursor will light up.

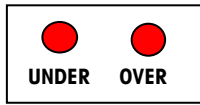
**OVER AND UNDER CURSORS**



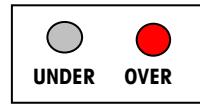
Scale at Zero  
[ 0.000]



UNDER  
[ ≤0.399]



Ok  
[ 0.400] ↔ [ 0.506]



OVER  
[ 0.507 ≤]

**OPERATION**

When an Over/Under value exists, the Standard Bench Indicator will beep to indicate the condition provided that the function is enabled in the scale setup. The below table is a matrix of possible conditions:


Setup	S3 is 1	S3 is 2	Cursor
<b>Condition</b>			
Actual weight greater than the Over value	-	Beep	Over
Actual weight less than the Under value	-	Beep	Under
Actual Weight between Over/Under Limits*	Beep	-	Over and Under

\*When both the Over and Under values are set to 0.000, the cursors and beeper do not function.





## SCALE SOFTWARE SETUP

Several parameters in the scale can be changed to enable you to setup the scale to your individual needs.

### ACCESS SETUP MODE

- Turn off the scale by pressing the Power key until the display displays "Off"; the display should be dark.
- Press the Power key while continuously pressing the  until "S1 OFF" is displayed.




### FUNCTION OF THE KEYS

Key	Name	Function
	Finish key	Finish Setup
	Toggle key	Chose parameter
	Back key	Step backwards to last step
	Accept key	Confirm choice and step forwards to next step

### PARAMETER LIST

Soft-Switch	Description	Available Parameter	Default
S3	Beep range	0 = No beep 1 = Beep when weight is between over and under value. 2 = Beep when weigh is out of range of over and under	0
S4	Filter strength	0 = Light 1 = Normal 2 = Strong 3 = Very strong	2
S5	Weight unit	lb/kg/oz	lb
S6	LED brightness	0 = Normal. Each additional value yields a dimmer display	0
S7	Display type	Off = Continuous display update; On: quick weight	Off

### EXIT SETUP MODE

Press the Finish key  to finish setup. "SAVE" is displayed to save all changes. Press  to toggle between "Save" (Save changes) and "Abort" (Abort all changes). Press  to return the scale to weighing mode.

## CLEANING & MAINTAINING YOUR SCALE



### **■** CLEANING AND MAINTENANCE


- DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.
- DO NOT attempt to remove the cover or perform service or maintenance on the internal parts of the scale.
- ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.
- KEEP the scale clean. Periodically clean the keyboard and covers with a soft clean cloth that has been dampened with a mild window cleaner or detergent. DO NOT USE ANY TYPE OF INDUSTRIAL SOLVENT OR CHEMICALS. DO NOT SPRAY CLEANER DIRECTLY ONTO THE UNIT.

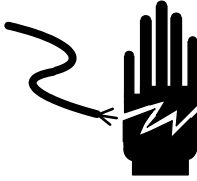

### **■** TROUBLESHOOTING

If operational difficulties are encountered, first obtain as much information as possible regarding the problem. Failures and malfunctions often may be traced to simple causes such as loose connections or improper setup.

Additional troubleshooting can be performed for you by an authorized **MT Xpress** representative.

## SERVICING YOUR INDICATOR

 For the following services, please contact your **Xpress** representative at [www.mt.com/xpress](http://www.mt.com/xpress).

	 <b>WARNING</b>
	<p>DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.</p>

 <b>CAUTION</b>
<p>BEFORE CONNECTING OR DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT, ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTION'S ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT, OR BODILY HARM.</p>

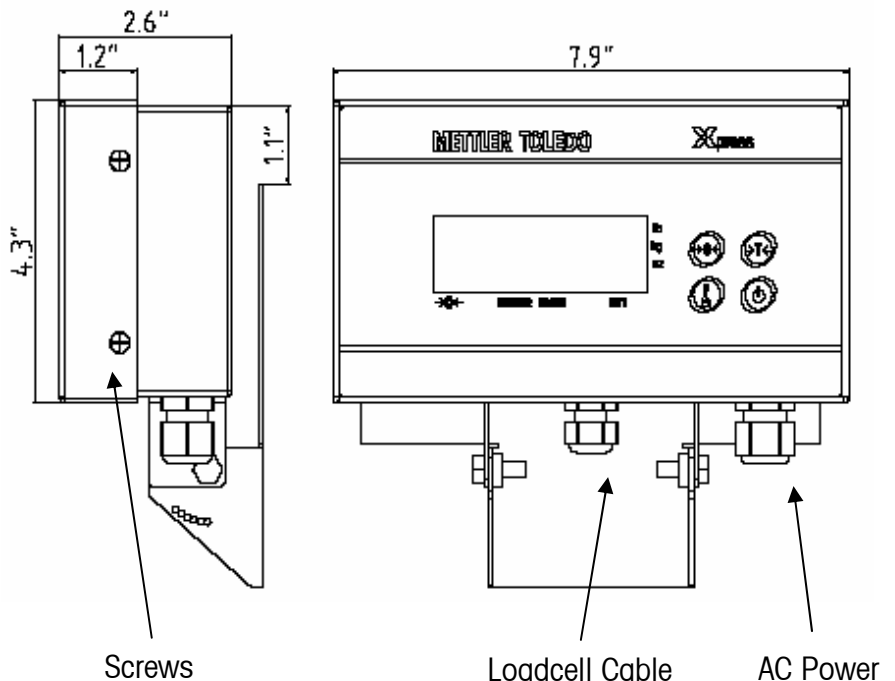
**AC Power Test:** Using a Multi-meter, check the AC input power. Input power must be within -15% and +10% of the nominal AC line voltage.

**Controller PCB Input Voltage Test:** Confirm the universal power supply is outputting a voltage of at least 12 VDC. If the XIS indicator has power and the Controller PCB does not function properly, replace the PCB.

### OPENING THE INDICATOR

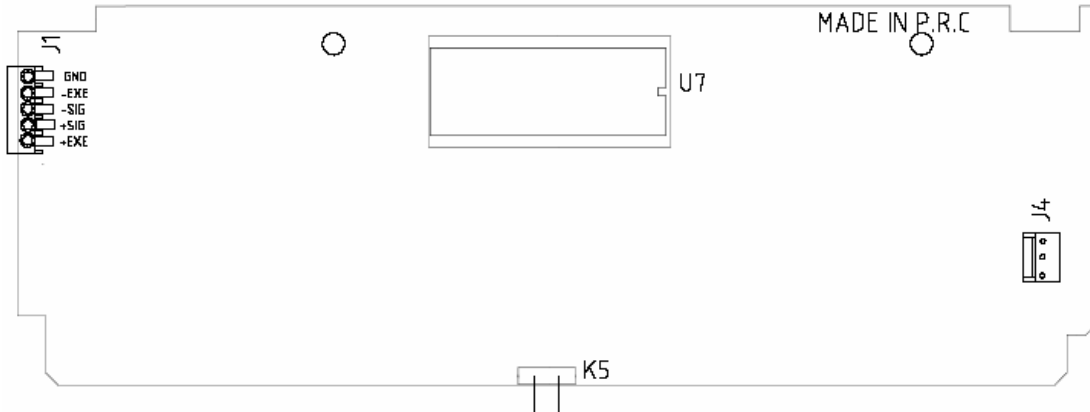
To access the Controller PCB for internal wiring and switch setting:

1. Unscrew the four screws located on the each side of enclosure and separate the front panel from the enclosure.
2. The figure on the right shows the location of the screws and the Load Cell and AC power cable connections.

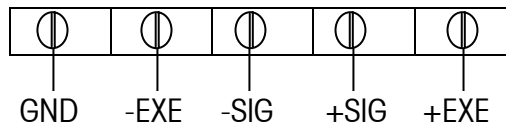


**LOAD CELL WIRING**

After opening the XIS terminal enclosure, the main circuit board is mounted on the front panel. Refer to the figure for the detail cable connection:



The following diagrams show the load cell terminal strip wiring for the XIS terminal on connector J-1.



Refer to the below information for the load cell cable color code:

Signal	Load cell color code for MT1022/SSP1022 series	Load cell color code for MT/SSP series
+EXC	GREEN	GREEN
+SEN		BLUE
+SIG	RED	RED
CGND		YELLOW
-SIG	WHITE	WHITE
-SEN		BROWN
-EXC	BLACK	BLACK

**KEYBOARD REPLACEMENT**

- Disconnecting the AC power adapter.
- Remove the four screws securing the front and back portions of the cover.
- Unscrew the controller PCB from the old front cover.
- Replace the new front cover assembly (including keyboard) and secure controller PCB on it.
- Secure the front cover to the back cover with the four screws.
- Apply power then press and hold the ON/OFF key for three seconds.
- Test the operation of the new keyboard.



## ■ CONTROLLER PCB REPLACEMENT

If the Controller PCB is suspected to be faulty, use the following procedure to replace the PCB.

- Disconnecting the AC power.
- Remove the four screws securing the front and back halves of the cover.
- Disconnect the power harness from the Controller PCB and set the front cover aside.
- Remove the four screws that secure the Controller PCB to the front cover.
- Using proper static electricity precautions carefully remove the Controller PCB and place it in a protective static bag.
- Install the new Controller PCB using the same four screws removed in the previous step.
- Reconnect the AC adapter harnesses removed previously.
- Secure the front cover to the back cover with the four screws.
- Apply power to the XIS indicator then press and hold the ON/OFF key for three seconds.
- Reprogram, recalibrate, and test the operation of the new Controller PCB.

## ■ ACCESSING THE SERVICE MODE

The Service Mode allows an authorized **Xpress** representative to access the Service Mode switches in the software setup.

Open the terminal enclosure by unscrewing the four Phillips screws. Shorten the two pins of K5 on the main board. The display will show "SETUP" for a short time, and then show "DEF NO". This means the scale has accessed the Service Mode.

## ■ FUNCTION OF THE KEYS

















Key	Name	Function
	Finish key	Finish Setup
	Toggle key	Chose parameter
	Back key	Steps backward to last (previous) step
	Accept key	Confirm choice and move forwards to next step

 **PARAMETER LIST**

<b>Soft-Switch</b>	<b>Description</b>	<b>Available Parameter</b>	<b>Default</b>
Def	Initiate default	No = Don't initiate the default Yes = Initiate the default	No
S3	Beep range	0 = No beep 1 = Beep when weight is between over and under value 2 = Beep when weigh is out of range of over and under	0
S4	Filter strength	0 = Light 1 = Normal 2 = Strong 3 = Very strong	2
S5	Weight unit	lb/kg/oz	lb
S6	LED brightness	0 = Normal. Each additional value yields a dimmer display	0
S7	Display type	Off = Continuous display update On = Quick weight	Off
S8	Resolution	On = 10000 / 12500 (for oz is 8000) Off = 5000 (for oz is 4000)	Off
S9	Access to S8 in setup mode	On = Enable Off = Disable	Off
S10	Expanded display	On = Expanded display (50,000 quantity) Off = Normal display	Off
GEO	GEO	0 to 31	12
Cal	Calibrate	YES = Calibrate scale NO = Don't calibrate scale	No

## CALIBRATION

Example using a 50 lb scale:

Step	Operation	Display	Description
		[CAL YES]	
1	Press 	[ 1b]	Default calibration weight unit
	Press 	[ kg]	Choose suitable parameter
2	Press 	[ 5]	Capacity of the scale
	Press 	[ 50]	Choose suitable parameter
3	Press 	[Lin NO]	Choose non-linearity calibration
	Press 	[Lin yes]	Choose linearity calibration
<b>3.1</b>	<b>If choice NO</b>		
3.1.1	Press 	[-----]	Capture zero, make sure the platter is empty before press [>0<]
3.1.2	Press 	[ 5]	The scale count down from 5 to 0, if the scale isn't stable, it will count again until find stable zero.
3.1.3		[LD 25]	Put the weight of 25 lb (1/2 of the full capacity) on the platter
	Press 	[LD 30]	Choose the suitable weight value you prefer, can be 1/2, 3/5 or full capacity
3.1.4	Press 	[ 5]	The scale count down from 5 to 0, if the scale isn't stable, it will count again until find stable zero.
<b>3.2</b>	<b>If choice YES</b>		
3.2.1	Press 	[-----]	Capture zero, make sure the platter is empty before press [>0<]
3.2.2	Press 	[ 5]	The scale count down from 5 to 0, if the scale isn't stable, it will count again until find stable zero.
3.2.3		[ 30]	Put the weight of 30 lb (3/5 of the full capacity) on the platter
3.2.4	Press 	[ 5]	The scale count down from 5 to 0, if the scale isn't stable, it will count again until find stable zero.
3.2.5		[ 50]	Put the weight of 50 lb (full capacity) on the platter
3.2.6	Press 	[ 5]	Capture span. The scale count down from 5 to 0, if the scale isn't stable, it will count again until find stable zero.
4		[ save]	Save calibration and all setting changes
	Press 	[ abort]	Abort calibration and all setting changes
5	Press 	[ 0.00]	Finish calibration and enter into Weight Display Mode

The lines highlighted in gray are for reference of parameter choice.

The available capacities calibrated in **pounds (lb)** are as follows:

Capacity (lb)	5	10	25	50	100	250	500
Normal Resolution	5000	5000	5000	5000	5000	5000	5000
Increment size (lb)	0.001	0.002	0.005	0.01	0.02	0.05	0.1
High Resolution	10,000	10,000	12,500	10,000	10,000	12,500	10,000
Increment size (lb)	0.0005	0.001	0.002	0.005	0.01	0.02	0.05
Required added weight when choosing non-linearity calibration							
1/2 FS (lb)	-	5	-	25	50	125	250
3/5 FS (lb)	3	6	15	30	60	150	300
FS (lb)	5	10	25	50	100	250	500
Required added weight when choosing linearity calibration							
First point (3/5 FS)	3	6	15	30	60	150	300
Second point (FS)	5	10	25	50	100	250	500

The available capacities calibrated in **kilograms (kg)** are as follows:

Capacity (kg)	2.5	5	10	25	50	100	250
Normal Resolution	5000	5000	5000	5000	5000	5000	5000
Increment size (kg)	0.0005	0.001	0.002	0.005	0.01	0.02	0.05
High Resolution	12,500	10,000	10,000	12,500	10,000	10,000	12,500
Increment size (kg)	0.0002	0.0005	0.001	0.002	0.005	0.01	0.02
Required added weight when choosing non-linearity calibration							
1/2 FS (kg)	-	-	5	-	25	50	125
3/5 FS (kg)	1.5	3	6	15	30	60	150
FS (kg)	2.5	5	10	25	50	100	250
Required added weight when choosing linearity calibration							
First point (3/5 FS)	1.5	3	6	15	30	60	150
Second point (FS)	2.5	5	10	25	50	100	250

The available capacities displayed in **ounces (oz)** are as follows:

Capacity (oz)	80	160	400	800	1600	4000	8000
Normal Resolution	4000	4000	4000	4000	4000	4000	4000
Increment size (oz)	0.02	0.05	0.1	0.2	0.5	1	2
High Resolution	8000	8000	8000	8000	8000	8000	8000
Increment size (oz)	0.01	0.02	0.05	0.1	0.2	0.5	1

## GRAVITY ADJUSTMENT

The Standard Indicator has built in compensation provisions to allow factory calibration with destination correction capabilities to compensate for variances on gravitational forces. If the Standard Indicator is subjected to a different gravitational force at its destination location, this can be compensated for electronically by adjusting the geo value. The geo value has 32 settings. The geo value for any world location can be found in the Geo Value Table in the **Appendix** as long as the geographical coordinates and elevation above sea level are known.

## SERVICING YOUR SCALE BASE



For the following services, please contact your Xpress representative at [www.mt.com/xpress](http://www.mt.com/xpress).

	<b>WARNING</b>
	<p>DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.</p>

<b>CAUTION</b>
<p>BEFORE CONNECTING OR DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT, ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT, OR BODILY HARM.</p>

### LOAD CELL REPLACEMENT

- Disconnect the power.
  - Remove the stainless steel platform from the base.
  - Loosen and remove the top load cell mounting bolts that secure the top frame to the load cell.
  - Set the top frame and the load cell spacer aside.
  - Turn the scale on its side to access the bottom load cell bolts.
  - Loosen and remove the bottom load cell mounting bolts.
  - Remove the load cell from the base and pull the excess cable out through the bottom of the column.
  - Reinstall a new load cell by following the steps above in reverse order.
- Note:** Lubricate the threads and under the head of the load cell mounting bolts before reinstalling.
- Using a torque wrench, tighten the load cell mounting bolts to the specifications shown in this table:

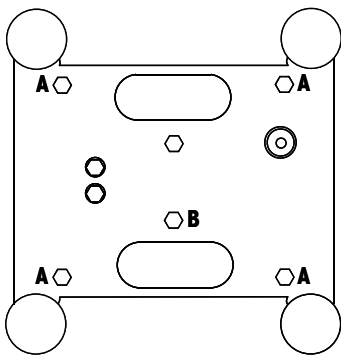
Base Model	Metric	English
XMC03, XMC03S	10 N•m	7.5 ft/lb
XMC06, XMC06S	10 N•m	7.5 ft/lb
XMC15, XMC15S	10 N•m	7.5 ft/lb
XWS30R, XWS30RS	10 N•m	7.5 ft/lb
XWS60R, XWS60RS	10 N•m	7.5 ft/lb
XWS60M, XWS60MS	10 N•m	7.5 ft/lb
XWS150M, XWS150MS	15 N•m	11 ft/lb
XWT150M, XWT150MS	25 N•m	18 ft/lb
XWT300M, XWT300MS	30 N•m	22 ft/lb

- After replacing a load cell, the overload stops must be checked and adjusted (if needed). Refer to the next section for the overload stop adjustment procedure.
- Thread the load cell cable through the column from the bottom.
- Connect load cell cable to terminal.
- Coil the excess load cell cable and insert it into the column. A small length of tape applied to the ends of the coils allows the cable to slide into the column easier.
- Apply power to the scale.
- Recalibrate and test the operation of the new load cell.

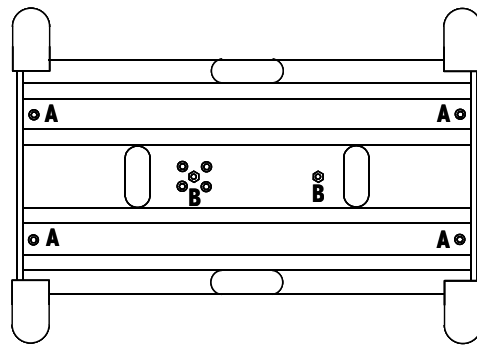
**OVERLOAD STOP ADJUSTMENT**

The overload stops must be checked and reset if the top or bottom frame or the load cell has been replaced.

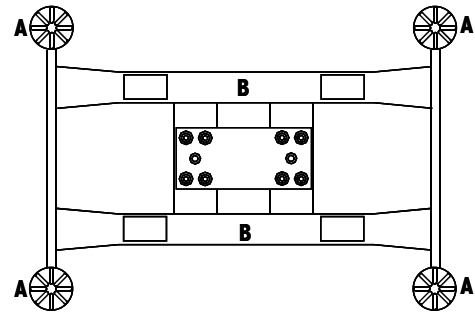
- Remove the stainless steel platform from the base.
- Using the proper size feeler gauge, check all six overload stops as shown in the figure below. The correct gap measurements can be found in the table below.
- If the gaps are not set properly, proceed to the following steps.
- Loosen the overload screw jam nuts. Refer to the figures below.
- Using the proper size feeler gauge, turn the screw until you feel a slight drag on the feeler gauge.
- Tighten the jam nut and recheck the gap. Readjust if necessary.
- Adjust all six overload stops using this procedure.
- Reinstall the platform and make sure the scale weighs to full capacity.



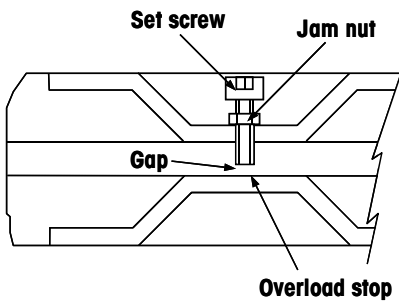
**XMC, XMC-S models**



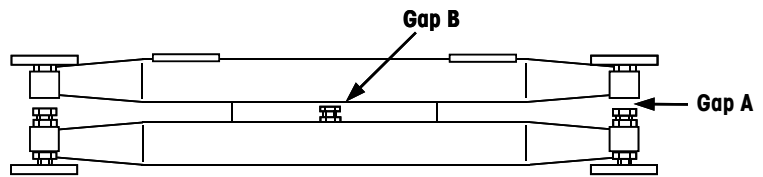
**XWS, XWS-S models**



**XWT, XWT-S model**



**Overload screw jam nuts**



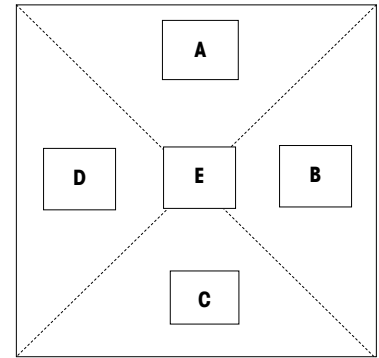
**Gap measurement points**

	<b>XMC03, XMC03S</b>	<b>XMC06, XMC06S</b>	<b>XMC15, XMC15S</b>	
<b>Position</b>	<b>Overload Gap</b>	<b>Overload Gap</b>	<b>Overload Gap</b>	
A	1 mm (0.04 in.)	1 mm (0.04 in.)	1.5 mm (0.06 in.)	
B	0.5 mm (0.02 in.)	0.5 mm (0.02 in.)	0.5 mm (0.02 in.)	
	<b>XWS30R, XWS30RS</b>	<b>XWS60R, XWS60RS</b>	<b>XWS60M, XWS60MS</b>	<b>XWS150M, XWS150MS</b>
<b>Position</b>	<b>Overload Gap</b>	<b>Overload Gap</b>	<b>Overload Gap</b>	<b>Overload Gap</b>
A	2 mm (0.078 in.)	2 mm (0.078 in.)	3 mm (0.118 in.)	3 mm (0.118 in.)
B	0.5 mm (0.02 in.)	0.5 mm (0.02 in.)	0.75 mm (0.03 in.)	0.75 mm (0.03 in.)
	<b>XWT150M, XWT150MS</b>	<b>XWT300M, XWT300MS</b>		
<b>Position</b>	<b>Overload Gap</b>	<b>Overload Gap</b>		
A	4 mm (0.157 in.)	6 mm (0.236 in.)		
B	1 mm (0.04 in.)	1 mm (0.04 in.)		

## ■ SHIFT TEST

A shift test verifies that the scale weighs correctly irrespective of load placement. If the scale does not pass the shift test, verify the overload stops gaps before replacing the load cell. No adjustment for the shift is possible. If the scale does not pass the shift test, the load cell must be replaced.

For NTEP and Canadian Weights and Measures tests, use weights equal to 1/2 the scale's capacity. Place the test weight sequentially at each of the positions A, B, C, D and E as shown in figure in the right. These positions are the centers of the four quadrants of the platform and the center of the platform. Note the terminal's reading of the weight at each position. The difference between any two positions in the shift test cannot exceed the tolerance shown in the table below.



	<b>SCALE CAPACITY</b>	<b>DISPLAY INCREMENT</b>	<b>USA and CANADA TEST WEIGHT</b>	<b>TOLERANCE (NEW)</b>	<b>TOLERANCE (IN SERVICE)</b>
XMC03(S)	5 lb/2.5 kg	0.001 lb/0.0005 kg	2.5 lb/1.25 kg	±0.001 lb ±0.0005 kg	±0.002 lb ±0.001 kg
XMC06(S)	10 lb/5 kg	0.002 lb/0.001 kg	5 lb/2.5 kg	±0.002 lb ±0.001 kg	±0.004 lb ±0.002 kg
XMC15(S)	25 lb/10 kg	0.005 lb/0.002 kg	12.5 lb/5 kg	±0.005 lb ±0.002 kg	±0.01 lb ±0.004 kg
XWS30R(S)	50 lb/25 kg	0.01 lb/0.005 kg	25 lb/12.5 kg	±0.01 lb ±0.005 kg	±0.02 lb ±0.01 kg
XWS60R(S)	100 lb/50 kg	0.02 lb/0.01 kg	50 lb/25 kg	±0.02 lb ±0.01 kg	±0.04 lb ±0.02 kg
XWS60M(S)	100 lb/50 kg	0.02 lb/0.01 kg	50 lb/25 kg	±0.02 lb ±0.01 kg	±0.04 lb ±0.02 kg
XWS150M(S)	250 lb/100 kg	0.05 lb/0.02 kg	125 lb/50 kg	±0.05 lb ±0.02 kg	±0.1 lb ±0.04 kg
XWT150M(S)	250 lb/100 kg	0.05 lb/0.02 kg	125 lb/50 kg	±0.05 lb ±0.02 kg	±0.2 lb ±0.04 kg
XWT300M(S)	500 lb/250 kg	0.1 lb/0.05 kg	250 lb/125 kg	±0.1 lb ±0.05 kg	±0.2 lb ±0.1 kg

## APPENDIX

### ■ ERROR MESSAGES

The XIS indicator will display an error message if a problem or incorrect keyboard entry is sensed. The error codes are:

E 11	RAM error	1. Power off and power up again.
E 16	ROM error	2. Recalibrate the scale.
E 18	EEPROM error	3. Replace the main board or load cell.
E 48	Alarm setup error	Review setup.
ERROR	Software running error	Restart the scale by pressing the power key.
-----	Unsteadily or can't find zero	1. Power-up when the platter is empty. 2. Recalibrate the scale. 3. Replace the main board or load cell.
nnnnn	Overload indication	Weight is more than full capacity plus 9e. Remove items from platter and re-zero the scale.
uuuuu	Underload indication	Weight on scale is below gross zero by more than 9e. Increase load on scale.
Dark display	No power	Check that the transformer is plugged in the wall. Insure that the transformer is plugged in the scale.

### ■ INDICATOR SPECIFICATIONS

Feature	Description
Displayed Resolution	Up to 12,500d
Physical Dimensions (w x d x h)	8" x 6" x 3"
Construction	304 stainless steel
Power	100 to 240VAC universal power supply, 50 to 60Hz
Environmental Protection	Equal to IP65 The indicator is NOT intrinsically safe!
Display	6 digits, 12 mm height, bright red LED
Scale Type	Analog: Suitable for 2mV/V and 3mV/V load cells Can power up to one (1) 350 ohm load cells
Keypad	4 membrane keyboard: ON/OFF, ZERO, TARE, FUNCTION
Operating Temperature	14°F to 104°F (-10°C to 40°C) with 10 to 95% relative humidity, non-condensing
Storage Temperature	-4°F to 140°F (-20°C to 60°C) with 10 to 95% relative humidity, non-condensing
Data Output	None
Weighing Units	pounds, kilograms, and ounce

Specifications are subject to change without notice.



## ■ BASE SPECIFICATIONS

### Base size

Xpress Standard Bench Scales are available in four sizes with seven capacities:

<b>Size/Capacity</b>	<b>5 lb</b>	<b>10 lb</b>	<b>25 lb</b>	<b>50 lb</b>	<b>100 lb</b>	<b>250 lb</b>	<b>500 lb</b>
9" x 9"	X	X	X				
12" x 14"				X	X		
16" x 20"					X	X	
20" x 28"						X	X

### **Construction**

#### Platform

XMC, XMC-S: Fabricated of stainless steel

XWS, XWS-S: Fabricated of stainless steel

XWT, XWT-S: Fabricated of stainless steel

#### Scale Base

XMC, XWS: Formed and welded mild steel, painted blue, aluminum load cell

XWT: Welded tubular mild steel, painted blue, aluminum load cell

XMC-S, XWS-S: Formed and welded stainless steel, stainless steel load cell

XWT-S: Welded tubular stainless steel, stainless steel load cell

Overloading	Corner loading:	100% of full capacity
	Safe Overload:	150% of full capacity
	Ultimate Overload:	300% of full capacity
Operating Temperature	10° to 104°F (−10 °C to +40 °C)	
Humidity	XMC, XWS and XWT base: 0 to 95% relative humidity	
	XMC-S, XWS-S and XWT-S base: Washdown applications	

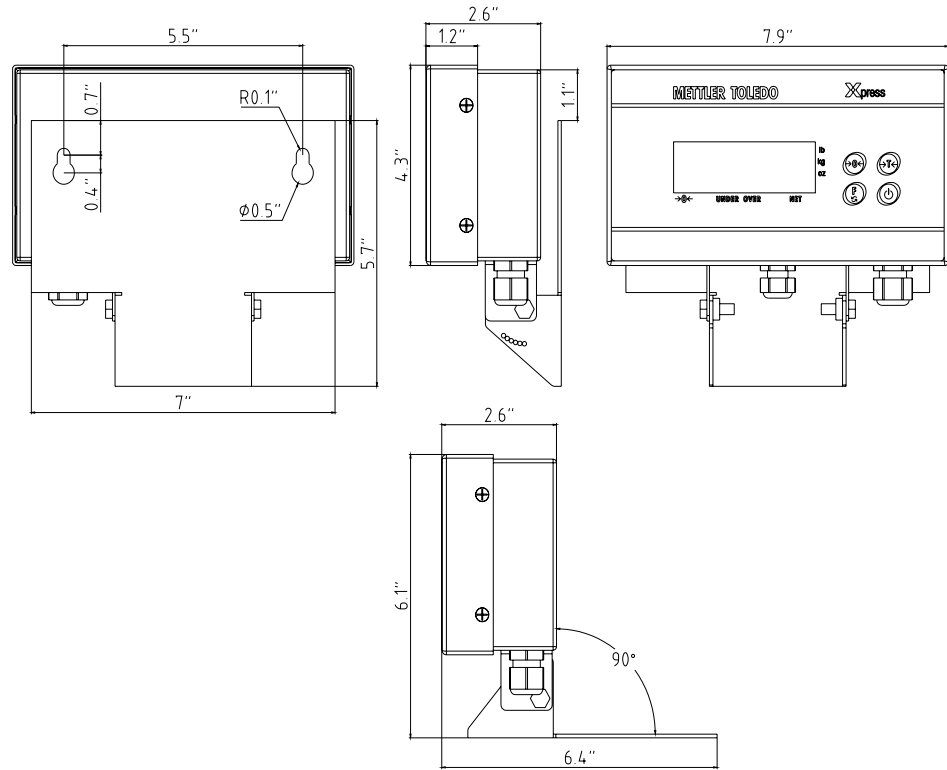
**GEO VALUE TABLE**

Use the following geo codes if you relocate the XMC/XWS/XWT (-S) -XIS to a site other than the original location where it was calibrated.

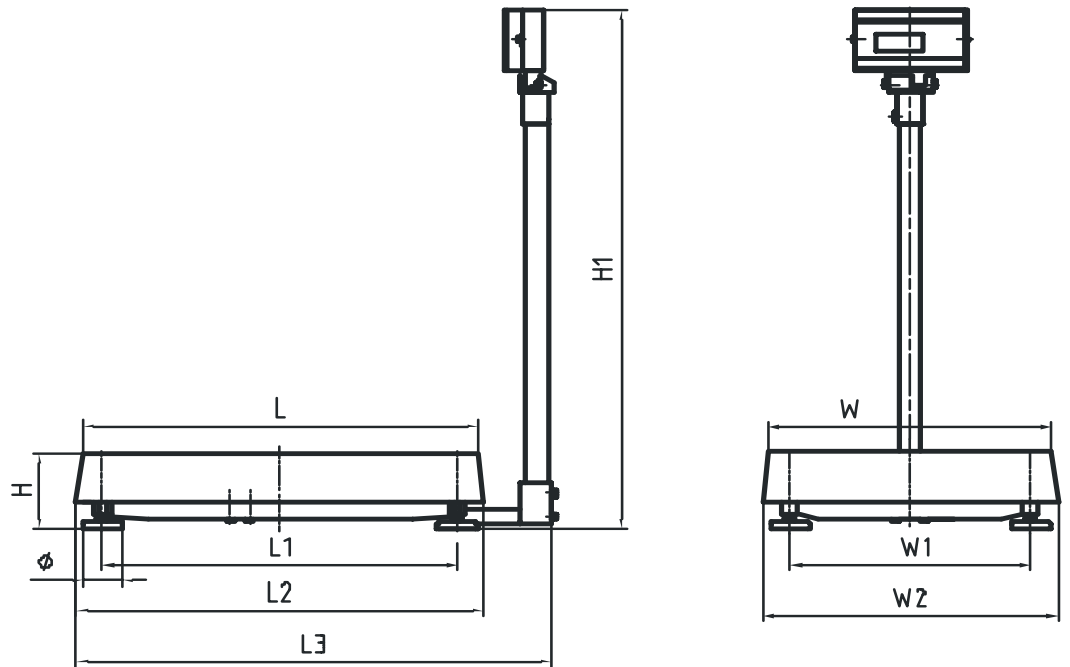
Northern and Southern latitude in degrees and minutes	Height above sea-level in meters										
	0 325	325 650	650 975	975 1300	1300 1625	1625 1950	1950 2275	2275 2600	2600 2925	2925 3250	3250 3575
	Height above sea-level in feet										
	0 1060	1060 2130	2130 3200	3200 4260	4260 5330	5330 6400	6400 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

**PHYSICAL DIMENSIONS**

Indicator:



Platform:



Model	L	W	H	L1	L2	L3	W1	W2	H1	4-φ
XMCxx-XIS XMCxxS-XIS	9"	9"	3.1"	7.1"	9"	11.6"	7.1"	9"	15.7"	1.2"
XWSxxR-XIS XWSxxRS-XIS	14"	12"	3.7"	12.3"	14.8"	19.2"	10.4"	12.8"	20.9"	2.0"
XWSxxM-XIS XWSxxMS-XIS	20"	16"	4.1"	18.0"	20.5"	25.0"	14.1"	16.5"	33.7"	2.0"
XWTxxM-XIS XWTxxMS-XIS	28"	20"	5.6"	24.6"	28.3"	32.2"	16.7"	20.5"	36.6"	2.8"

**Notes**

**Notes**

**Xpress**  
Mettler-Toledo, Inc.  
60 Collegeview  
Westerville, OH 43081

**5/2004**  
MTX04-OM040.1E