METTLER TOLEDO Xpress

STANDARD COUNTING SCALE

OPERATION & SERVICE MANUAL

Model XTC

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.

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
xpress@mt.com

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

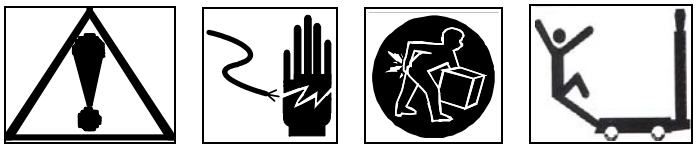
Xpress
Mettler-Toledo, Inc.
60 Collegeview
Westerville, OH 43081

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

SAFTEY 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 to 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 only 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 is disconnected to allow charges to dissipate before servicing any electronic components.
- Allow the product to adjust to room temperature before connecting the power source.

FAILURE TO FOLLOW THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT, OR BODILY HARM.

FCC NOTICE

This equipment has been tested and found to comply with the limits of the United States of America FCC rules for a Class A digital device, pursuant to Part 15 of the FCC Rules. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction in this manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

PREPARING THE SCALE FOR USE

The XTC Standard Counting Scale is a high performance industrial counting scale that accurately and dependably counts parts of all shapes and sizes.

This manual provides not only the detailed information on how to operate the scale, but also useful messages for service and maintenance.

Please read this manual thoroughly and familiarize yourself with all the safety requirements. All service procedures must only be performed by authorized personnel.

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

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 Counting Scales include:

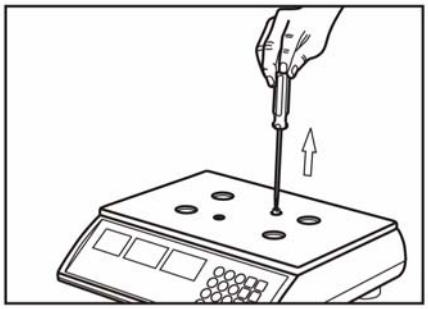
Product
- XTC Counting Scale
- Pan (only with XTC1001)
- Platter Supports Kit (only with XTC1001)
- Scale Platter
- Adapter
- Lead seal wire and lead

Documents
- Quick Start Guide
- Installation Instructions

CD-ROM
- Operation & Service Manual

5 lb models

1.



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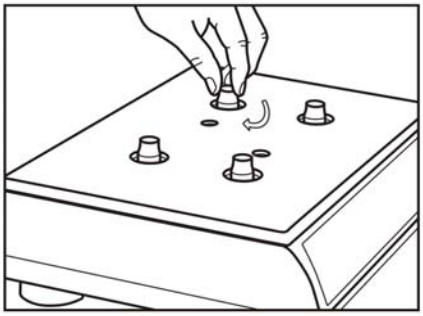

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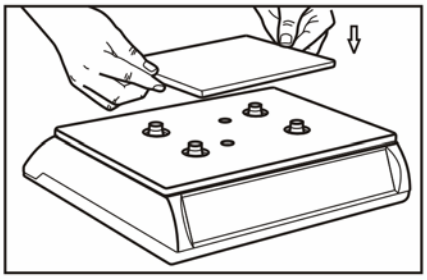

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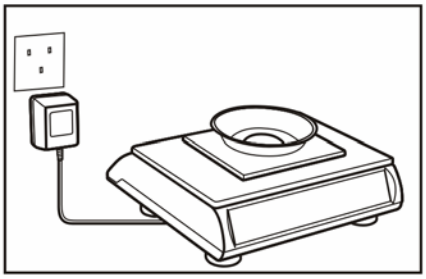
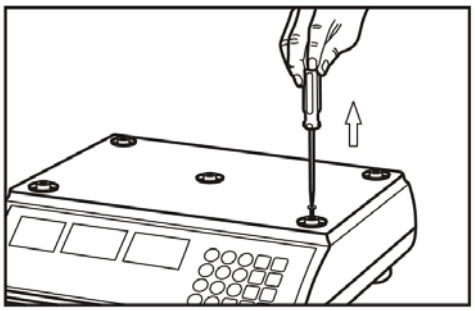


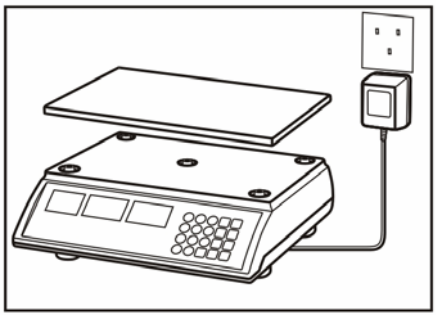
10/20/50 lb models

1.



(20/50 lb models skip this step)

2.



All models

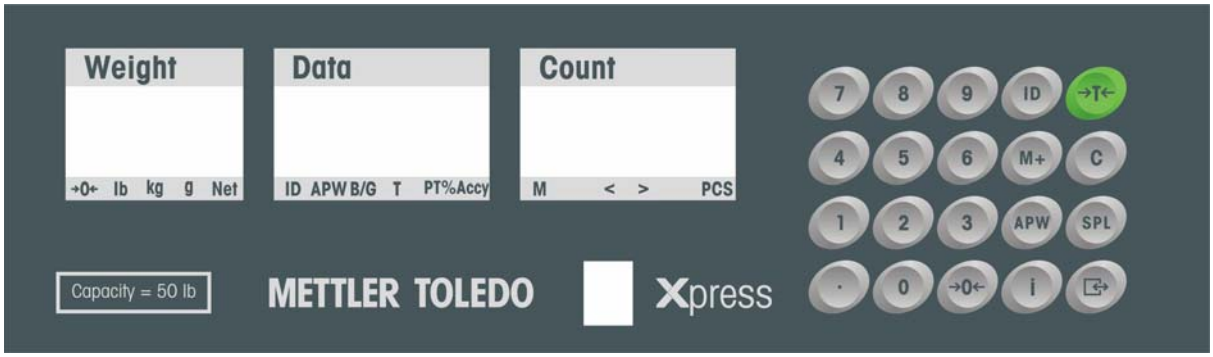
Level the scale by adjusting the four rubber feet until the leveling bubble is centered in the level indicator.

Proper alignment

Improper alignment

YOUR XPRESS SCALE AT A GLANCE

DISPLAY



KEYPAD

Key	Name	Function
0 ~ 9	Numeric	Data entry (0-9)
.	Decimal	Enters a decimal point/Toggles alarm beep
→0←	Zero	Zeroes the scale
→T←	Tare	Subtracts tare value and switches from gross to net mode
C	Clear	Clears data from the display
APW	APW	Initiates Average Piece Weight (APW) entry
SPL	Sample	Initiates sampling
i	Recall	Recalls the accumulated quantity and times
ID	ID	Store ID number, APW, tare and item number
M+	Accumulation	Adds the accumulator counts or recalls accumulation
	Enter/Print	Confirms an operation or initiates data output

DISPLAY WINDOWS

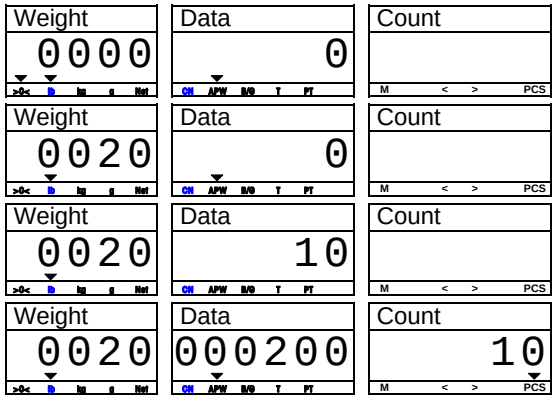
Window	Description
Weight Display (Weight)	Displays the weight.
Data Display (Data)	Displays item number, APW, gross weight, tare, push-button tare or accuracy percentage sequentially with each time the key i is pressed. The default display is APW.
Count Display (Count)	Displays the counts.

CURSORS (VFD)

Key	Description
→0←	When the scale is at the gross zero, this cursor will be lit
lb, kg, g	Weight unit cursor; Weight unit can be set in Setup Mode
Net	When net weight is displayed, this cursor will be lit
ID	When item number is recalled, this cursor will be lit
APW	When Average Piece Weight (APW) is recalled, this cursor will be lit
B/G	When gross weight is recalled, this cursor will be lit
T	When push-button tare weight is recalled, this cursor will be lit
PT	When keyboard tare is recalled, this cursor will be lit
%Accy	When the counting accuracy percentage is recalled, this cursor will be lit
M	When the value in the accumulator is not zero, this cursor will be lit
PCS	When the count is displayed, this cursor will be lit
>	Target Alarm: Indicates the count is above the Over value
<	Target Alarm: Indicates the count is below the Under value
< >	When both > and < cursors are lit, it indicates that the count is within the target zone

OPERATING YOUR SCALE

STRAIGHT COUNTING



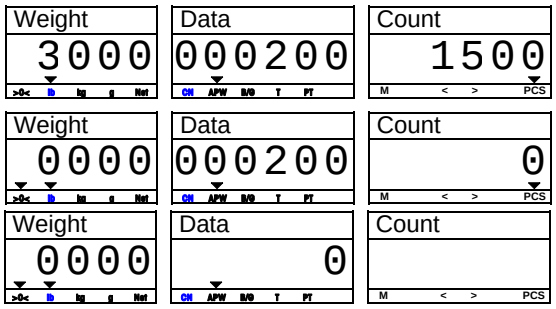
The XTC counting scale is in the weight mode and ready for counting operation.

Place the samples on the platter (e.g. 10 pieces, total weight is 0.020 lb).

Press the keys 1 0 to input the sample pieces.

Press the key SPL to initiate Average Piece Weight (APW).

Note: If the sample weight is less than the minimum sample weight set in the Setup Mode, the count window will show "ADD XX" indicating that "XX" more pieces should be added on the platter. After adding the required quantity, press the key SPL to re-sample.

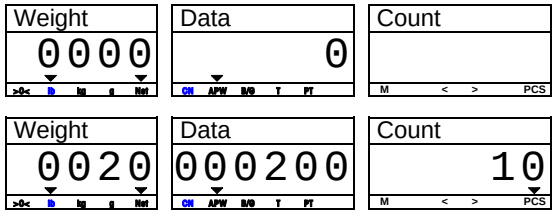


Place the items to be counted on the platter (e.g. 1500 pieces including samples).

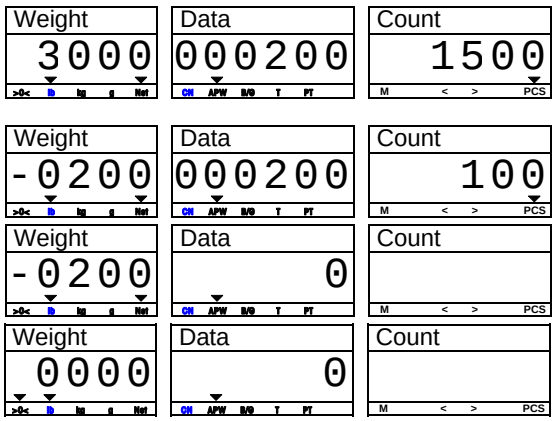
Remove all the items from the platter.

Press the key C to clear the APW.

PUSH-BUTTON TARE



Place the empty container or wrapping material on the platter (e.g., 0.2 lb), and then press →T←.
Place the samples in the container or on the wrapping material and then onto the platter (e.g. 10 pieces, total weight is 0.02 lb). Initiate APW by pressing the keys 1 0 SPL.



Place the items to be counted in the container or on the wrapping material and then onto the platter (e.g. 1500 pieces including samples).

Remove all the items from the platter.

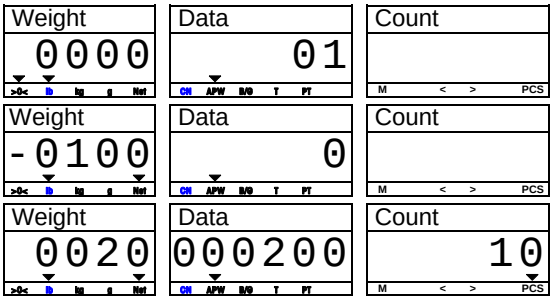
Clear the APW data by pressing C.

Clear the tare by pressing C again.

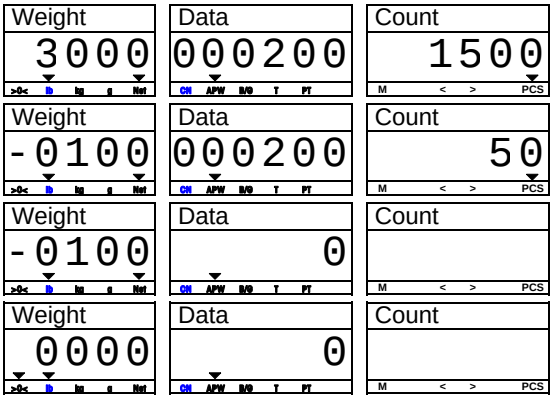
KEYBOARD TARE

There are two operation procedures for this function.

Operation Procedure 1



Press the appropriate keys for the known tare value (e.g. 0.1 lb, press the keys 0 · 1 to input tare value 0.1).
Press the key →T← to initiate the input value as tare.
Place the samples in the container or on the wrapping material and then onto the platter (e.g. 10 pieces, total weight is 0.02 lb). Initiate APW by pressing the keys 1 0 SPL.

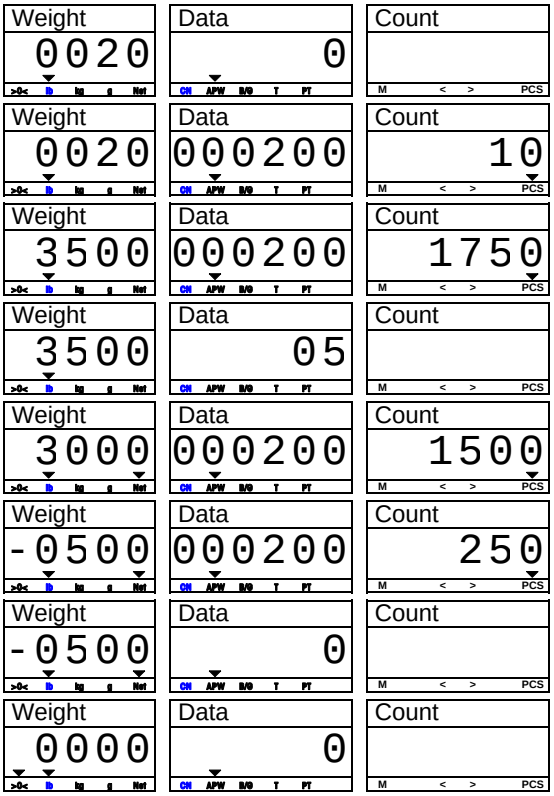


Place the items to be counted in the container or on the wrapping material and then onto the platter (e.g. 1500 pieces including samples).
Remove all the items and the container or wrapping material from the platter.

Clear the APW by pressing C.

Clear the tare by pressing C again.

Operation Procedure 2



Place the samples on the platter (e.g. 10 pieces, total weight is 0.02 lb).

Press the keys 1 0 SPL to initiate APW.

Place the items to be counted in the container or on the wrapping material and then onto the platter, (e.g. 1500 pieces including samples).

Input the data by pressing the keys 0 · 5.

Press the key →T← to initiate the tare as 0.5lb.

Remove all the items and the container or wrapping material from platter.

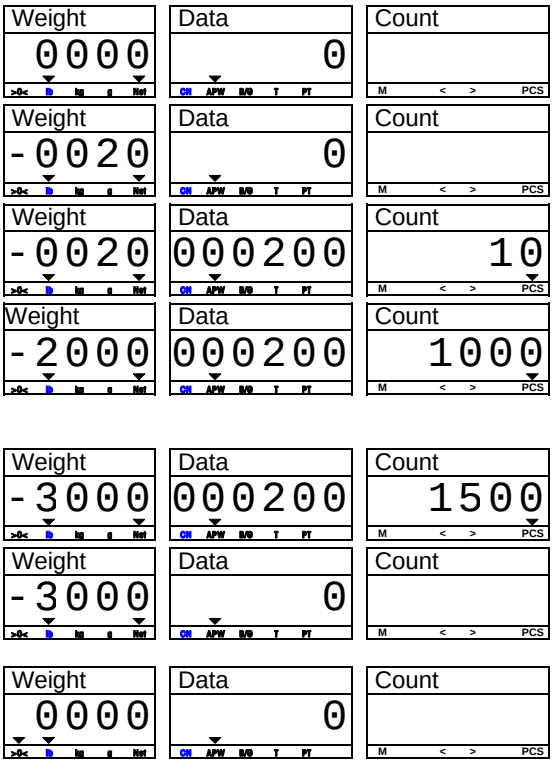
Clear the APW by pressing C.

Clear the tare by pressing C again.

DECREMENT COUNTING

There are two decrement counting modes.

Mode 1



Place the items to be counted in the container or on the wrapping material and then onto the platter (e.g. 3 lb including tare). Press the key →T←.
Remove the samples from the platter (e.g. 10 pieces, total weight is 0.02 lb).

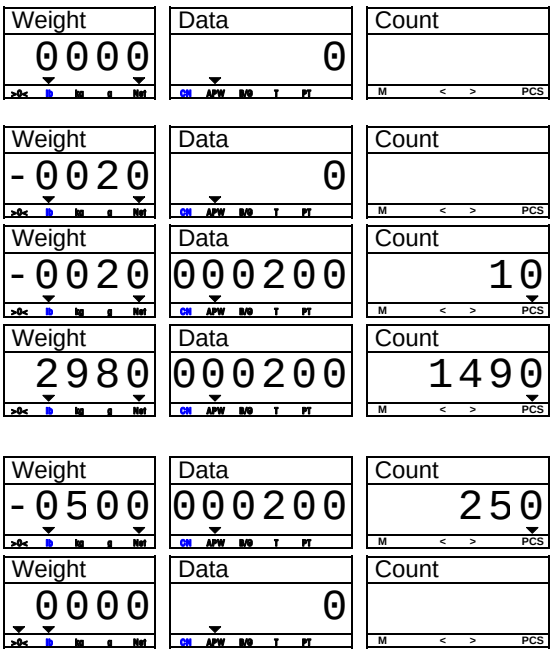
Initiate APW by pressing the keys 1 0 SPL.

Remove all the items from the container or the wrapping material (e.g. 1000 pieces including the samples). The count stands for the pieces removed from the platter including the sample.
Remove the container or wrapping material from the platter.

Clear the APW by pressing the key C.

Clear the tare by pressing the key C again.

Mode 2



Place the items in the container or on the wrapping material and then onto the platter (e.g. 3.5 lb including tare), then press the key →T←.
Remove the samples from the platter (e.g. 10 pieces, total weight is 0.02 lb).

Initiate APW by pressing the keys 1 0 SPL.
Input the known tare (e.g. 0.5 lb) by pressing the keys 0 • 5 →T←. The count stands for the pieces in the container or on the wrapping material, not including the samples already removed.

Remove all the items and the container or wrapping material from the platter.

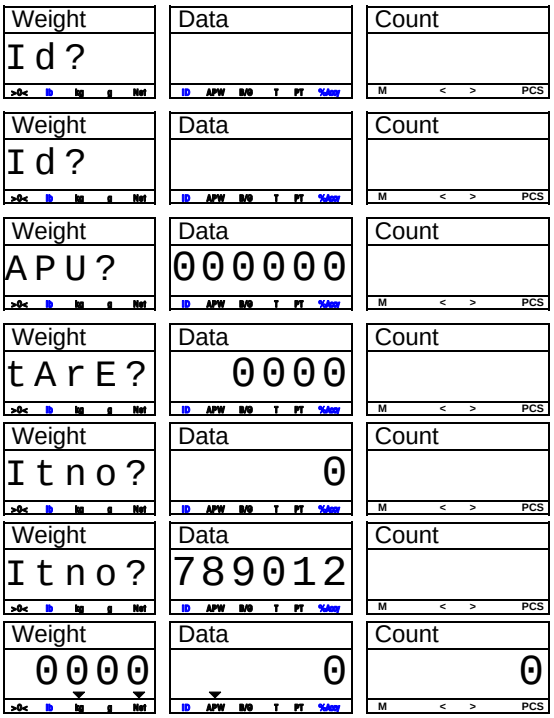
Clear the APW and tare by pressing the key C twice.

SPECIAL OPERATION FUNCTIONS

ID FUNCTION

20 ID can be stored with 2-digit ID No. and APW and 6-digit item No. and tare. ID data will not be lost when power is off. Emptying the item No. can clear an ID. The tare stored in the ID is keyboard tare.

Store an ID



In the count or weight mode, press the key (ID) to enter the ID entry mode.

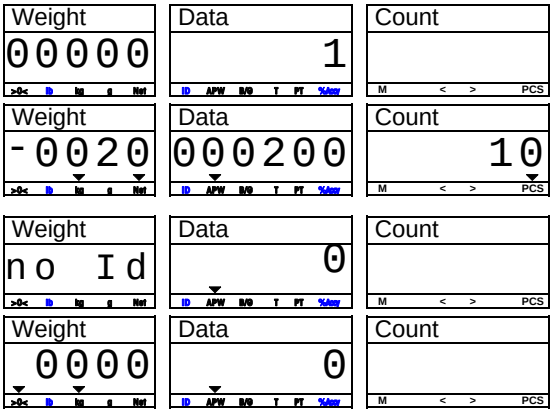
Enter a numeric value 1 (acceptable from 1 to 20).

Press key to display the existing APW (if this ID has existed) or current APW (if this ID is a new one) to waiting new APW input.
Press the key directly or input the known APW then press the key to wait for new tare input.
Press the key directly or input the known tare then press the key to wait for the item No. input.

Input the item No. up to 6 digits (e.g. 789012)

Press the key to accept the input and return the scale the previous mode.

Recall an ID



In count or weight mode, press the desired numeric key (e.g.: the key 1) to input ID No. (e.g. ID No. is 1).
Press the key (ID) to recall the desired ID (e.g.: ID1), the data in ID1 will be recalled from the memory, while active the accumulator with the same No.

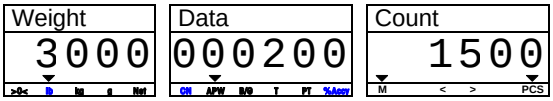
If no ID, the Weight window shows "no id" for 2 seconds, then back to previous mode.

After finishing all transactions, press (C) key to clear ID and active accumulator 0.

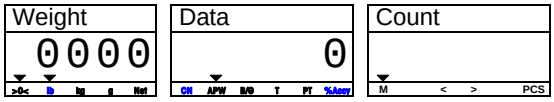
Note: the recalled APW or tare can be modified temporarily.

ACCUMULATION FUNCTION

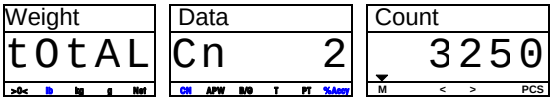
There are 21 accumulators to store the total counts. The data in the accumulator will be lost when power to the scale is lost.



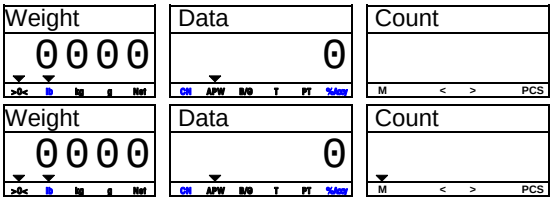
When the scale is in the count mode and the count is not zero, press the M+ key. The beeper will give a double beep to indicate the displayed counts have been added into the accumulator and the "M" cursor will be lit.
Repeat above steps until all transactions are accumulated.
Note: The weight should return to zero before the next accumulation.
Press the key C to clear the APW.



RECALL AND EXIT THE ACCUMULATOR



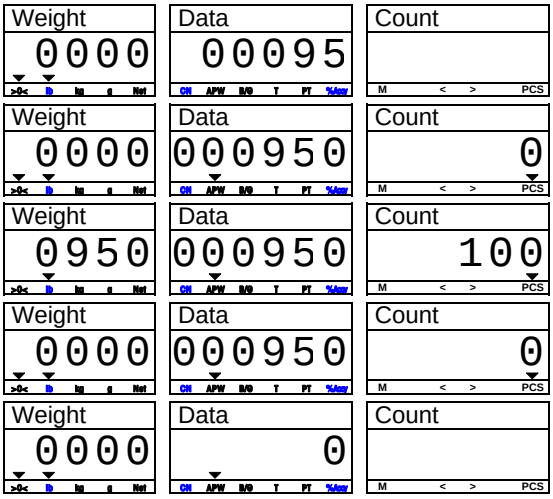
In weight mode, press the key Press the key M+ to recall the accumulated count in the temporary accumulator.
Press the numeric keys (e.g.: 1 0) and M+ to recall the accumulated count in the corresponding accumulator (e.g.: accumulator 10).
In accumulation display mode, there are two ways to return the scale to the previous mode.



Pressing the key C to clear the accumulator and return the scale back to the previous mode.

Pressing the key M+ to return the scale back to the previous mode without clearing the accumulator.

AVERAGE PIECE WEIGHT (APW) FUNCTION



In the count and weight mode, enter the APW data (e.g. 0.0095 lb) by pressing the keys 0 · 0 0 9 5.

Press the key APW to initiate APW.

Place the items to be counted on the platter.

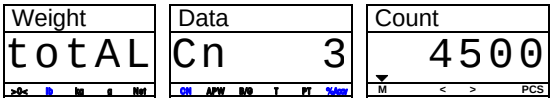
Remove all the items from the platter.

Press the key C to clear the APW.

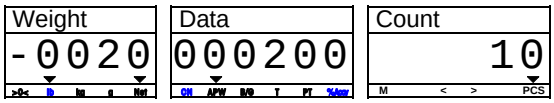
COMMUNICATION FUNCTION

With the optional RS-232 cable kit, the XTC can communicate to a printer or a PC.

DATA OUTPUT



In accumulation display mode, press to print the total counts and CN or transmit the data to a PC.



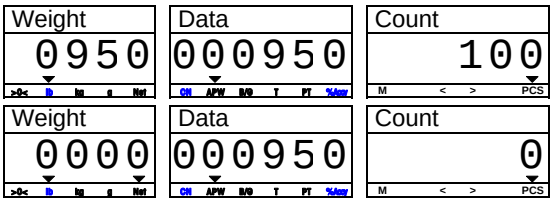
In count or weight mode, press to print the APW, tare, pieces, and/or gross weight (The items depend on the soft switch setting in the Setup Mode.) or transmit the data to a PC.

EXTERNAL COMMANDS

The XTC can accept some ASCII coded commands from a host PC. The commands are identified as follows:

Keys	Description
[T][Enter]	Equal to push-button tare operation
[Z][Enter]	Equal to zero operation
[P][Enter]	Equal to print operation
[C][Enter]	Equal to clearing operation
[C][C][Enter]	Equal to pressing the key C twice
[T][XXXXXX][Enter]	Initiate XXXXXX as the tare
[S][XXXXXX][Enter]	Initiate an APW. XXXXXX is the sample pieces and the weight on the platter is the sample weight
[A][XXXXXXXX][Enter]	Initiate XXXXXXXX as the APW

For example:

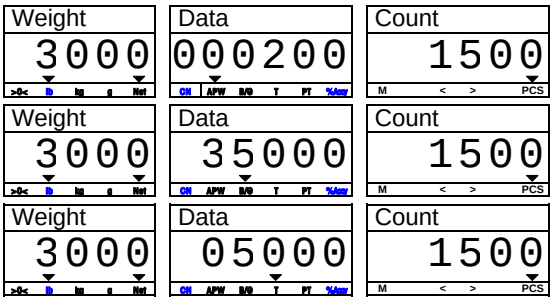


The scale is in the count mode.

Press the keys [T][Enter] on the keyboard of a PC. The XTC will accept this command and tare the scale.

RECALL FUNCTION

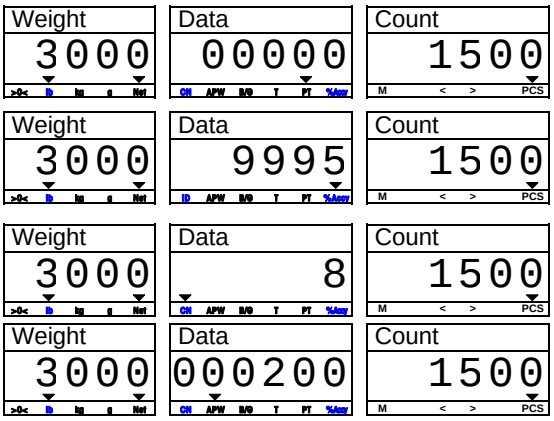
The XTC can subtract some data via the key (i). The default data is APW when the scale powers up.



The scale is in the count or weight mode. (Weight window shows the weight value.)

Press the key (i). The **B/G** cursor will light and the Data window will display gross weight (e.g. 3.5 lb).

Press the key (i) and the **T** cursor will light. If the current tare is a push-button tare, the Data display will show the tare value. If the tare is a keyboard tare or no tare exists, it will be 0.0000.



Press the key (i) and the **PT** cursor will light. The Data display will show the tare that was input via the keyboard. If the tare is a push-button tare or no tare exists, it will show 0.0000.

Press the key (i), the **%Accy** cursor is lit, the Data display will show the counting accuracy percentage.

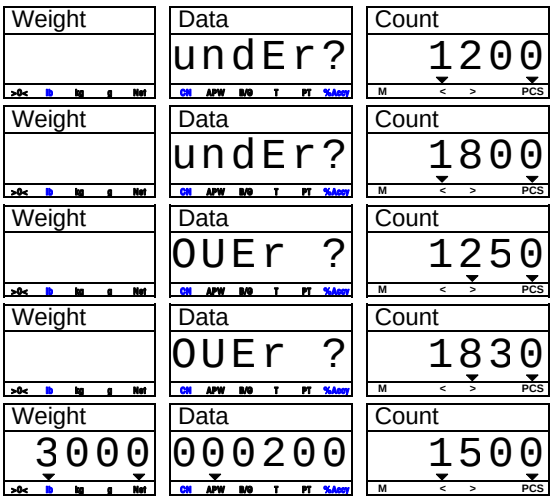
Press the key (i), the **ID** cursor is lit, the Data display will show the value of the item No..

Press the key (i) and the **APW** cursor will light. The Data display will show the APW.

COUNT TARGET ALARM

A target zone (>/<) can be preset via keyboard. If the target alarm is enabled in the Setup Mode, the scale will beep continually when the piece count is within or outside of this range depending on the soft switch setting. If the target zone has been preset, the under cursor "< " will be lit when the piece count is below the Under value. When the piece count is above the Over value, the over cursor ">" will be lit. If both, the Over and Under values are 0, the target alarm will be disabled.

PRESET THE TARGET ZONE



In count or weight mode, press and hold the key (•) for about three seconds, then release the key. The scale will enter into target zone setting mode.
Press the key (→) to accept the displayed value, or enter a new value and then press (→) to accept it.
After entering the Under value, the display will show prompts as the illustrated.

Press the key (→) to accept the displayed value, or enter a new value and then press (→) to accept it.

After entering the Over value, the scale will return to the previous mode automatically.

Note: Both Over and Under values equal to 0 will disable the Target Alarm function.

APW ENHANCEMENT

APW enhancement improves the accuracy of an APW. APW enhancement is based on the fact that an inaccurate APW, while not able to accurately count large numbers of parts, will reliably count a small number. This allows a determination of APW based on a larger weight. Given enough enhancements, the APW becomes very accurate.

This function permits the operator to continuously update the APW based on larger and larger samples. As additional pieces are placed on the scale, a new APW can be calculated based on the new total sample weight and count.

The APW can be enhanced constantly up to 4% of the scale capacity. To ensure a minimum APW initial accuracy, a sample weight of at least five display increments must be used. There is a selection in setup mode which increases the minimum sample to 0.015%, 0.1% or 0.2% of capacity.

When using APW enhancement, you must not add more pieces to the scale than what can be counted accurately using the current APW (about the same pieces, which have already been counted). If this maximum is exceeded, a warning of [OVER] will be displayed for approximately two seconds then will automatically clear. The operator can remove parts until [OVER] will not be displayed again.

If the operator ignores the [OVER] display and adds more pieces (or removes more in count-out sample mode), no further APW enhancement will be done for the current transaction. If the proper procedure is followed, the scale will continue to enhance the APW until 4% of the scale capacity is reached. Once the counting weight reaches 4%, APW enhancement is discontinued.

Notice: The APW inputted via keyboard or recalled from an ID can not be enhanced.

SPECIAL MODES – SETUP MODE

ENTERING THE SETUP MODE

The operating parameters can be configured in the Setup Mode. When "Full Operator Access" is enabled in the Service Mode, step S3.1, the Setup Mode can be accessed by pressing and holding the key for about seven seconds and then releasing the key.

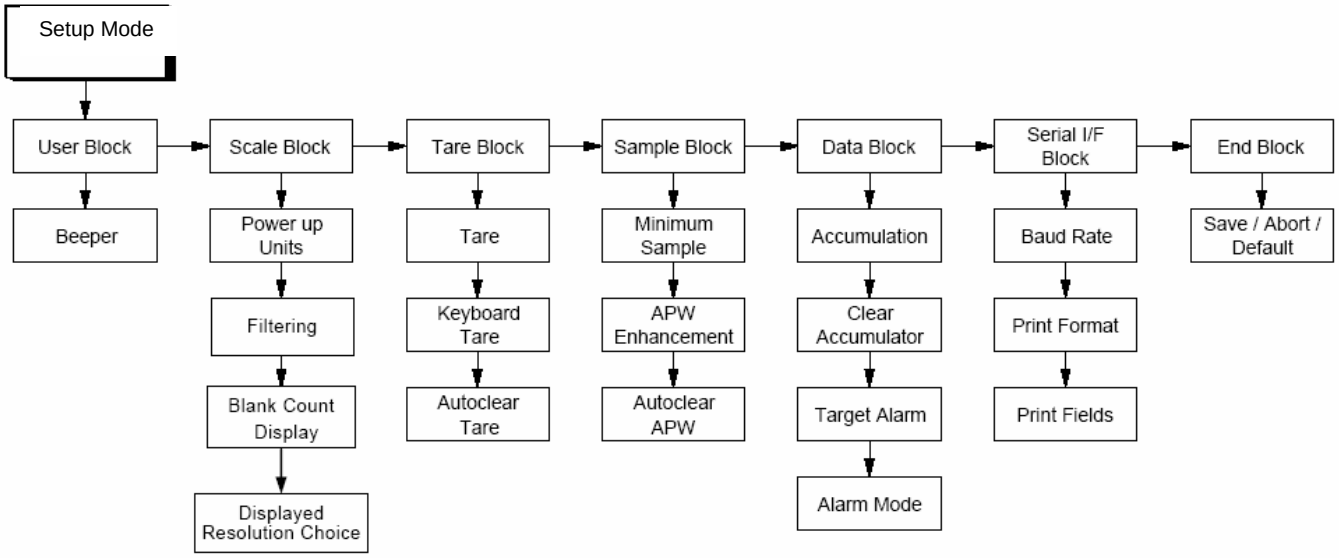
FUNCTION OF THE KEYS

After Setup Mode is accessed, use the four keys, **FINISH, BACKUP, TOGGLE** and **ACCEPT**, to configure the parameters.

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

Key	Function	Description
C	Finish	Used to end scale configuration and proceed to End Block.
0	Backup	Used to step back through program blocks and sub-blocks.
→T←	Toggle	Used to step through the blocks. Once a block is accessed, this key is used to toggle settings On and Off or to step through the setting options of the sub-block.
	Accept	Used to access the program block or to accept the displayed option. Once a displayed sub-block option is accepted, the scale will step forward to the next sub-block or block.

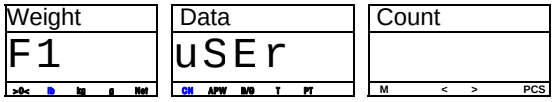
The following diagram gives an overview of the program blocks and sub-blocks.



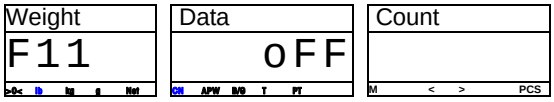
DISPLAY ILLUSTRATION

The scale automatically moves to the first block as soon as the master mode is accessed. Press the key →T← to toggle among blocks [SCALE], [tArE], [SAMPLE], [dAtA], [SEriAL], [id] and [End]. When a block is displayed, press the key → to access the first sub-block or C to go to end block.

Setup Mode Sample Display—Major block



Setup Mode Sample Display—Sub-block



CONFIGURATION

Blocks	Sub Blocks/Parameters
F1 User Block	F1.1 Beeper Off = Disable beeper On = Enable beeper
F2 Scale Block	F2.1 Power-up Weight Units 1 = kg 2 = lb 3 = g The cursor corresponding to the selected unit should be "on" during this block. F2.3 Digital Filter 0 = No filtering 1 = Light filtering 2 = Heavy filtering F2.4 Blank Count Blank Off = The count display will show whatever residual count is existing based on the scale internal divisions and the APW entered, regardless of the weight displayed. On = When the weight display (gross and net) is reading zero, the count display will be zero. F2.5 Displayed Resolution Choice 0 = 5 lb/0.002 lb, 10 lb/0.005 lb, 20 lb/0.01 lb, 50 lb/0.02 lb 1 = 5 lb/0.001 lb, 10 lb/0.002 lb, 20 lb/0.005 lb, 50 lb/0.01 lb 2 = 5 lb/0.0005 lb, 10 lb/0.001 lb, 20 lb/0.002 lb, 50 lb/0.005 lb 3 = 5 lb/0.0002 lb, 10 lb prohibit, 20 lb/0.001 lb, 50 lb/0.002 lb
F3 Tare Block	F3.1 Tare Off = Disable tare On = Enable tare F3.2 Keyboard Tare Off = Disable keyboard tare On = Enable keyboard tare

	F3.3 Auto Clear Tare Off =Disable auto clear tare On = Enable auto clear tare Automatic clear of tare occurs when net weight exceeds 9d. It settles to no motion and then returns to within +/-3d from gross zero.
F4 Sample Block	**F4.1 Minimum Sample** Off = No minimum sample weight is required. The APW will "flash", if the sample weight is below 0.05% of the capacity until the weight used to calculate the new APW due to APW enhancement goes above 0.05%. 0.05 = Minimum sample is 0.05% of capacity. If the sample weight is below this minimum sample weight, the count display will show "add XX" to require additional samples and data display will blank out to indicate APW calculation is forbidden until the sample weight is more than 0.05% of capacity and the new APW is calculated. 0.10 = Minimum sample is 0.10% of the capacity. 0.20 = Minimum sample is 0.20% of the capacity. **F4.2 Average Piece Weight (APW) Enhancement** Off = Disable APW enhancement On = Enable APW enhancement **F4.3 Auto Clear APW** Off = Disable automatic clear of APW On = Enable automatic clear of APW Automatic clear of APW occurs when gross weight (or net weight if a tare has been taken) exceeds 9d, settles to no motion, and then returns to within +/-3d from gross zero.
F5 Data Block	**F5.1 Accumulation** Off = Disable accumulation On = Enable accumulation **F5.2 Clear Accumulator after Print** Off = Disable clear after print On = Enable clear after print **F5.3 Target Alarm** Off = Disable target alarm On = Enable target alarm **F5.4 Alarm Mode** Off = Scale beeps continuously when count is within the target range On = Scale beeps continuously when count is out of target range **F5.5 Alarm Type** Off = Weight alarm On = Quantity alarm
F6 Serial Interface	**F6.1 Baud Rate**

Block	300 = 300 baud 1200 = 1200 baud 2400 = 2400 baud 4800 = 4800 baud 9600 = 9600 baud **F6.2 Print Line Format** Off = Multiple line format On = Single line format **F6.3 Print ID** Off = Disable printing of ID On = Enable printing of ID **F6.4 Print Gross** Off = Disable printing of gross weight On = Enable printing of gross weight **F6.5 Print Tare** Off = Disable printing of tare On = Enable printing of tare **F6.6 Print Net** Off = Disable printing of net weight On = Enable printing of net weight **F6.7 Print Average Piece Weight (APW)** Off = Disable printing of APW On = Enable printing of APW **F6.8 Print Pieces** Off = Disable printing of pieces On = Enable printing of pieces **F6.9 Print Item No.** Off = Disable printing of Item No. On = Enable printing of field Item No. **F6.10 Output** 0 = Command output 1 = Stable output
F7 ID Block	**F7.1 ID**

	Off = Disable ID On = Enable ID F7.2 Auto Clear ID Off = Disable auto clear ID On = Enable auto clear ID
End Block	This block is used to exit the Setup Mode. After exiting the Setup Mode, the scale will self-test automatically and enter into weight mode. Save = Save all the changes and exit Setup Mode. Abort = Abort any changes and exit Setup Mode. Default = Reset all parameters to the factory defaults and exit the Setup Mode.

CLEANING AND 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 to perform service/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 cover 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.
- DO NOT put the scale under water. Use a damp cloth to clean the scale.

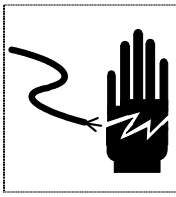
TROUBLESHOOTING

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

Additional troubleshooting can be performed by your authorized Xpress Service representative.

SERVICING YOUR SCALE

For the following services, please contact your **Xpress** representative at www.mt.com/xpress.



WARNING

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.

CAUTION

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.

ENTERING SERVICE MODE

1: Remove the calibration plate on the bottom right side of the scale.
2: Slide the set up switch backward to back side, the weight and data displays will show "S1" and "tESt" respectively.

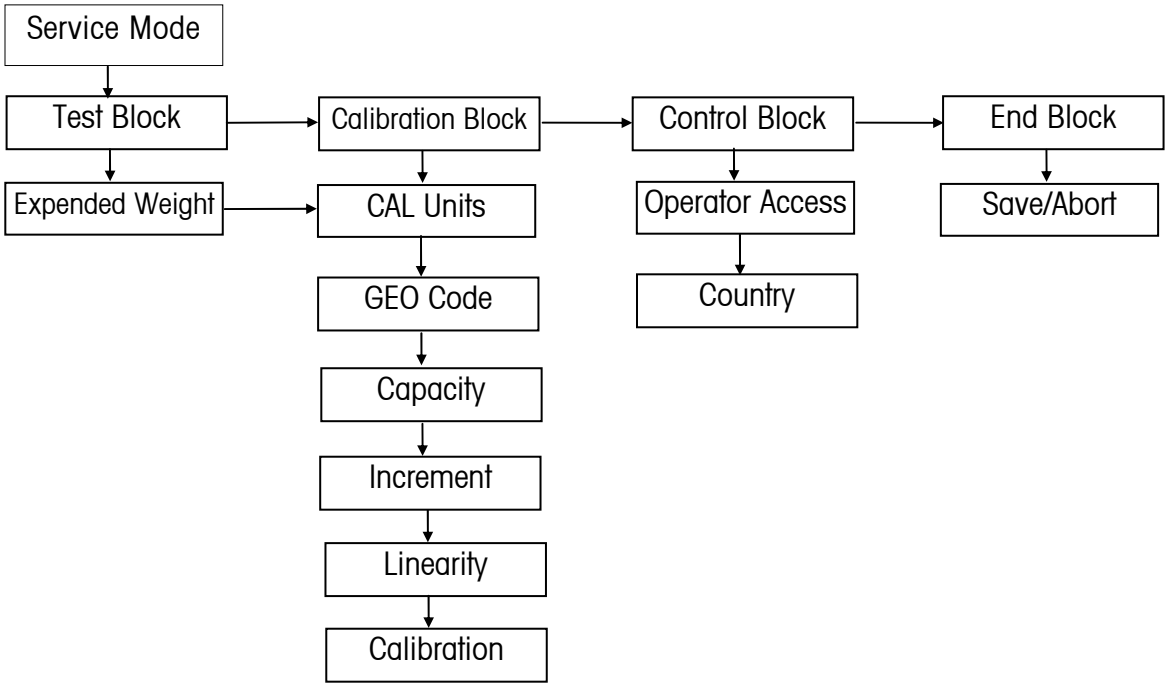
FUNCTION OF THE KEYS

After the Service Mode is accessed, use the four keys, **FINISH, BACKUP, TOGGLE,** and **ACCEPT**, to configure the parameters.

In the Service Mode, the functions of the keys will be as follows:

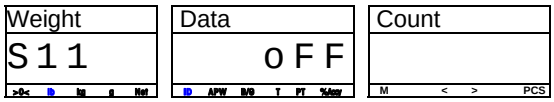
Key	Function	Description
C	Finish	Used to end scale configuration and proceed to End Block.
0	Back	Used to step back through program blocks and sub-blocks.
→T←	Toggle	Used to step through the blocks. Once a block is accessed, this key is used to toggle settings on and off or step through the setting options of the sub-block.
⊡→	Accept	Used to access the program block or accept the displayed option. Once a displayed sub-block option is accepted, the scale will step forward to the next sub-block or block.

The following diagram gives an overview of the program blocks and sub-blocks.



Once the Service Mode is accessed, the scale directly prompts to the first block. Press the key to toggle among blocks [tESt], [CALIbr], [COntrL] and [End].Service Mode sample display - Test block

When a block is displayed, press the key key to access the first sub- block.



CONFIGURATION

Blocks	Sub Blocks / Parameters
S1 Test Block	**S1.1 Expanded Mode** Off = Normal weight mode On = Expanded mode, the display division is 100000
S2 Calibration Block	In this block you can configure the parameters related to calibration and calibrate the TC. **S2.1 Calibration Unit** 1 = kg 2 = lb The weight unit cursor under the weight display window will indicate the unit being selected.

S2.2 GEO Code

GEO. = xx

Select the GEO code according to your location. Please refer to Appendix for your local GEO code. The scale has been calibrated at the factory. In most cases, the scale doesn't have to be recalibrated. If the scale is found out of tolerance after GEO code adjustment, perform the calibration.

S2.3 Capacity

Choose the capacity in accordance with the model.
lb - 5, 10, 20, 50

S2.4 Increment

Display the increment.
5 lb/0.0005 lb, 10 lb/0.001 lb, 20 lb/0.002 lb, 50 lb/0.005 lb

S2.5 Linearity

No = Normal Calibration
YES = Linearity Calibration

S2.6 Calibration

No = Skip Calibration
YES = Perform Calibration

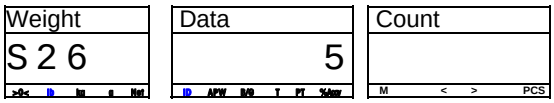
Chose "Yes" to begin calibration and directly enter the first step "Empty Scale".
The calibration procedure is as follows (take 5lb scale as example):

STEP 1 Empty scale.

Remove all the items from the platter.

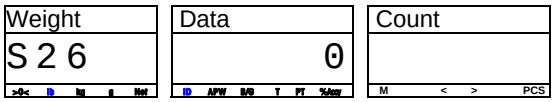
STEP 2 Capture zero

Press the key , the scale will start capturing zero and counting down from 5 to 0.



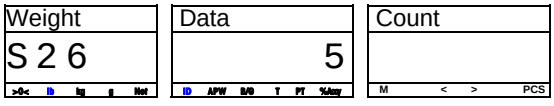
STEP 3 Add weight

The display reads as follows. Apply more than 2/3 capacity test weights on the platter.



STEP 4 Input the weight data via keyboard

Input the weight data which to be weighted on the platter:



Press the key , the scale will start capturing span and counting down from 5 to 0. Then scale will automatically step forward to the next block.

If "yes" in S2.5 is chosen, the scale needs two points for calibrating the scale. The procedure to add weight will be as follows (take 5lb scale as example): After capturing the zero, it will show:

Weight	Data	Count
S26	ADD	HALF

Apply test weight (35%FS~65%FS) on the platter and then press the key . The display reads as follows:

Weight	Data	Count
S26	0	HALF

Input a weight data.

Weight	Data	Count
S26	2	half

Press the key , the scale will start capturing span and counting down from 5 to 0. Then scale will automatically step forward to the next step and show:

Weight	Data	Count
S26	ADD	FULL

Apply test weight (>85%FS) on the platter and then press the key . The display reads as follows:

Weight	Data	Count
S26	0	FULL

Input a weight data.

Weight	Data	Count
S26	5	full

Press the key , the scale will start capturing span and counting down from 5 to 0. Then scale will automatically step forward to the next block

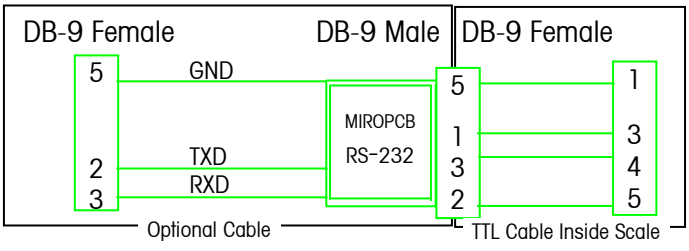
Note: If no calibration is done, the changes on the calibration weight and capacity will be ignored.

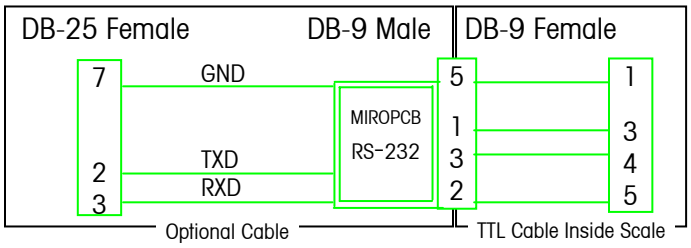
S3 Control Block	**S3.1 Operator Access to Master Mode** Off = No access is allowed to Setup Mode by pressing the key ⇨. On = Full access is allowed to Setup Mode when the key ⇨ is pressed and held for about 7 seconds Enable tare **S3.2 Country** 2 = Export version 3 = China version
End Block	This block is used to save or abort the changed parameters, and then exit the Service Mode Save = Save all the changes and exit Service Mode. Abort = Exit Service Mode without saving any changes
Exit Service Mode	Pressing the key C in Service Mode will lead to the end block. In the end block, press the key ⇨ to enter the sub-block. Press the key →T← to toggle between save or abort. Press the key ⇨ to accept the choice and exit the Service Mode. Then the Weight window and Data window will display "SEtuP" and "OFF" message respectively. Slide the calibration switch back to the normal position, then the scale will go through a power-up sequence and enter into weight mode.

COMMUNICATION

The XTC support bi-directional RS-232 serial communication. Using the optional cable with RS-232 convert circuit, the XTC can communicate with a printer or host like PC.

Serial port wiring diagram





Communication parameter format

Baud rate: 300, 1200, 2400, 4800 and 9600 can be selected via softswitch setting.
Data: 11 bits ASCII codes, among these, there is 1 start bit, 7 ASCII coded data bits, 1 even parity bit and 2 stop bits.

Data Output Format

There are two data output formats are available: single line output and multi-line output. It can also be selected to disable output of some data.

Single Line Output Format

The following is the outputted contents and the related format.

CN: Add one after each printing operation.

STX	X	X	X	SP	SP

Item No.

X	X	X	X	X	X	SP	I	T	E	M	SP	N	o	.	SP

Gross weight

X	X	X	X	X	X	SP	I	b	SP

Tare weight

X	X	X	X	X	X	SP	I	b	SP	T	R	SP

Net weight

X	X	X	X	X	X	SP	I	b	SP	N	E	T	SP

Average piece weight (APW)

X	X	X	X	X	X	X	SP	I	b	SP	A	P	W	SP

Pieces

X	X	X	X	X	X	SP	P	C	S	CR	LF

Note:

- [STX] Document Head, ASCII Code 02H.
- [SP] Space Bar, ASCII Code 20H.
- [CR] Enter Key, ASCII Code 0DH.
- [LF] Line Feed, ASCII Code 0AH.
- The actual weight unit printed depends on the softswitch setting of Power-up Weight Unit.

The meaning of the same characters in the following charts will not be illustrated.

Multi-line Output Format

CN: Add one after each printing operation.

STX	X	X	X	CR	LF

Item No.

STX	X	X	X	X	X	X	SP	I	T	E	M	SP	N	o	.	CR	LF

Gross weight

X	X	X	X	X	X	SP	I	b	CR	LF

Tare weight

X	X	X	X	X	X	SP	I	b	SP	T	R	CR	LF

Net weight

X	X	X	X	X	X	SP	I	b	SP	N	E	T	CR	LF

Average piece weight

X	X	X	X	X	X	X	SP	l	b	SP	A	P	W	CR	LF

Pieces

X	X	X	X	X	X	SP	P	C	S	CR	LF

Notice: The actual weight unit printed depends on the softswitch setting of Power-up Weight Unit.

When the weight unit is g, the APW should be:

X	X	X	X	X	X	X	X	X	X	SP	k	g	SP	A	P	W	CR	LF

Accumulation Output Format

STX	C	N	SP	X	X	X	SP	SP

I	T	E	M	SP	N	o	.	SP	X	X	X	X	X	X	SP	SP

T	O	T	SP	P	C	S	SP	X	X	X	X	X	X	CR	LF	

External Control Input

External ASCII coded commands input are acceptable to complete the Tare, Zero, Clear, Print and Sampling operations. The commands are detailed as below.

[T][CR]	Push-button tare
[Z][CR]	Zero Command
[P][CR]	Print Command
[C][CR]	Clear APW, if APW is not zero, clear tare if APW is zero.
[C][C][CR]	Clear Command. Clear the APW, then clear tare.
[T][XXXXXX][CR]	Enter tare. XXXXXX is the value of tare. The last digit of the tare entered should agree with the scale divisions. Otherwise, it shall be invalid.
[S][XXXXXX][CR]	Enter the number of pieces (XXXXXX) as the sample count.
[A][XXXXXXXX][CR]	Enter the value XXXXXXXX as the APW.

APPENDIX

SETUP MODE PARAMETER OVERVIEW

Block	Soft Switch	Description	Default
F1		User Block	
	F1.1	Beeper	ON
F2		Scale Block	
	F2.1	Power-up Weight Unit	2
	F2.3	Digital Filter	1
	F2.4	Blank Count Display	ON
	F2.5	Displayed Resolution Choice	2
F3		Tare Block	
	F3.1	Tare	ON
	F3.2	Keyboard Tare	ON
	F3.3	Auto Clear Tare	OFF
F4		Sample Block	
	F4.1	Minimum Sample	0.20
	F4.2	APW Enhancement	OFF
	F4.3	Auto Clear APW	OFF
F5		Data Block	
	F5.1	Accumulation	ON
	F5.2	Clear Accumulation after Print	OFF
	F5.3	Target Alarm	ON
	F5.4	Alarm Mode	OFF
	F5.5	Alarm Type	ON
F6		Serial Interface Block	
	F6.1	Baud Rate	9600
	F6.2	Print Line Format	OFF
	F6.3	Print CN	ON
	F6.4	Print Gross	ON
	F6.5	Print Tare	ON
	F6.6	Print Net	ON
	F6.7	Print APW	ON
	F6.8	Print Pieces	ON
	F6.9	Print Item No.	ON
	F6.10	Output	0
F7		ID Block	
	F7.1	ID	ON
	F7.2	Auto Clear ID	OFF
F7		End Block	
	End	Save/Abort	SAVE

ERROR MESSAGES

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

Display	Possible Cause	Troubleshooting
E11	RAM error	1. Restart the scale. 2. Recalibrate the scale. 3. Change the main PCB.
E16	ROM checksum error	1. Restart the scale. 2. Recalibrate the scale. 3. Change the main PCB.
E18	EPROM checksum error	1. Restart the scale. 2. Recalibrate the scale. 3. Change the main PCB.
uuuuu	Under capacity	1. Put the scale pan on. 2. Press the key →0← to zero scale.
nnnnn	Count data or total counts are above 999,999, the weight on the platter is 5d above the full capacity.	Remove the items until error message disappears or clear the accumulator.
------	Cannot capture zero	1. Restart the scale with no weight. 2. Recalibrate the scale. 3. Change the load cell or main PCB.

SPECIFICATIONS

Display
3 part display (5 digit Weight, 6 digit Data, 6 digit Count)
12 mm height, green VFD

Internal Resolution
1/500,000

Displayed Resolution
Default: 1/10'000
Maximum: 1/25'000

Keyboard
20 membrane keyboard

Platter
5 lb model: 6.6″ x 7.7″ Stainless Steel
10/20/50 lb models: 9.5″ x 13.5″ Stainless Steel

Scale Dimensions
13.6″ (L) x 13.6″ (W) x 4.8″ (H)

Units
lb, kg, g

Interface
RS232 (Accessory)

Power
External adapter 12V/600mA

Recommended APW
>1/5d (0.2d)
APW Enhanced

Operating Temperature
32°F to 104°F (0°C to +40°C)
10 to 90% humidity, non-condensing

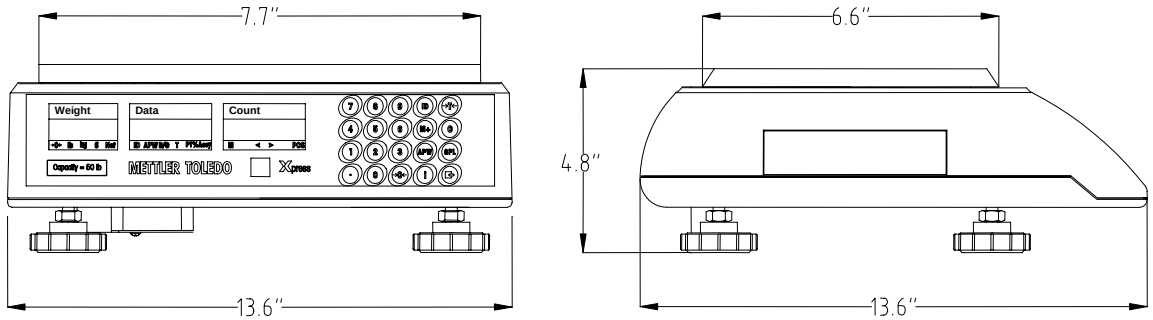
Specifications are subject to change without notice.

GEO VALUE TABLE

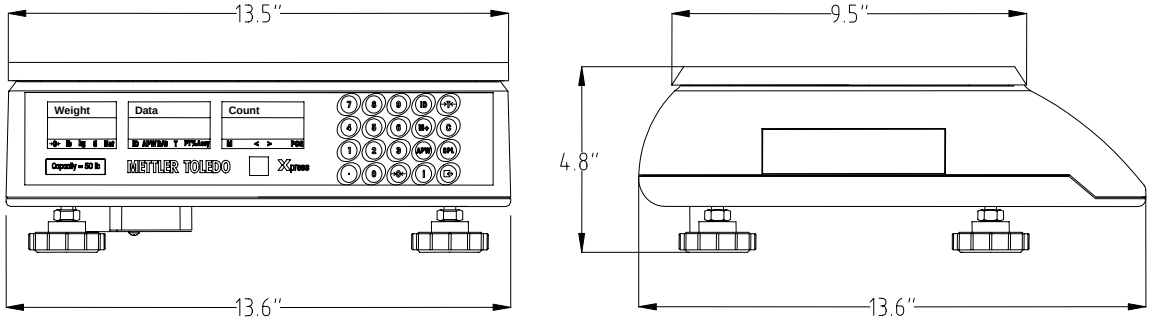
Use the following geo codes if you relocate your scale to a site other than the original location where it was calibrated.

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 10,660	10,660 11,730
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



XTC-1001



XTC-2001, XTC-3001, XTC-4001

Notes

Notes

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

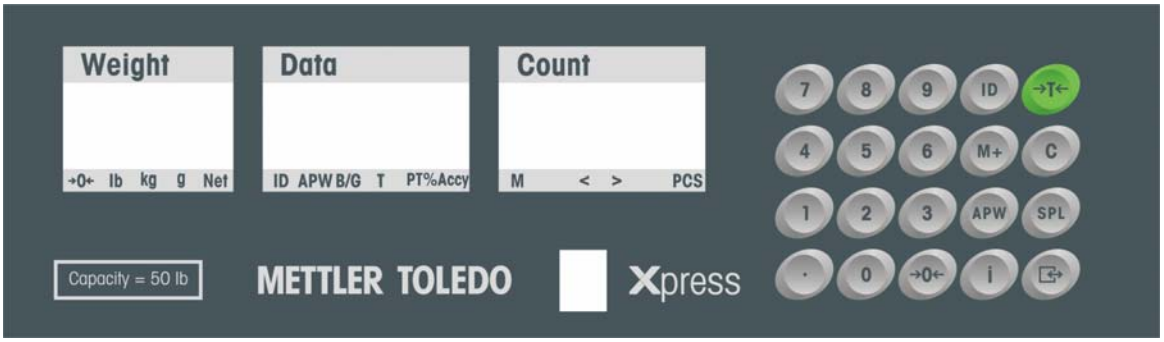
5/2004
MTX04-OM007.1E

STANDARD COUNTING SCALE

QUICK START GUIDE

Models XTC

DISPLAY



KEYPAD

Key	Name	Function
0 ~ 9	Numeric	Data entry (0-9)
.	Decimal	Enters a decimal point/Toggles alarm beep
→0←	Zero	Zeroes the scale
→T←	Tare	Subtracts tare value and switches from gross to net mode
C	Clear	Clears data from the display
APW	APW	Initiates Average Piece Weight (APW) entry
SPL	Sample	Initiates sampling
i	Recall	Subtracts the accumulated quantity and number of repeated entries
ID	ID	Stores ID number, APW, tare, and item number
M+	Accumulation	Adds to the accumulator count or subtracts accumulation.
	Enter/Print	Confirms an operation or initiates data output

CURSORS (VFD)

Key	Description
→0←	When the scale is at the gross zero, this cursor will be lit
lb, kg, g	Weight unit cursor; Weight unit can be set in Setup Mode
Net	When net weight is displayed, this cursor will be lit
ID	When item number is recalled, this cursor will be lit
APW	When Average Piece Weight (APW) is recalled, this cursor will be lit
B/G	When gross weight is recalled, this cursor will be lit
T	When push-button tare weight is recalled, this cursor will be lit
PT	When keyboard tare is recalled, this cursor will be lit
%Accy	When the counting accuracy percentage is recalled, this cursor will be lit
M	When the value in the accumulator is not zero, this cursor will be lit
PCS	When the count is displayed, this cursor will be lit
>	Target Alarm: Indicates the count is above the Over value
<	Target Alarm: Indicates the count is below the Under value
< >	When both > and < cursors are lit, it indicates that the count is within the target zone

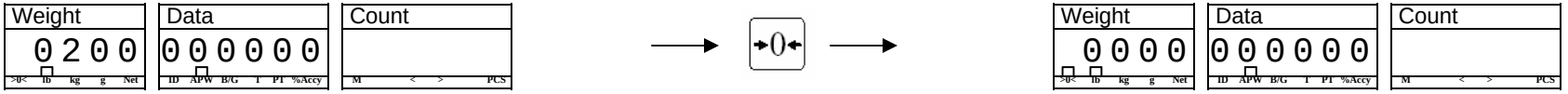
DISPLAY WINDOWS

Window	Description
Weight Display (Weight)	Displays the weight.
Data Display (Data)	Displays item No., APW, gross weight, tare, push-button tare or accuracy percentage sequentially with each time the key (i) is pressed. The default display is APW.
Count Display (Count)	Displays the counts.

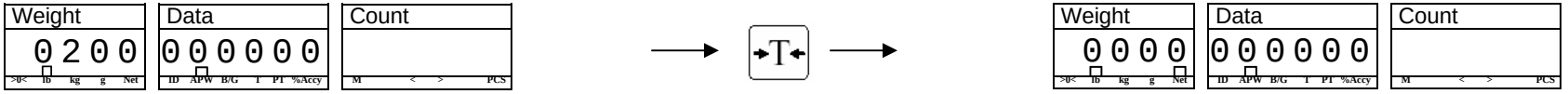
STANDARD COUNTING SCALE

QUICK START GUIDE

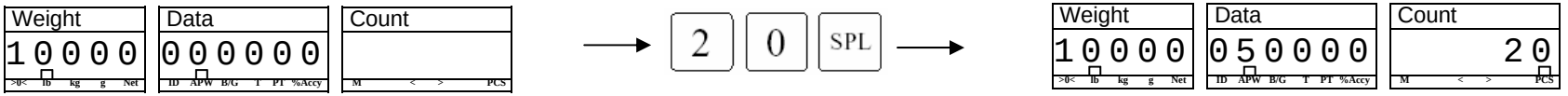
ZERO



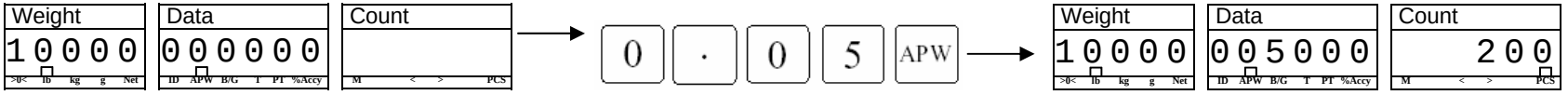
TARE



SAMPLING (e.g. 20 pieces)



INPUT A KNOWN AVERAGE PIECE WEIGHT (e.g. APW = 0.05 lb)



STANDARD COUNTING SCALE **INSTALLATION INSTRUCTIONS**

Models XTC

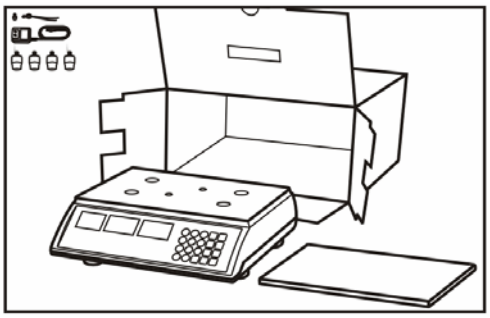
UNPACKING

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.

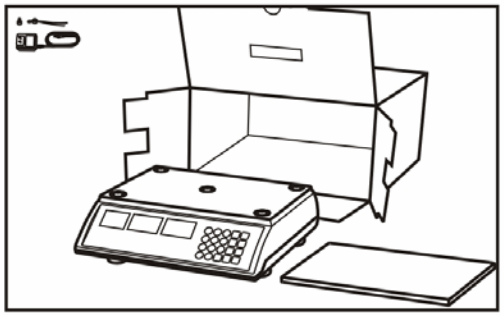
If the container is undamaged, open the box, remove the scale and place it on a solid, flat surface.

Please keep the packing material and shipping insert in case you need to return the scale to an **Xpress** representative.

5 lb models



10/20/50 lb models



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

Product
- XTC Counting Scale
- Pan (only XTC1001)
- Platter Support Kit (only XTC1001)
- Scale Platter, Adapter
- Lead Seal Wire and Lead

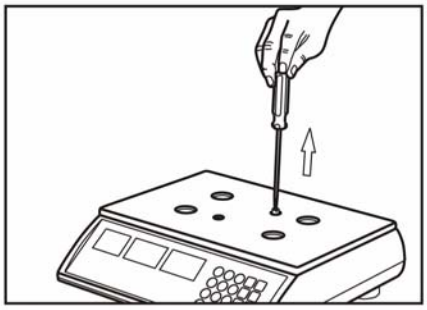
Documents
- Quick Start Guide
- Installation Instructions

CD-ROM
- Operation & Service Manual

ASSEMBLY

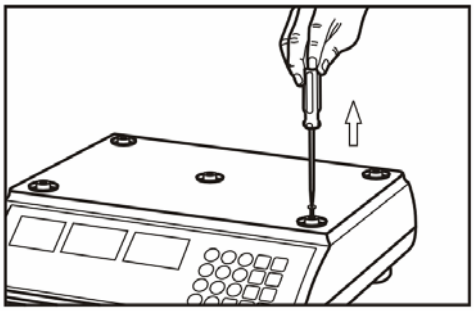
5 lb models

1.



10/20/50 lb models

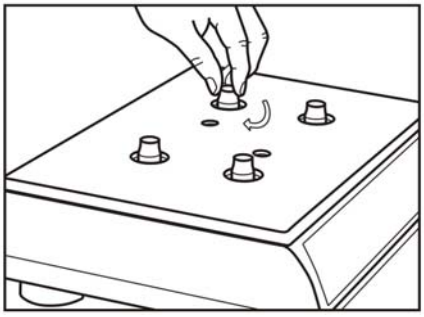
1.



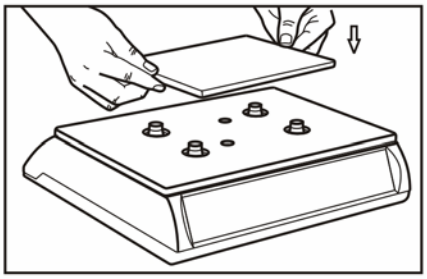
(20/50 lb models skip this step)

5 lb models continued

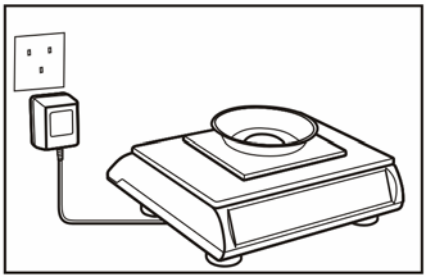
2.



3.

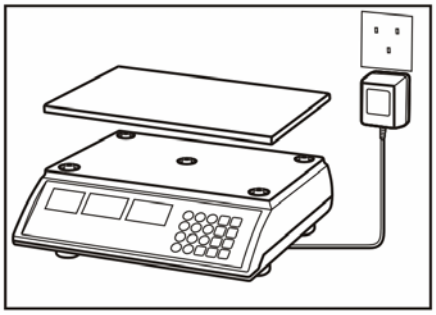


4.



10/20/50 lb models continued

2.



All models:
Level the scale by adjusting the four rubber feet until the leveling bubble is centered in the level indicator.

Proper alignment Improper alignment

For detailed product information, please consult the Operation & Service Manual provided on the CD-ROM.

CUSTOMER SERVICE

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:

24/7 Information and Support: www.mt.com/xpress
xpress@mt.com

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

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