

FP7000 SELECT
With FixMix™ Keypad

Intrinsically Safe
PAINT MIXING SCALE
Owner's Manual

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Important Notice

For your safety, and to fully understand all the features, please read the installation and operating instructions carefully before using your scale.

Hazardous Location Approval

Your FP7000 SELECT Digital Scale is fully approved for safe use in the following Hazardous Locations:

USA: FMRC Approval (Class I, Division 1, Group C, D)

Canada: CSA Approval (Class I, Division 1, Group C, D)

Service

In order for the Approval to remain valid, all repairs and service to the scale MUST be carried out and duly certified by Fillon Technologies, N.A., Inc. Any tampering with the scale will automatically and immediately void the Approval and Warranty and relieve the manufacturer of any liability for subsequent damage or injury caused to or by the product.

Radio Frequency Energy

Canadian Department of Communications

This digital apparatus does not exceed the Class A limits for radio noise emissions from a digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruit radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le règlement sur le brouillage Radioélectrique édicté par le Ministre des Communications du Canada.

FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction 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 must correct the interference.

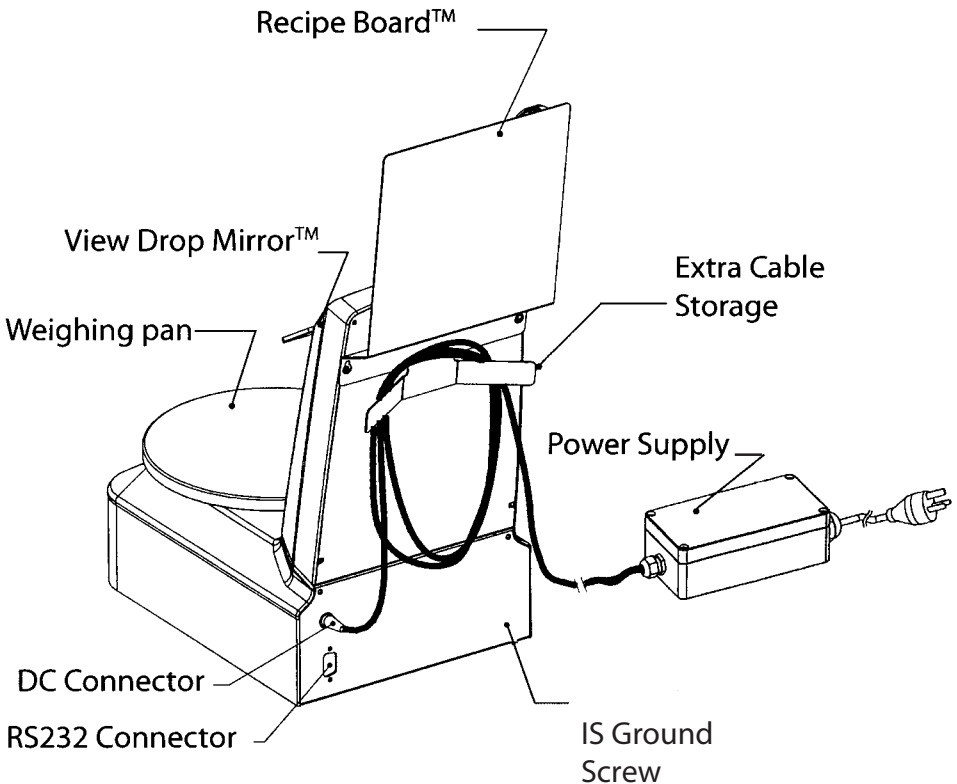
Standard Equipment

Your FP 7000 SELECT scale is shipped in a single carton containing the following items:

- Scale
- Weighing Pan and Pan Support
- Power Supply
- Recipe Board and Instruction Card
- Recipe Pointer
- 1 Kg Calibration Weight
- View Drop Mirror™
- Transparent Splash Shield
- Transparent Drip Shield
- Owner's Manual

Note: **DO NOT DISCARD THE ORIGINAL PACKAGING.** For service, the scale must be returned in the original foam and carton.

Figure 1 - Rear View of Scale



Installation

1. Choose a suitable site for the scale as far away as possible from sources of heat, vibration, and air currents.

2. PAN AND PAN SUPPORT MOUNTING

To install the pan support, place it onto the scale base so that the four white nylon screws on the base align with the four circular openings on the pan support. Press down on the pan support and turn it clockwise until it locks into place. Place the pan over the pan support. (See Figure 2, p. 8.)

3. VIEW DROP MIRROR™

Mount the View Drop Mirror™ by loosening the two screws located beneath the Digital Display. Slide the mounting bracket over the two screws and tighten.

4. RECIPE BOARD™

Mount the Recipe Board™ on the back of the scale's tower by loosening the two screws that are located about 2 inches below the top of the scale tower. Slip the keyhole shaped cutouts in the Recipe Board over the screws, and push down on the board until it is securely seated on the screws and level. Tighten the two screws.

5. POWER CONNECTION

- a. Hazardous Location

Refer to APPENDIX II (inside back cover) for details on making connections.

- b. Dedicated Circuit

The FP7000 SELECT is an electrically sensitive instrument. We recommend that it be connected to a dedicated circuit if possible. *If a dedicated circuit is not possible, connect it to a circuit that is not running equipment with large power surge requirements.*

- c. Grounding - Hazardous Location

Connect a wire (1 ohm or less) from the IS Ground Screw on the rear of the scale to IS GND.

- d. Non-Hazardous Location

When used in an area free of flammable gases, the AC power cord can be plugged into a standard electrical outlet and the DC cable can be connected to the scale (See Figure 1 on page 6).

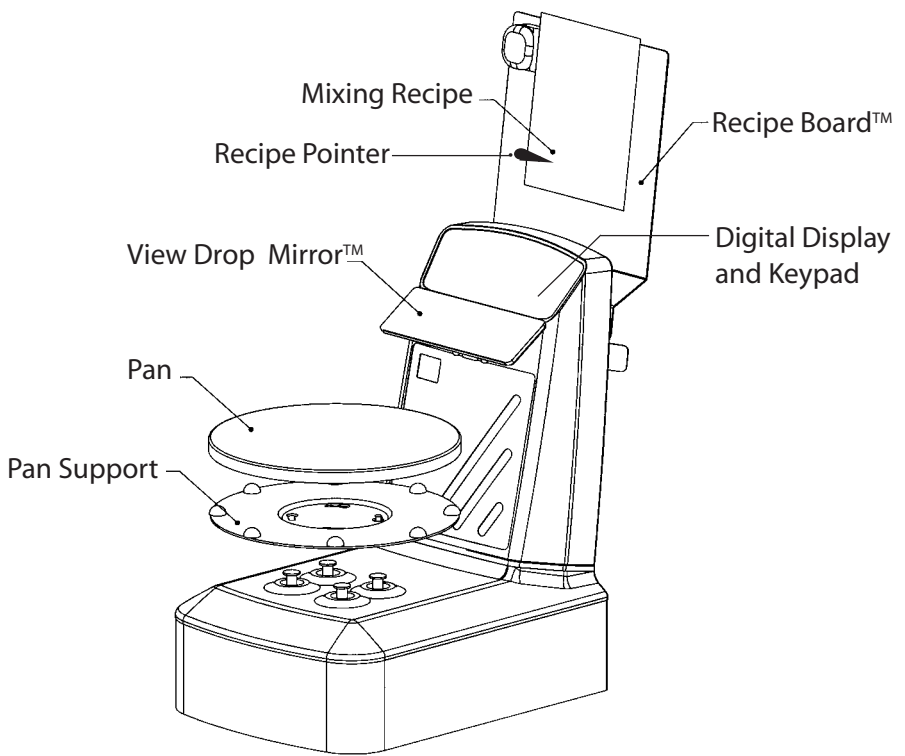
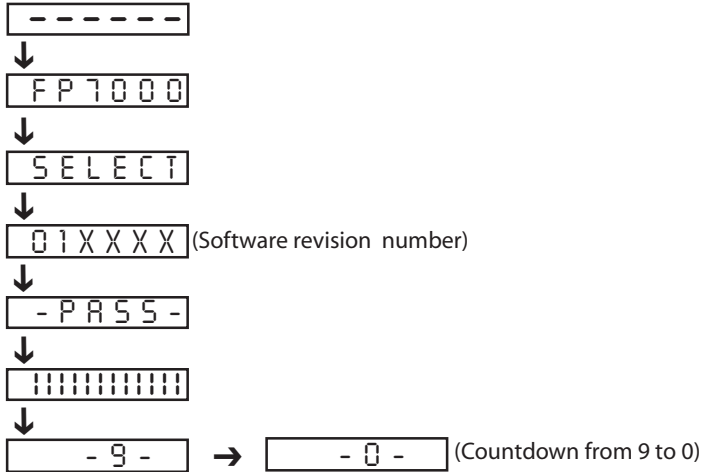


Figure 2 - Front View of Scale

Commissioning, Calibration and Operation

1. POWER

- a. Once the main power is applied, the Digital Display will light up and an automatic test of all electronic functions will take place. The scale will display



- b. Upon successful completion of the test, the display will show:

- 8 U S Y -

and the scale will automatically tare to:

0.0

- c. Allow fifteen minutes for warm-up and calibrate the scale with the 1 Kg weight before using the scale for the first time.
(See "**CALIBRATION**", page 10).
- d. If the display is showing anything but "0.0" after warm-up, press the **Tare** key. If an Error Code is displayed (e.g. HHHHHH) see "**Trouble-shooting**" page 28. If the scale will not tare to zero, "0.0", call FTNA at 1 (800) 777-1583 or your local FTNA distributor.
- e. The display will turn off if no weighing operation is performed for a predetermined length of time. The scale will automatically turn on again if any keys are pressed or if weight is added to or removed from the pan.

2. CAPACITY AND UNITS

The FP7000 SELECT is designed to weigh in units of grams (the power on default) and 'PPG parts'. The rated capacity is 7000 g or 7901 "PPG parts". To switch units, proceed as follows:

- a. Note the unit of measure as indicated by the illuminated bar LED beneath the weight display.
- b. Press the **Unit** key and release it. If the **Unit** key is enabled, the illuminated bar LED beneath the weight display will change from Gram to Part, or from Part to Gram.

NOTES: If the unit of measure indicator does not change, then **Unit** has been disabled. See the Setup section of this manual for instructions on enabling the **Unit** key.

In the *Weighing* mode, the unit of measure indicator will turn off when the weight is changing or if instability is detected due to draft or vibration.

3. CALIBRATION

To ensure accurate results, the calibration of your scale should be verified regularly. Calibration is especially important after installation or relocation. Failure to calibrate will not result in bad mixes, but the total amount of paint mixed may not be correct.

- a. After the initial warm-up, press the **Tare** key to obtain a zero reading: .
- b. Be certain that **Ratio** is set to "1". If not, press the **Ratio** key until "1" is illuminated.
- c. Place a calibration weight on the pan. The scale can be calibrated with a 1000 g, 2000 g, 3000 g, 4000 g, 5000 g, 6000 g or 7000 g calibration weight.
Example: Place a 1kg weight in the center of the weighing pan. The display should read: 1000.0 if weighing in grams, 1128.8 if weighing in "PPG parts". If it does not, proceed to step d.
- d. Press and hold the **Cal** key. First appears, followed by and then by . Release the **Cal** key. The calibration of the scale will be set to match the value of the calibration weight on the pan.
- e. Remove the weight from the pan. The display will return to and the scale will be ready for weighing operations.

NOTE: If the calibration weight used is not within 1% of the factory calibration, the scale will not perform the calibration and will display for 3 seconds and then return to the *Weighing* mode.

4. PROPORTIONAL WEIGHING

Proportional weighing allows the operator to select a fraction and mix less paint or, in the case of 1 1/2, more paint than the mixing recipe is

intended to deliver. Since the scale makes the needed adjustment automatically, there is no need to change mode of operation from that of pouring each ingredient to the same target number called for in the mixing recipe.

There are five selectable proportions available on the FP7000
SELECT: $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, and $1\frac{1}{2}$.

When the scale is powered on, the "1" proportion is automatically selected. Each momentary press of the **Ratio** key will select the next proportion, moving from left to right.

Example #1: A formula is selected which will yield 1 pint of paint, but only $\frac{1}{4}$ pint is needed.

1. Select the $\frac{1}{4}$ proportion by repeatedly pressing the **Ratio** key.
2. Pour ingredients according to the 1 pint formula.
3. The final result will yield $\frac{1}{4}$ pint.

Example #2: A formula is selected which will yield 1 quart of paint, but $1\frac{1}{2}$ quarts are needed.

1. Select the $1\frac{1}{2}$ proportion by repeatedly pressing the **Ratio** key.
2. Pour ingredients according to the 1 quart formula specifications.
3. The final result will yield $1\frac{1}{2}$ quarts.

5. VIEW DROP MIRROR™

The patented View Drop Mirror™ is designed to reduce eye movement between the paint drops and the display while pouring paint. The mirror makes it possible to see each drop while the eye is focused on the weight reading displayed, thereby minimizing the chance of overpouring.

- a. Place an empty container on the pan.
- b. Lift a paint can with pouring lid affixed to a position above the container that is comfortable for pouring paint.
- c. Adjust the View Drop Mirror™ by tilting it up or down so that the spout of the lid is visible while your eye is focused on the display.
- d. Pour paint into the container. Make certain that you can see the paint drops and the weight display simultaneously. If not, readjust the mirror or alter the height at which the pouring lid is held.



Note: The View Drop Mirror™ must move freely so that it can be adjusted for different size containers and for the varying heights of operators. If, however, the View Drop Mirror™ becomes loose, the screws on each side of the mirror can be tightened with a Phillips screwdriver to hold its position.

6. RECIPE BOARD™

The Recipe Board™ is designed to hold a printout of the mixing recipe in a convenient position above the display. To attach the printout, simply slide the paper across the Recipe Board™ to the left into the clip. To remove the printout, grasp the top edge of the paper and slide it straight up, pulling it out of the clip.

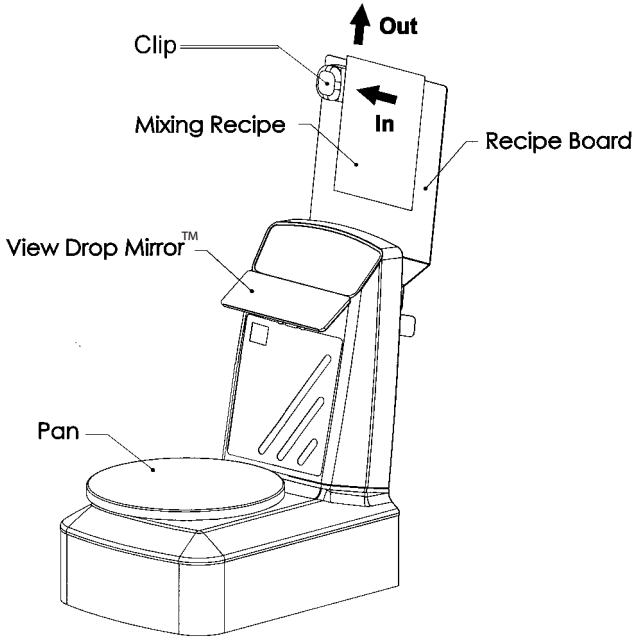


Figure 3 - Using the Recipe Board

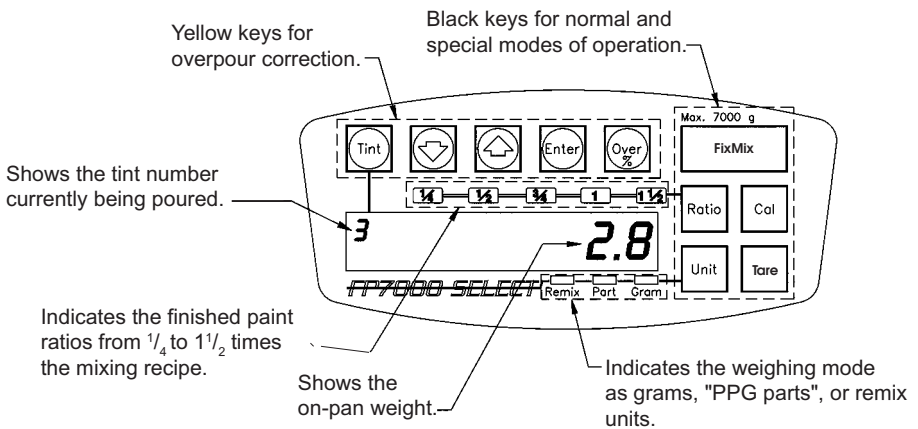


Figure 4 - FP7000 SELECT keypad

Key Functionality

BLACK KEYS

- Tare** Pressing and releasing exits the *FixMix*™ mode and clears all tint values from memory. It also shuts off the tint counter, shuts off "Remix", illuminates either "Grams" or "PPG parts" and zeros the weight display. Pressing and holding this key enters the *Setup* mode.
- Cal** A calibration weight must be placed on the pan for this key to function. Pressing and holding when weighing in either "PPG parts" or *Grams* calibrates the scale using the on-pan weight. The **Cal** key is inactive in the *FixMix*™ mode. If no calibration weight is placed on the pan or if the weight is >1% different from the selected calibration point, the scale will display "no CAL".
- Unit** If "Gram" and "Part" are both enabled, each key press alternately displays weight in grams or in "PPG parts". **Unit** key is inactive in the *FixMix*™ mode. Grams is the default when "Gram" and "Part" are enabled.
- Ratio** Pressing and releasing will increase the fraction used for proportional weighing from 1 to $1\frac{1}{2}$ to $\frac{1}{4}$ to $\frac{1}{2}$ to $\frac{3}{4}$, and then repeats. A bar LED will turn on, indicating which factor is active.
- FixMix** Pressing and releasing zeros the display, restarts the *FixMix*™ mode by resetting the tint counter to "0" and clearing all stored values from memory.

YELLOW KEYS



This is used to adjust the displayed reading to match the targeted weight when an overpour occurs. It is active only after the pour timer has shut off. Each press and release decreases the display by one count. Pressing and holding continuously scrolls the displayed reading negatively.



This is used to adjust the displayed reading to match the targeted weight when an overpour occurs. Each press increases the display by one count. It is active only after the pour timer has shut off. Use this key to reset the pour

timer and continue pouring the same ingredient if the timer times-out before the target weight is reached.

Enter

The **Enter** key is used for overpour correction and is active after a stored value has been changed using the arrow keys. When **Enter** is pressed, the “Gram” (or “Part”) bar LED turns off and “Remix” turns on. The scale goes into the *FixMix*[™] mode and computes a new span based upon the offset entered with the arrow keys, and displays, as a negative value, the weight of the next to the last component poured. **Enter** can be used to override the pour timer. **Enter** is also used to exit the *tint review* mode and return to the weighing mode.

Over %

This key, when pressed and released, displays the percentage of span adjustment resulting from an overpour correction. The display will hold for three seconds then revert back to the mode that the scale was in before the **Over %** key was pressed. If there is no stored overpour correction value then the digital display will present “nonE” for one second and then revert to the previous mode.

Tint




Repeatedly pressing this key sequentially displays the values stored for each component of the mix in the order in which they were poured. A small tint counter to the left of the weight display indicates which component has been stored in memory. The value stored last is the only value that can be changed using the arrow key.




Display Messages

Power-On Messages

Message	Meaning
-----	Initial display at power-on.
FP7000	Scale model as displayed at power-on.
SELECT	Version identification as displayed at power-on.
01XXXX	Firmware date-code as displayed at power-on.
.	Restoration of display after exiting <i>Sleep</i> mode.

Normal Operation Messages

Message	Meaning
BUSY	The Tare or FixMix key has been pressed and the scale is waiting for a stable condition before displaying zero.
NOTARE	 key pressed but scale has not been tared.
ISDONE	Enter pressed when indicated tint has already been poured and its weight has been stored away in memory.
NOTINT	Tint pressed when no tint weights have been stored in memory.
LAST	Weight displayed is the weight stored for the last ingredient poured.
ADJUST	 pressed to correct overpour.
NONE	%-Over pressed; no adjustment in effect.
POUR	 pressed to continue pouring if pour timer times out before an ingredient's target weight is reached.
REPOUR	Enter pressed when an overpour adjustment has been displayed using the arrow keys.

OPC OFF	FixMix or any yellow key pressed when overpour correction has been disabled in the set up mode.
REVIEW	Tint pressed in either <i>FixMix</i> or <i>Normal Weighing</i> mode if ingredients are stored in memory.
GROSS	 pressed in <i>Review</i> mode to display cumulative on-pan weight inclusive of all poured tints, less any tare.
NET	 pressed in <i>Review</i> mode to display weight of indicated tint.
POUR ON	Enter pressed in <i>FixMix</i> mode after last ingredient is repoured. Scale is ready to accept new ingredients to complete the mix.
AT LAST	Enter pressed when the tint counter is displaying the last tint poured. This message also appears if the pour timer times out.
RETURN	Enter pressed in <i>Review</i> mode. Exits <i>Review</i> mode and returns display to previous weighing mode.
DONE	The user setup selections menu have been shown: Press  to exit from setup menus. Press Enter to show next menu selection.

Setup Menu Messages

G ONLY	Weight can be displayed only in "grams".
ONLY P	Weight can be displayed only in "PPG parts" (of ounces.).
G OR P	Weight can be displayed in "PPG parts" or "grams" by using the Unit key to alternate between the the two.
EH XX	Pour timer set to 'xx' seconds.
EH OFF	Pour timer (and <i>FixMix</i> TM) is turned off.
SL XX	LED display timeout set to 'xx' minutes.
SL OFF	LED display timeout and <i>Sleep</i> mode is turned off.

RCAL Calibration of a scale is being adjusted to match the on-pan calibration weight.

Error Messages

Message	Meaning
ERROR	Invalid key or unsupported function.
NO CAL	Calibration cannot be performed due to incorrect weight on the pan.
PARERR	RS232 command received by scale had incorrect parity; command is rejected.
STOFL0	Unexpected hardware error detected (the scale must be unplugged and re-powered to restore normal operation).
UNABLE	Function not available in current state.

Technical Service Messages

Message	Meaning
CRASH	Operator request to force re-calibration was detected at power-on (caused by simultaneously pressing Cal and FixMix keys when "FP7000" is displayed).
DEBUG	Scale is operating in <i>Debug</i> mode (must be initiated by operator action).

Normal Weighing Mode

The Normal Weighing Mode can be used when the **FixMix** key is enabled. If the **FixMix** key is enabled, the scale will store the weight of each ingredient, allowing corrections to be made in the event that one ingredient is over-poured. If the **FixMix** key is disabled, 0PC0FF will be displayed when the **FixMix** key is pressed. Refer to the *Special Weighing* mode section on page 20 for instructions on using the scale with *FixMix* disabled. (See the *Setup* mode, page 22, for enabling or disabling the *FixMix* feature.)

1. After power-on, allow the scale to warm up for fifteen minutes. It is recommended that the scale be calibrated prior to use (see "CALIBRATION", page 10).
2. Clear all items from the pan.
3. Press **Tare** to zero the LED weight display.
4. If a unit of measure other than the selected units is needed, press **Unit** until the desired weighing unit is displayed.
5. If weighing in a proportional factor other than "1" is needed, repeatedly press **Ratio** to select the desired factor.
6. Place an empty container on the pan. The tare weight will be displayed in either grams or "PPG parts", depending upon the unit of measure selected.
7. Press **FixMix**. Both the tint counter and the weight display will show zero. (If the *FixMix* feature has been disabled, 0PC0FF will be displayed for 2 seconds and the weight display will not go to zero).
8. Pour the first ingredient. The tint counter will respond to the weight change by flashing "1" and the pour timer will start. If you do not want to wait for the timer to time out, it can be overridden by pressing **Enter** to store the currently displayed weight value, thereby letting you proceed to pour the next ingredient.
9. When the pour timer times out or, if **Enter** is pressed, the beeper will sound, the tint counter will stop flashing, and the displayed weight will be stored in memory.*
10. Pour the next ingredient. The tint counter will respond to the weight change and increase by one and then begin flashing. The pour timer will start.
11. When the timer times out, the beeper will sound and the displayed weight will be stored in memory for the indicated tint number.*

*Note: If the timer times out before you have finished pouring, press the up arrow key to reactivate the timer and continue to pour the same ingredient. (To provide more time for pouring paint, see the Setup section of this manual.)

12. Repeat steps 10 and 11 for each additional ingredient. If an overpour occurs, go to *FixMix* (see page 21) to correct the error.
13. When the mix is completed, remove the container from the pan.
14. To start a new mix, press **Tare**, then begin with step 4 above.

Special Weighing Mode

Whether or not the **FixMix** key has been enabled (see the *Setup* mode on page 22), it is still possible to mix paint. Additionally, when mixing certain paint, it may be known in advance that overpour correction will not be needed. There will also be occasions when the scale will be used to weigh materials other than paint. In these circumstances, the *FixMix*[™] overpour correction feature can be bypassed. Use the following procedure to bypass the *FixMix* weight storing feature, or to use the scale when *FixMix* has been disabled:

1. After power-on, allow the scale to warm up for fifteen minutes. It is recommended that the scale be calibrated prior to use (see “**CALIBRATION**”, page 10).
2. Clear all items from the pan.
3. If mixing paint, place an empty container on the pan.
4. Press **Tare** to zero the digital display.
5. If a unit of measure other than the selected units is needed, press **Unit** until the desired weighing unit is displayed.
6. If weighing is a proportional factor other than “l” is needed, repeatedly press **Ratio** to select the desired factor.
7. Pour paint into the container, or place the material to be weighed on the pan and note the weight reading on the digital display.
8. Repeat steps 2 through 6 for all paint ingredients or materials to be weighed.

“Sleep” Mode



When not in use for a pre-selected period of time, the microprocessor in the scale will automatically shut off the digital display. Weight information is not lost during this *sleep* mode. The display will become active again if any key is pressed or if weight is placed on or removed from the pan.

Tint Review Mode: Viewing Stored Ingredient Weights

When an overpour occurs, the tint weights stored in memory for each ingredient can be displayed by using the **Tint** key.

1. Press **Tint** to display "1" in the tint counter and to display the stored weight for the first ingredient poured.
2. Press **Tint** again to display "2" in the tint counter and to display the stored weight for the second ingredient poured.
3. Check the stored weight for each ingredient poured by repeatedly pressing the **Tint** key.
4. If the last ingredient has been poured incorrectly, display the stored weight for that ingredient and proceed to *FixMix*TM. If more than one ingredient has been poured incorrectly, or if any ingredient other than the last ingredient has been poured incorrectly, discard the mix and begin again.

FixMixTM Mode

1. When an ingredient is overpoured while in the Normal Weighing Mode and the weight of the overpoured ingredient is displayed in the LED display, press the  key repeatedly until the correct recipe value is displayed. (If you decrease too much, press the  key to return to the targeted weight.)
2. Press **Enter**. The beeper will sound and the correct recipe weight for the overpoured ingredient will be stored in memory. The scale will first compute the required amount of each of the previously poured ingredients that is needed to correct for the overpour, and then return to the weighing mode.
3. Starting with the first ingredient used to prepare the mix, the scale will present the tint number on the tint counter, and the weight display will present, as a negative number, the additional amount of the ingredient needed.

Note: Before proceeding to repour ingredients, you can check to see how much more paint than originally planned will result from correcting for the overpour. To do so, press **Over %**. The amount of paint that will be prepared when the mix is completed will be presented in the weight display as a percentage of the quantity called for in the original recipe. The percentage will be displayed for three seconds and then the display will revert back to the value previously shown. Determine if the container is large enough to continue the mix. If so, proceed to the next step.


4. Pour the tint associated with the number displayed on the tint counter into the container until the weight display shows zero, then press **Enter**. Continue to pour each tint to zero as prompted by the tint counter until all previously poured ingredients have been repoured. When the last ingredient has been repoured to zero, the weight display will revert to display the target weight for the total of all poured ingredients as called for in the recipe.
5. Select the next ingredient in the recipe and proceed to pour using the normal mixing procedure, just as you did before correcting for the overpour. Continue in this manner until all ingredients have been added.

Setup Mode

The FP 7000 SELECT scale has a Setup Mode that can be used by the operator to optimize the scale's performance for the way he or she mixes paint. There are three different setups:

- Ⓜ or P This setup allows the operator to limit the units of measure that the scale can display. The scale can be programmed to display only grams, only "PPG parts", or to allow the **Unit** key to toggle between both grams and "PPG parts".
- EH XX This setup allows the operator to select the number of seconds allowed to pour each tint before the pour timer times out and the beeper sounds, indicating that the weight of the poured tint has been stored in memory. There are 10 settings offered. Selecting a numerical value enables the *FixMix*[™] feature. Selecting "OFF" in this mode entirely disables the *FixMix*[™] feature.
- SL XX This setup allows the operator to select the number of minutes that the scale will remain on when not in use. There are seven possible settings which can be programmed. By choosing a setting, the scale will automatically power down the display and enter a *Sleep* mode when the timer times out. Touching the pan or pressing a key will automatically turn the display on again. If "OFF" is selected, the *Sleep* mode is disabled, and the scale will not automatically shut off the display.

Entering the Setup Mode and Reviewing Settings

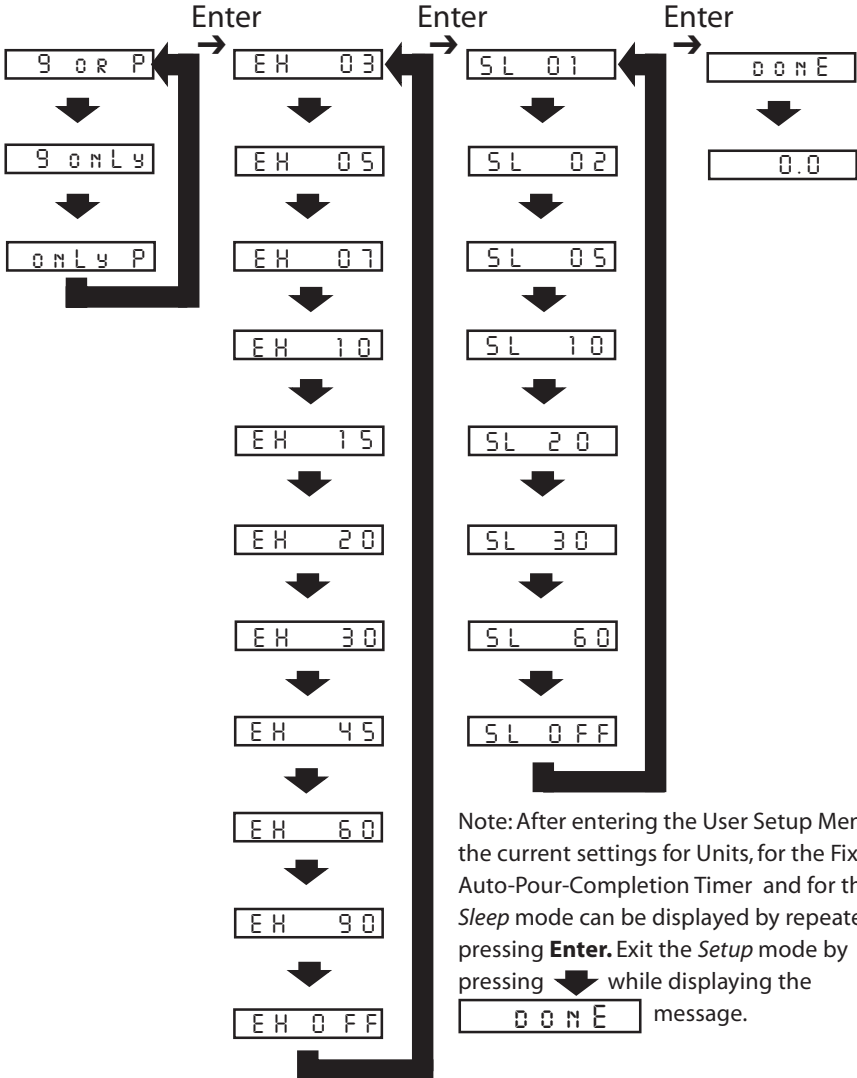
To enter the *Setup* mode and review the current settings, press and hold the **Tare** key. After a brief delay, the scale will display the current Units setting. Pressing **Enter** will display the current pour-completion timer setting. Pressing **Enter** again will display the current setting for the *Sleep* timer. Pressing **Enter** again will display 0 0 N E. Pressing  will exit the *Setup* mode and will return the scale to normal weighing.

Entering the Setup Mode and Changing Settings

Enter the *Setup* mode by pressing and holding the **Tare** key. Press **Enter** repeatedly until the current settings are displayed for the feature that you wish to change. Press the **↓** key repeatedly to view the available settings. Press the **Enter** key to select the setting that is displayed. To return to the *Weighing* mode, press the **Enter** key repeatedly (if necessary) to display the message `D O N E` then press **↓** again to exit the *Setup* mode and return to normal weighing.

User Setup Menu

The following diagram illustrates the User Setup Menus that are accessed by pressing and holding the **Tare** key:



Note: After entering the User Setup Menu, the current settings for Units, for the FixMix™ Auto-Pour-Completion Timer and for the *Sleep* mode can be displayed by repeatedly pressing **Enter**. Exit the *Setup* mode by pressing **↓** while displaying the `D O N E` message.

Serial Data Interface

The FP 7000 SELECT scale includes a bidirectional RS232 interface. It is designed to support communication with a "Host" computer or other device without using the complete RS232 protocol, since only the transmit and receive lines of the standard interface are used. External equipment that uses the RS232 interface must be connected through an MTL761AC safety barrier.

Data Format

The required serial data format is:

- 1 start bit
- 7 data bits
- 1 even parity bit
- 1 stop bit

The required baud rate is 9,600.

Output of Weight or Status

All messages output by the scale include 8 printable ASCII characters, then Enter (0D Hex), then Line Feed (0A Hex) which completes the message. If the text of a message (i.e., a weight value or a status or error report) requires fewer than 8 characters, then leading character positions are filled with space characters (code 20 Hex) to fill out the message length to 8 characters.

Input of Commands

Upon receipt of a valid command input character, the scale will perform the requested function. Enter or Line Feed characters are not required to complete a command. Each received character is checked for correct parity, then discarded if not one of the supported command or weight designating characters. The following is a list of the supported command characters:

Input Character	Command
C	Calibrate (perform span operation using any whole Kg weight)
G	Display weight in grams
I	Initiate continuous print of weight values
O	Display weight in "PPG parts"
P	Immediately print currently displayed weight value
R	Reverse pour from previously entered weight to zero (if no weight value is entered, R command exits reverse pour mode)
S	Stop continuous printing of weight values
T	Tare
0-9 . + -	Used to enter starting weight value for reverse pouring

Calibration

When the Calibrate command is received by the scale, it immediately transmits to the host computer “_ _ _ _ ACAL” (i.e., four space characters followed by A, C, A and L) followed by Enter and Line Feed. If the on-pan weight is not stable within 120 seconds of receiving a Calibrate command, the scale transmits “_UNSTABL” (i.e. a space character followed by U, N, S, T, A, B, and L) followed by Enter and Line Feed, and then abandons the operation. If the on-pan weight is not a multiple of 1 kilogram, the scale transmits to the host computer “_NOT_1KG” (i.e. one space character followed by N, O, T an additional space character, 1, K, G) followed by Enter and Line Feed, and then abandons the operation. When the on-pan calibration weight is stable and within 1% of 1, 2, 3, 4, 5, 6, or 7, Kg, the scale will perform the calibration (i.e. re-span) operation, then transmit the new adjusted weight value to the host computer.

RS232 Serial Data Port

The connector for the RS232 serial data port on the scale is located on the rear panel of the scale base. The connector is a 9 position, D-subminiature, receptacle connector. The pins are assigned as follows:

Commands to Scale	Pin 2
Data from Scale	Pin 3
Signal Common	Pin 5
Cable Shield	Connector Shell

Note: Make no connection to pins 1, 4, 6, 7, 8, or 9.

CAUTION

External equipment using the RS232 port must be connected to the scale through an MTL761AC safety barrier installed in strict accordance with its manufacturer's instructions.

Routine Maintenance

Daily Maintenance

1. Remove the weighing pan and thoroughly clean (top, bottom and edges) to remove any paint which may have accumulated.
2. Remove the pan support by pressing on the support while rotating counter clockwise. Thoroughly clean the area immediately beneath the weighing pan and pan support. Do not use water. A paint thinner or mild solvent is recommended.

Monthly Maintenance

1. Calibrate the scale.
2. For safety reasons, check that the AC mains cable has no visible signs of damage.

Cleaning Splash Shields and Drip Shields

To avoid build-up of static electricity which may interfere with the scale operation, it is important to clean splash covers as follows:

- in a non-hazardous location, and
- using a cloth moistened with paint thinner or mild solvent.

CAUTION: When the pan support is removed, do not allow liquids or small objects to enter the scale through the small openings around the pan support mounting posts.

Cleaning the View Drop Mirror

Allow paint dripped onto the mirror surface to dry before attempting to remove it. Using a single edge razor blade, gently scrape the paint from the mirror.

Troubleshooting

Service Codes

The following service codes may appear on the display and are provided to alert you to some of the problems commonly encountered when using digital scales.

- - - - -** This indicates that the scale cannot produce a stable reading. Check for excessive draft or vibration.
- H H H H H** The 7000 g capacity has been exceeded by 5% or more.
- L L L L L**
- Scale may have been switched on without the weighing pan and pan support attached. Install the pan support and pan on the scale, then press the **Tare** key.
 - Interference beneath the pan. Make sure that the area beneath the pan is clean and that the splash cover is not touching the pan.
- n o C A L** The calibration cannot be performed. Refer to page 10, "**Calibration**", for the correct steps to follow. Check to be certain that the calibration weight is the correct weight and is undamaged. Look for interference under the pan.
- U n A B L E** Scale cannot proceed with desired function due to missing or incorrect data. If correcting for an overpour, check to see if weight data has been stored in the tint memory (see "**Tint Review Mode-Viewing Stored Ingredient Weights**", page 21.)
- Blank Display** Scale may have entered the *Sleep* mode. Try to reactivate the display by pressing one of the keys or by touching the pan. If the display remains off, check the cable connection at the scale from the power supply. Also, check to make sure the AC mains is providing power to the power supply and that the connection to the mains is intact.

Service and Repairs

1. **IMPORTANT:** All repairs and service to the scale MUST be carried out and duly certified by Fillon Technologies, N.A., Inc. in order for the warranty to remain valid. Any tampering with the scale will automatically and immediately void hazardous location approval and void the warranty, relieving the manufacturer of any liability for subsequent damage or injury caused to or by the product.
2. If you have any problem with your scale, consult the **Troubleshooting** chart on page 27.

If your scale still does not operate correctly:

FIRST - Gather the following information:

- Model Number: FP7000 SELECT
- Serial Number
- Date of Installation
- Name of Supplier

THEN - Call Fillon Technologies, N.A., Inc. Toll Free Service Desk at 1(800) 777- 1583 (Monday through Friday, 9 a.m. - 4:30 p.m. EST). If calling from outside the USA or Canada call country code 1-401-431-1580.

3. You may be asked to return the goods for inspection or repair. If so, you should follow the procedure detailed below.

NOTE: DO NOT RETURN goods unless requested to do so by Fillon Technologies, N.A., Inc. (a return authorization (RA) number will be issued).

Returned Goods Procedure

1. In order to return goods for servicing, call FTNA at 1-800-777-1583 to obtain a return authorization (RA) number.
2. Enter all details of the scale's problem on the packing list or note included with the scale.
3. Use the original packaging to ship the scale.
4. Ship scale pre-paid via surface transport and adequately insured. All repaired goods will be returned surface freight pre-paid and insured.

IMPORTANT: RETURN AUTHORIZATION MUST ALWAYS BE OBTAINED FROM FILLON TECHNOLOGIES, N.A., INC. BEFORE GOODS ARE RETURNED.

Specifications

Weighing Range.....	.0 - 7000 grams (7kg)
Increments.....	.0.1g (tenth of a gram)
Tare Range.....	.0 - 7000 grams
Stabilization Time.....	< 1.5 seconds
Display Update Rate.....	.6 times/second
Operating Temperature (IST4).....	up to 25 °C (77°F)
Operating Temperature (IST3C).....	up to 50 °C (122°F)
Weighing Pan Dimensions.....	.19 cm (7.5 in.) diameter
Overall Dimensions*.....	Depth: 31.5 cm (12 ³ / ₈ in.) Width: 20.5 cm (8 ¹ / ₈ in.) Height: 34.0 cm (13 ³ / ₈ in.)
Power Supply 406590-01.....	.115 V +/- 10 % 50/60 Hz
Power Supply 406590-02.....	.240 V +/- 10 % 50/60 Hz
Power Consumption.....	Less than 2.5 Watts

*Not Including Recipe Board

APPROVAL FOR HAZARDOUS LOCATIONS: In the U.S.A.

FACTORY MUTUAL RESEARCH CORPORATION (CLASS I, DIVISION 1,
GROUP C, D FOR HAZARDOUS LOCATION USE).

In Canada

CSA (CLASS I, DIVISION 1, GROUP C, D FOR HAZARDOUS LOCATION USE).

WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT
UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN
TO BE NON-HAZARDOUS.

ADVERTISEMENT-RISQUE D'EXPLOSION. AVANT DE DECONNECTER
L'EQUIPMENT, COUPER LE COURANT OU S'ASSURER QUE
L'EMPLACEMENT EST DESIGNE NON DANGEREUX.

Summary of Cautions

1. **WARNING:** IN HAZARDOUS AREAS, ELECTRICAL CONNECTIONS MUST BE MADE IN ACCORDANCE WITH CONTROL DRAWING SS2053-01. REFER TO APPENDIX II ON THE INSIDE BACK COVER OF THIS MANUAL.
2. **WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.**
3. **IMPORTANT:** All repairs and service to the scale MUST be carried out and duly certified by FTNA in order for the Approval to remain valid. Any tampering with the scale will automatically and immediately void the Approval and Warranty, and relieve the manufacturer of any liability and subsequent damage or injury caused to or by the product. For further information please contact Fillon Technologies, N.A., Inc. at 1-800-777-1583.
4. **IMPORTANT:** RETURN AUTHORIZATION MUST ALWAYS BE OBTAINED FROM FILLON TECHNOLOGIES, N.A., INC. BEFORE GOODS ARE RETURNED.
5. Do not locate the scale near sources of heat, draft or vibration.
6. **NOTICE:** To prevent damage to the weighing mechanism, **NEVER** secure a lid onto a paint can while it is on the weighing pan.
7. Do not use water to clean the scale. Use a mild solvent or thinner.
8. Do not clean splash shield or drip shield in hazardous locations.
9. **DO NOT DISCARD THE ORIGINAL PACKAGING.** Always use the original carton for shipment or movement of the scale to a new location.

Standard Warranty

Fillon Technologies, N.A., Inc. (hereafter called FTNA) warrants each new scale to be free from defects in materials and workmanship.

FTNA will replace and/or repair any part of the scale which it determines is defective. The Warranty is valid for a period of **five** years from the date of shipment from the warehouse.

Not included under the terms of this Warranty are parts which are damaged as a result of accident, misuse, or abuse. Damage due to lightning, power surges, normal wear and tear, modification, or tampering is not covered by the Warranty.

All warranty claims must be made by first contacting FTNA at 1-800 777-1583 (8 a.m. to 4:30 p.m. EST, Monday through Friday). Under no circumstances should the scale be returned to FTNA or its appointed Service Agents for inspection, replacement and/or repair without the express consent of FTNA. This consent will take the form of a Return Authorization (RA) number.

All repairs and service to the scale must be carried out and duly certified by FTNA in order for the Warranty to remain valid. Any tampering with the scale will automatically and immediately void hazardous location approval and the Warranty, relieving the manufacturer of any liability for subsequent damage caused to or by the product.

In no event will FTNA be liable to any person or Corporation for any damages, including any incidental or consequential damages, expenses, lost profits, lost savings, or other damages arising out of an inability to use the scale.

In Case of Returned Goods:

- a. All goods must be properly packaged in original packaging. Manufacturer is not liable for damage due to inadequate packaging.
- b. The RA number must be obtained prior to shipping and affixed to the outside of the shipping carton. Freight must be prepaid and the scale insured.

APPENDIX I

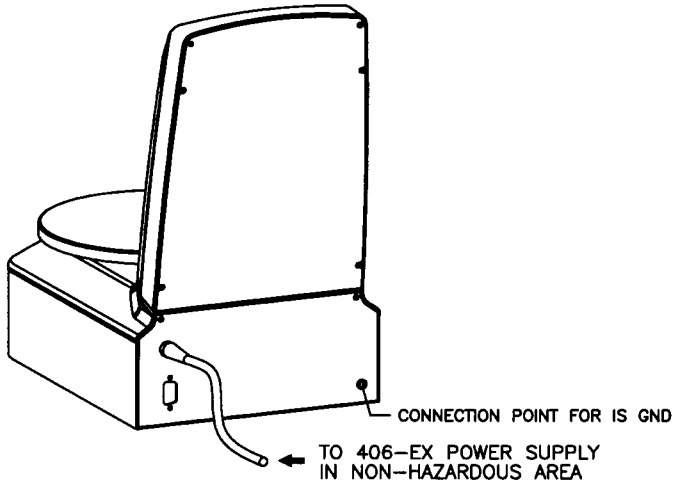
Glossary

Bar LED	The rectangular red light emitting diodes that are used to indicate the ratio for Proportional Weighing, to identify the unit of measure for the <i>Normal Weighing</i> mode and for the <i>Special Weighing</i> mode, and to show when the scale is operating in the <i>FixMix</i> mode.
Calibration	The procedure used to set the scale's zero point and the scale's span point using a certified, high accuracy test weight.
Default Value	Factory preset values for the pour timer and <i>Sleep</i> mode which can be changed by the operator upon entering the <i>Setup</i> mode.
FixMix Mode	The operating mode enabled by pressing the FixMix key, allowing any subsequent overpouring of an ingredient to be corrected.
Formula	A listing of ingredients and the weight of each that is required to mix paint of a specified color.
Hazardous Location	An area in which a mixture of flammable or combustible gases, dusts, or fibers may be present in an explosive combination with air -- either continuously, during normal operation, or rarely.
Intrinsically Safe (IS)	An apparatus in which any spark or thermal effect produced under either normal or fault conditions is incapable of causing ignition of a mixture of flammable or combustible material in the air under prescribed test conditions.
Digital Display	The group of six 7-segment LED digits (each with a decimal point) that are used to display weight readings, operator prompting messages, or status/error messages during operation of the scale.
Normal Weighing	The operational status whereby weight information is displayed in either grams or "PPG parts" and the FixMix key is used to zero the container weight.

Overpour	The condition resulting from an operator inadvertently adding more of a particular ingredient than called for by the paint formula.
"PPG parts"	The unit of weight measure equal to 1/512 of one pound used in PPG paint formulas.
Pour Timer	The timer that is automatically activated when an ingredient is poured into a container and allocates a preset amount of time to pour to the targeted weight. Upon time out, a beeper sounds and the displayed weight value is stored in memory.
Pouring Lid	A specially designed cover with stirrer for paint cans that provides for convenient pouring and mixing of ingredients with attachments that fit into a paint mixing machine for storage.
Proportional Weighing	A scale feature that allows an operator to mix less (or in some cases, more) paint than the formula is intended to produce, while still pouring each ingredient to the target numbers given in the formula.
Ratio	The key that allows the operator to enter the <i>Proportional Weighing</i> mode to select a fraction of the volume of paint that will be produced by the formula used to mix paint.
Recipe	The formula for mixing a specific paint color.
Remix	An illuminated bar LED which indicates that the scale is operating in the <i>FixMix</i> mode, and shows that an overpour correction is in process.
Reverse Pour Mode	A special operating mode whereby a targeted weight value is transferred to the scale through the RS232 port and shown on the weight display as a negative value before ingredients are added. As weight is added to the scale the display increases allowing the operator to pour ingredients until zero is reached.
Sleep Mode	An energy conserving mode where the display is automatically turned off after several minutes of inactivity. The <i>Sleep</i> mode automatically terminates when weight is added to the pan or a key is pressed.

Span	The slope of the calibration line stored in the scale's memory determined by zero and the value of the test weight used during calibration.
Special Weighing Mode	The operational status wherein the Tare key is used to zero the container weight, the FixMix key is disabled or is by-passed and the scale is used for weighing without the potential for correcting an overpour error.
Stabilization Time	The time required to settle on a final weight reading after a container or ingredient has been added to the pan.
Tare	The weight of an empty container. Also, the process of subtracting the weight of an empty container from the displayed weight.
Tint	The key used to enter the <i>Review</i> mode and display the weight of each ingredient stored in memory. Tint also refers to an ingredient that is called for in the paint formula.
Tint Counter	The small LED digit to the extreme left of the digital display window that keeps track of which ingredient is being poured.
Tint Review Mode	When the Tint key is pressed the scale will sequentially display the tint identifier in the Tint Counter and the associated stored ingredient weight in the LED display.
Unit	The key used to select either the gram or part unit of measure.

APPENDIX II



NOTES:

1. SCALE MUST NOT BE PERMANENTLY ATTACHED TO ANY STRUCTURE IN THE HAZARDOUS AREA.
2. ANY TAMPERING WITH, OR REPLACEMENT OF, ANY SYSTEM COMPONENT WILL AUTOMATICALLY AND IMMEDIATELY VOID THE APPROVAL AND WARRANTY, AND WILL RELIEVE THE MANUFACTURER OF ANY LIABILITY FOR SUBSEQUENT DAMAGE CAUSED TO OR BY THE PRODUCT.
3. POWER SUPPLY (MODEL 406-EX) CONTAINS AN INTEGRAL DIODE SAFETY BARRIER.
4. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA RP12.6 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70).
5. THE CONFIGURATION OF ASSOCIATED APPARATUS MUST BE FM APPROVED.
6. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.
7. NO REVISION TO DRAWING WITHOUT PRIOR FMRC APPROVAL.
8. RESISTANCE BETWEEN IS GROUND AND EARTH GROUND MUST BE LESS THAN 1 OHM.
9. EXTERNAL EQUIPMENT USING THE RS232 COMMS CAPABILITY MUST BE CONNECTED THROUGH AN MTL761AC SAFETY BARRIER.
10. FOR DB9S PINS 3 & 5 AND/OR DB9S PINS 2 & 5:
 $V_{max} = V_{oc}$ or V_t , $I_{max} = I_{sc}$ or I_t , $C_a = C_i + C_{cable}$, $L_a = L_i + L_{cable}$
WHERE C_i IS CONSIDERED 0 FOR BARRIERS WITH V_{oc} OR V_t GREATER THAN 8.5 VOLTS
IF V_{oc} OR V_t IS LESS THAN 8.5 VOLTS, $C_i = 18.7 \mu F$.
FOR J5 PINS 1 & 2:
 $V_{max} = V_{oc}$ or V_t , $I_{max} = I_{sc}$ or I_t , $C_a = C_i + C_{cable}$, $L_a = L_i + L_{cable}$
11. CONTROL EQUIPMENT CONNECTED TO BARRIER MUST NOT USE OR GENERATE MORE THAN 250 VRMS OR DC.
12. BARRIERS MUST BE INSTALLED IN AN ENCLOSURE THAT MEETS THE REQUIREMENT OF ANSI/ISA S82.01.