ZM710
Forklift Scale Instrument

User Instructions
original instructions

AWT35-100014
Issue AA
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1 Daily Operation Quick Reference

Below is a brief overview of how to use this system during a work shift. See Operations in Standard Mode on page 18 for complete instructions.

To turn the instrument on, start the forklift and press the ON/OFF key until the keys light up blue and the power light turns green.

1. At start of shift, press the Employee ID field and enter the employee ID number.

2. Enter a PRO number using the bar code scanner or press the Pro# field and key it in with the numeric keypad. Press Enter.

3. Key in the number of pieces in the PRO# if different than the default value of 1. Press Enter.

4. Key in the declared weight listed on the shipping papers. Press Enter.

5. Weigh the pieces contained in that PRO# and press the Select key.

6. Press Complete when all pieces in a PRO# have been stored.

7. Enter a new PRO# and repeat until the shift ends or until you are required to download the stored information.
2 General information and warnings

2.1 About this manual

This manual is divided into chapters by the chapter number and the large text at the top of a page. Subsections are labeled as shown by the 1 and 1.1 headings shown above. The names of the chapter and the next subsection level appear at the top of alternating pages of the manual to remind you of where you are in the manual. The manual name and page numbers appear at the bottom of the pages.

2.1.1 Text conventions

Key names are shown in **bold** and reflect the case of the key being described. This applies to hard keys and onscreen or soft keys.

Displayed messages appear in *bold italic* type and reflect the case of the displayed message.

2.1.2 Special messages

Examples of special messages you will see in this manual are defined below. The signal words have specific meanings to alert you to additional information or the relative level of hazard.

---

**ELECTRICAL WARNING!**

**THIS IS AN ELECTRICAL WARNING SYMBOL.**

**ELECTRICAL WARNINGS MEAN THAT FAILURE TO FOLLOW SPECIFIC PRACTICES OR PROCEDURES MAY RESULT IN ELECTROCUTION, ARC BURNS, EXPLOSIONS OR OTHER HAZARDS THAT MAY CAUSE INJURY OR DEATH.**

---

**CAUTION!**

*This is a Caution symbol.*

**Cautions give information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.**

---

**NOTE:** *This is a Note symbol. Notes give additional and important information, hints and tips that help you to use your product.*
2.2 Installation

DANGER: RISK OF ELECTRICAL SHOCK. NO USER SERVICEABLE PARTS. REFER TO QUALIFIED SERVICE PERSONNEL FOR SERVICE.

2.2.1 Safe handling of equipment with batteries

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer’s instructions.

ATTENTION: Il y a danger d'explosion s'il y a remplacement incorrect de la batterie, remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

2.3 Routine maintenance

IMPORTANT: This equipment must be routinely checked for proper operation and calibration. Application and usage will determine the frequency of calibration required for safe operation.

Always turn off the machine and isolate from the power supply before starting any routine maintenance to avoid the possibility of electric shock.

Make sure that it is placed securely on a flat and level surface.
2.4 Cleaning the machine

Table 2.1 Cleaning DOs and DON’Ts

<table>
<thead>
<tr>
<th>DO</th>
<th>DO NOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe down the outside of standard products with a clean cloth, moistened with water and a small amount of mild detergent</td>
<td>Attempt to clean the inside of the machine</td>
</tr>
<tr>
<td>Spray the cloth when using a proprietary cleaning fluid</td>
<td>Use harsh abrasives, solvents, scouring cleaners or alkaline cleaning solutions</td>
</tr>
<tr>
<td>Spray the cloth when using a proprietary cleaning fluid</td>
<td>Spray any liquid directly on to the display windows</td>
</tr>
</tbody>
</table>

2.5 Training

Do not attempt to operate or complete any procedure on a machine unless you have received the appropriate training or read the instruction books.

To avoid the risk of RSI (Repetitive Strain Injury), place the machine on a surface which is ergonomically satisfactory to the user. Take frequent breaks during prolonged usage.

2.6 Sharp objects

Do not use sharp objects such as screwdrivers or long fingernails to operate the keys.

2.7 FCC Statement

United States

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the 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 will be required to correct the interference at his own expense.
3 Introduction

3.1 Product Introduction

The ZM710 Instrument with touchscreen technology can be paired with the digital FLSC scale carriage and FLJ 100 digital junction box to make a completely digital forklift scale system. You can weigh, count and store information and, with the optional wireless communication, transmit that information to a receiver attached to a computer.

This manual explains the user setup and operation of the ZM710. It covers the standard application which comes on the instrument.

3.2 Front Panel, Connections and Keys

The ZM710, shown in Figure 3.1, has seven keys and a full color display with touch sensitive screen. Touch the screen to select an underlying key or field.

The screen is touch sensitive. When instructions state to highlight an item, use the arrow keys to move the highlight bar to that item. When the instructions say to select an item, touch the up or down arrow to highlight that item, then touch the Enter key.

3.2.1 Front Panel

Figure 3.1 shows the front panel of the ZM710 Instrument.

There is a power saving standby mode and a shutdown mode. The default for the standby mode is 5 minutes of scale and front panel inactivity. Touch the screen to restore normal operation. The default for the shutdown mode is 4 hours. After that, the ZM710 will shut itself off. To power up the instrument, press the ON/OFF key until the keys light up blue and the power light turns green.
3.2.2 ZM710 Connections

Figure 3.2 shows the bottom of the ZM710 Instrument.

Note the POWER port is on the right and the COM1 port, where the scale connects, is in the middle. Be sure the power cable and scale interface cable connectors are tight before you begin using the instrument.

If your system uses the FLW 100 wireless carriage option, be sure to charge the battery pack for 6-7 hours before using.
3.2.3 Front Panel Keys

ON/OFF key To power up the instrument, press the ON/OFF key, shown below, until the keys light up blue and the power light turns green. See Upon Power Up on page 13. To power down the instrument, press and hold the ON/OFF key for 5 seconds and then release. The instrument will power down. See To Power Off on page 13.

F1 key Press and hold the F1 key until the password screen appears. For instructions on using the alphanumeric touchscreen, see Entering Alphanumeric Values on page 14.

Select (F2) key Press the Select key to store the active transaction. Between transactions, the weight on the scale must fall below the pre-programmed amount (default is 50 lbs) before the next transaction can be stored.

Zero (F3) key Press the Zero key to zero the scale.

Print (F4) key Press the Print key to print.

Units (F5) key Press the Units key to change the unit of measure.

Tare (F6) key Press the Tare key to tare.

The Print, Units, and Tare keys must be configured before use.

3.2.4 Display Symbols, Icons and Messages

On the display, to the right of the weight reading, several things can appear; words, symbols or icons. They are explained below.

BUSY At various times you will see popup boxes showing the system is busy. These will disappear after the process is complete.

~ This symbol appears when there is motion on the scale. When the weight is stable, this symbol will disappear. Transactions and scale functions will only operate when the scale is stable.

OVER TIP The FLJ 100 is tipped beyond its ability to compensate for the angle. The scale will not weigh accurately in this condition.

XXXX Recs This is the number of transaction records stored in memory. This will automatically decrement when communication is established between the ZM710 and the host computer.

NO COMM This means there is no communication with the FLJ 100 junction box. Check the interface connections if this happens and power off the ZM710 and then repower it.

UNDER LOAD Scale is below the configured underload range.

OVER LOAD Scale is above the configured overload range.
<0< Scale at center of zero.

lb / kg / custom The current unit of measure.

Gross or Net Tells current scale mode; Gross weighing or Net weighing.

Battery icon A battery icon appears on the right side of the screen when the wireless carriage option is installed. As battery power drops, the icon changes, as shown below, until the circled icon flashes. When this occurs, charge the carriage battery immediately. If the icon on the right appears, no battery information is being received.

Wireless Scale icon There are three possible states for the wireless scale icon which appears on the right side of the display: red, green and off. The icons are shown below. Red occurs during instrument startup (normal), or when radios are communicating with each other but a problem exists between the carriage radio module and the FLJ 100 junction box. Green means carriage and instrument are communicating and data is being transferred. If there is no icon showing, the radios are not talking to each other.
3.2.5 Upon Power Up

When you first power up the ZM710, the startup process will run, followed by the main operations screen shown below.

The white section of the screen shows:
- weight on the scale
- unit of measure
- weighing mode
- center-of-zero (>0<) or motion annunciator (~)
- date and time
- number of records or transactions stored (Recs).

The lower portion of the screen shows information fields for:
- Pro# (Pro Number),
- Act. Pcs. (actual pieces)
- Accum. Pcs. (accumulated pieces)
- Employee ID number
- Accum. Wt. (accumulated weight).

Touch the ABORT field to abort a PRO# and remove all records associated with it. Touch the COMPLETE field to mark the PRO# as complete in the database and to clear the old PRO# information from the screen.

For complete information on using the application, see Operations in Standard Mode on page 18.

3.2.6 To Power Off

To power down the instrument, press and hold the ON/OFF key for 5 seconds, then release. The ZM710 will process the shutdown command and power off.

The ZM710 has an auto-sleep and an auto-shutdown timer. The instrument will go into sleep mode after a preprogrammed period of time. A change in weight or touching the screen will waken the instrument. If the auto-shutdown mode is enabled and the system turns off, repower using the normal power up procedure.
3.3 Entering Alphanumeric Values

The alphanumeric entry screen, shown in Figure 3.3, appears often during setup and use of the ZM710 instrument. The name of the item being entered appears in the green bar at the top of the display. This example shows Pro#. This section is a lesson in how to use this screen.

![Alphanumeric entry screen](image)

You have 10 seconds (default) after an alphanumeric entry screen appears to start keying in characters or the display goes back to the previous screen.

This screen mimics cell phone rules for numeric or text entry. Follow these rules to enter an alpha, numeric or alphanumeric value:

1. Touch a blue, numeric key to enter the number.

2. The cursor automatically advances to the next position any time you wait for two seconds or more.

3. If you repeatedly touch the same key before the cursor advances, the display shows each successive number or alpha character on the key. For example: Press the 6 key three times in rapid succession and the N appears on screen. First the 6, then the M and then the N.

4. If you want to enter the same number repeatedly, you must hesitate two seconds between key presses. You can speed up this process by pressing the Adv key between each numeric key to force the cursor to advance to the next position. If you are entering numbers in a numeric only screen, the two second wait is not necessary.
5. Press the F1 key to switch the alpha characters on the keys to lower case letters. See Figure 3.4 below. Press the F1 key again to return the display to upper case letters.

![Figure 3.4 Lower case letters](image)

- Use the bracket under the 0 to enter a blank space in a text or numeric string.

- Some fields will only accept numeric characters. The other keys or alpha characters are unavailable in these instances.

- The +/- and . (decimal) keys will only work in applicable data entry situations. The +/- key will make a positive number into a negative value and vice versa. A - (negative) sign will appear but not a + (positive) sign.

6. Press the Esc key to exit this entry screen and return to the previous screen. If you press the Esc key, the instrument will retain the previous value of the field that was being edited.

7. Press the Clear key to erase the last character entry.

8. Press the Adv key to advance the cursor to the next position.

9. When you are finished entering characters, press the Enter key to save the data.
3.3.1 Open Pro Feature

Open Pro is a list of pro numbers that have not been completed. The list can show up to 30 open pro numbers. Each pro number will retain Accum., Pcs, Gross Accum., and Wt. information when it is accessed again.

To access:

1. Press the **Pro#** field shown on the screen below.

2. At the Pro# entry screen, shown below, press the **Select** key.
3. A list of open Pro# will be displayed, as shown in the example below.

```
  Pro#
11223344
12345678
87654321
55667788
```

4. To remove a Pro# from the list, simply complete the Pro# and it will be removed.
4 Operations in Standard Mode

4.1 Startup and Entering the Employee ID

1. Start the lift truck.

2. Press the ON/OFF key until the keys light up blue and the power light turns green.

   The screen shown in Figure 4.1 will be displayed with the last active employee ID number displayed.

![Figure 4.1 Startup screen](image)

Field descriptions on the starting screen:

- **Pro#**: Press this field to enter a new PRO# manually or scan a bar code.

- **Act. Pcs.**: Press this field to change the number of actual pieces being lifted in one lift.

- **Accum. Pcs.**: This field shows the number of accumulated pieces (skids) stored for this transaction.

- **Employee ID**: Press this field to enter an employee ID number. This can be typed in or scanned from a bar code.

- **Accum. Wt.**: This field shows the accumulated weight of the pieces (skids) stored for this transaction.

- **ABORT**: Press this field to abort the last PRO# transaction.

- **COMPLETE**: When all the pieces (skids) are stored for a PRO#, press this field to mark the PRO# as complete in the database.

3. The driver must enter their employee ID number when a shift starts. To do this, press the **Employee ID** field and key in the number or scan an ID bar code. Press **Enter** to accept the number...

   The screen returns to the one shown in Figure 4.1 but with the ID number now displayed in the field.
4.1.1 Processing a PRO#

If there is an open PRO# that has not been completed, see Open Pro Feature on page 16.

1. Enter the PRO#. To do this, scan in the bar code of the PRO#. If there is no bar code or it is unreadable, press the Pro# field, key in the number, and press Enter to accept the number…

   The alphanumeric screen appears with Est. Pcs. listed at the top.

When you manually enter a value, you must key it in and press the Enter key to save the value. If no entry is made within 10 seconds (default), the screen returns to the main operation screen.

2. Type in the estimated number of pieces or skids declared on the Bill of Lading (default is 1) and press Enter.

   The alphanumeric screen appears with Est. Wt. listed at the top.

3. Type in the declared weight from the bill of lading and press Enter.

   The screen returns to the opening screen with the PRO# listed in the Pro# field.

4. If you are lifting more than one piece (skid) in the PRO# at one time, press the Act. Pcs. field and enter the total number of pieces or skids being lifted. Press Enter to accept.

   The display will show the number you entered in the Act. Pcs. field.

5. Make sure the forks of the lift truck are off the ground and empty, then press the Zero key.

6. Lift the piece or pieces and, when the weight reading is stable, press the Select key…

   The display briefly shows Transaction Stored then returns to the main screen with the current weight, the PRO#, the accumulated number of pieces weighed, and the accumulated weight displayed.

7. Remove the pallet, zero the scale if necessary, and repeat steps 4 - 6 if there are more pieces in the PRO#.

   After a weight is stored using the Select key, the pallet must be removed and the weight on the scale must fall below the programmed minimum before the weight of the next pallet will be accepted. 50 lbs is the default value.

8. When all the pieces in the PRO# have been stored, press the COMPLETE field on the screen.

   Are You Sure You Want to COMPLETE this PRO#? appears on the display.
9. Select **No** to continue using the same PRO# or select **Yes** to accept.

   If you choose **Yes**, this completes the PRO# and clears all information for the PRO# from the display.

10. Repeat steps 1 - 9. The system is now ready to work on the next PRO#.

### 4.1.2 Stored Data / Out of Wireless Network Range

The ZM710 stores data for downloading later by a connection to one of the COM ports. If using wireless networking, the information will be downloaded automatically anytime the radio is in range and communicating with a compatible host device.

Whenever the ZM710 Instrument is out of wireless network range, reweigh data is stored in memory until the unit is back in range. This feature also allows for temporary computer upgrades/outages to occur without affecting reweigh operations.

In the illustration above, with a specific protocol in use, notice the **0181 Recs** (circled in yellow for reference). This tells you that there are 181 stored records or transactions in the database. Once the truck is in wireless network range, it will start automatically transmitting records and the **Recs** will start to count down. This means the records have successfully transferred to the main computer.

---

The ZM710 software is not set up to automatically connect to the wireless network. Please refer to your service provider to set this up.

---

### 4.1.3 Aborting a PRO# 

Press the **ABORT** field to abort the last PRO# transaction. The following screen is displayed:

---

**ZM710 Forklift Scale Instrument User Instructions**
Press **No** if you want to continue using the current PRO#. Press **Yes** if you want to delete all information saved so far for the current PRO#. See the note below.

**WARNING:** Be sure you want to delete the PRO# information before pressing the YES key. As soon as the key is pressed, the information is deleted.
5 Operations in Counting Mode

The counting application allows you to count items of uniform weight after sampling a known quantity of the items or keying in a known piece weight. This application is explained below.

5.1 Start Up and Entering the Employee ID

1. With the ZM710 configured for the Count application, start the lift truck. If the Count application is not active, consult with your supervisor.

2. Press the ON/OFF key until the keys light up blue and the power light turns green.

After the startup routine, the screen shown in Figure 5.1 will be displayed with the last active employee ID number displayed.

![Counting application startup screen](image)

Figure 5.1 Counting application startup screen

Field descriptions on the starting screen:

- **Part Number**: Press this field to enter a new part number manually or scan a part number bar code.
- **Piece Weight**: Press this field to set a value for a known piece weight.
- **Piece Count**: This field shows the number of pieces on the scale using the active piece weight and the displayed weight.
- **Accum. Pieces**: This field shows the number of accumulated pieces stored for this part number.
- **Oper ID**: Press this field to enter an operator ID number. This can be typed in or scanned from a bar code.
- **Tare**: Press this field to tare the weight from the scale. To remove the tare, clear all weight from the scale and press the Tare field.
- **SAMPLE**: Press this field to get a piece weight by sampling a known number of pieces.
- **COMPLETE**: When all the pieces are accumulated for a part number, press this field to clear the PN from the database and clear the information from the screen.
3. The driver must enter their operator ID number when a shift starts. To do this, press the **Oper ID** field and key in the number or scan an ID bar code. Press **Enter** to accept the number…

The screen returns to the one shown in Figure 5.1 but with the ID number now displayed in the field.

### 5.1.1 Performing a Counting Operation

1. Enter the part number. To do this, scan in the part number from a bar code or, if there is no bar code or it is unreadable, press the **Part Number** field, key in the number and press **Enter** to accept the number…

The main screen reappears. If this PN exists in the database, the stored piece weight for this PN becomes the active piece weight. If there is no piece weight for this PN, follow the steps in *Establishing a Piece Weight* below.

---

**Establishing a Piece Weight**

There are two ways to establish a piece weight; key in a known piece weight or sample a known number of pieces.

*Piece weights less than 1 lb can give inconsistent results.*

---

**Entering a Known Piece Weight**

If you know the piece weight, press the **Piece Weight** field, key in the weight on the entry screen and press **Enter** to accept it. That piece weight is now active and stored in the database with the active part number.

**Sampling to Obtain Piece Weight**

To perform a sample operation, press the **SAMPLE** field, key in the number of items you will sample and press **Enter**. The screen prompts you to *Add* or *Remove* (for negative sampling) the number of items you keyed in. Place the items on the scale (or remove them if you are doing negative sampling) and press the **OK** key. The piece weight is calculated and the screen returns to the main operating screen with the new piece weight active.

*When you manually enter a value you must key it in and press the **Enter** key to save the value. If no entry is made within 10 seconds (default), the screen returns to the main operation screen.*

2. Make sure the forks of the lift truck are off the ground and empty, then press the **Zero** key.
3. If you need to tare a container, place it on the forks and press the **Tare** field.

The weight is tared from the scale.
4. Place the pieces to be counted on the scale...

The display shows the weight of the objects and the piece count.

5. Press the Select key to store the count in the transaction database and add it to the accumulated total for the part number. This also prints the default print format (Format 2) out COM 2. The format shows time, date, part number, net weight and the count. See Figure 5.2.

![Figure 5.2 Example of the count print format](image)

6. Remove the pieces and repeat the process until all the items for this part number are counted.

**After a count is stored using the Select key, the items must be removed and the gross weight on the scale must fall below the programmed minimum value (gross zero band) before the weight of the next items will be stored. 50 lbs is the default value.**

7. When all the pieces in the part number have been stored, press the COMPLETE field on the screen.

**Are You Sure You Want to COMPLETE this Part Number?** appears on the display.

8. Select No to continue using the same part number or select Yes to accept.

If you choose Yes, this completes the part number and clears all part number information from the screen and from the part number database. Your counting transactions are still in the transaction database and can be viewed or downloaded, as needed.

9. Repeat steps 1 - 8. The system is now ready to work on the next part number.

10. To remove a tare, clear all weight from the scale and press the Tare field.
6 Operations in Checkweighing Mode

6.1 Introduction

Checkweighing is used to quickly compare the weight on the scale to a set target weight or a range of acceptable weight. This chapter explains the setup and use of this application. Be sure your system is set to the Checkweighing application before starting. If the Checkweigher application is not active, consult with your supervisor.

An example of the Checkweighing application’s default screen is shown in Figure 6.1.

![Checkweighing sample screen](image)

Figure 6.1 Checkweighing sample screen

Below are the displayed fields and their functions:

- **Pro Number**: Press this field to manually key in a new Pro Number.
- **Oper ID**: Press this field to enter the Scale Operator ID.
- **Gross Accum Weight**: This field shows the total accumulated gross weight and is updated every time the Select key is pressed.
- **OVER**: Press this field to enter the Over value if using Over & Under entry.
- **TARGET**: Press this field to enter the Target Weight if using the Target weight with ±tolerance.
- **UNDER**: Press this field to enter the Under Value if using the Over & Under entry.
- **Complete**: Press this field to complete a Pro Number.
6.2 Checkweighing Setup

You can set up the checkweighing function in two ways: Set over and under values (see Setting Over/Under Values on page 27) or set a target weight with tolerances (see Setting Target Weight with Tolerances on page 28).

6.2.1 Setting Over/Under Values

To use the Over/Under method, follow these steps:

1. Press the OVER key…
   The numeric entry screen appears.
2. Key in the upper acceptable weight value and press the Enter key…
   The main screen is displayed.
3. Press the UNDER key…
   The numeric entry screen appears.
4. Key in the lower acceptable weight value and press the Enter key…
   The main screen is displayed.

- Any weight placed on the scale that is between the two values entered is considered an acceptable weight and the TARGET field turns green, as shown below:

- If the weight on the scale is below the UNDER value, the UNDER field will turn yellow, as shown below:

- If the weight on the scale is above the OVER value, the OVER field will turn red, as shown below:

Example:

Set Over value to 2000 lb.
Set Under value to 1900 lb.
Place a weight on the scale and the display will show if it is over, under or acceptable.
6.2.2 Setting Target Weight with Tolerances

To use the Target Weight method, follow these steps:

1. Press the **TARGET** key…
   
   The numeric entry screen appears.

2. Key in the acceptable weight value and press the **Enter** key…
   
   The screen prompts for a ± weight tolerance value.

3. Key in a value and press **Enter**…
   
   The main screen is displayed.

**Example:**

Set target weight to 1500 lb.
Set tolerance to ±250 lb.

When a weight is placed on the scale, if it is between 1250 lb and 1750 lb, the **TARGET** field will turn green to show this is an acceptable weight. If the weight falls over or under this range, the appropriate field will change color, as shown below:

![Color Codes](image)

6.3 Typical Checkweighing Operation

6.3.1 Start Up and Entering the Operator ID

1. With the ZM710 configured for the Checkweighing application, start the lift truck.

2. Press and hold the **ON/OFF** key on the ZM710 until the keys light up blue and the power light turns green.

3. After the startup routine, the screen in Figure 6.2 appears. If an operator ID is active, it will be shown in the **Oper ID** field.

![Screen Display](image)

**Figure 6.2 Main checkweighing screen**

4. Scan or key in a new **Oper ID** number if needed.
5. Scan or key in a new **Pro Number**.

6. Use one of the two methods described earlier in this chapter to set up the system for checkweighing.

7. Weigh the pallets and the display will clearly show if the weight is acceptable, over or under the values set.

8. Press the **Select** key to save the weighment.

   If the weight is successfully stored, the following is displayed:

   ![Image](image1.png)

9. Repeat step 7 for each pallet in the Pro number. The weight on the scale must fall below the minimum (default is 100 lbs/50 kg) before the next weighment can be stored. If you press the **Select** key in this situation, the following message is displayed.

   ![Image](image2.png)

10. When finished, press the **Complete** field to mark the Pro Number as complete in the database...

    The following dialog box appears:

    ![Image](image3.png)

11. Press the **Yes** key to confirm the Pro number is complete.
7 Calibration Validation

7.1 Daily Validation Procedure

Each facility should have a test weight of a known value. That weight needs to be lifted daily to validate the scale calibration and assure legal-for-trade status. Follow the steps in this section to perform the calibration validation.

7.1.1 Accessing the Menu

Follow these steps to access the Supervisor Management menu.

1. Press and hold the F1 key until…

   The screen shown in Figure 7.1 is displayed:

   ![Password entry screen](image)

   Figure 7.1 Password entry screen

2. Key in the number 1793. Refer to Entering Alphanumeric Values on page 9 for instructions on entering numeric characters. Press the Enter key…

3. The display shows the Supervisor Management menu, shown in Figure 7.2.

   ![Supervisor Management screen](image)

   Figure 7.2 Supervisor Management screen
4. Highlight the **Supervisor Settings** item and press the **Enter** key. The screen shown in Figure 7.3 is displayed.

![Supervisor Settings list](image)

**Figure 7.3 Supervisor Settings list**

5. Highlight the **Calibration Validation** item and press the **Enter** key...

The screen shown in Figure 7.4 is displayed:

![Calibration Validation screen](image)

**Figure 7.4 Calibration Validation screen**

The validation weight value and ID # are shown.

---

To change the **Validation Weight Value**, highlight that line and press the **Enter** key. Key in a correct weight value and press the **Enter** key.

---

6. Highlight **Perform Calibration Validation (QC)** and press the **Enter** key...

The screen shown in Figure 7.5 is displayed:

![Quality Control screen](image)

**Figure 7.5 Quality Control screen**
7. Follow the screen prompt; lift the weight, wait for the weight reading to become steady and press the **OK** key…

   The screen returns to the one shown in Figure 7.4.

8. Press the **Esc** key three times and press the **Yes** key when asked to save the changes…

   The screen returns to normal operating mode.

9. If the recorded weight is not within specs, the unit needs to be taken out of service until a calibration can be performed.
8 Menu Access and Use

The ZM710 instrument has a password protected menu called the User Management menu. The password for this menu is 111. There are four modules in the User Management menu for users in the United States.

Think of a module as a submenu or container for related items of scale configuration. Available modules are shown in Figure 8.1.

Contact your service provider for information on other password protected menus.

Figure 8.1 User Management menu screens

8.1 Accessing the Menus and Modules

Follow these steps to access the menus and their modules.

1. Press and hold the F1 key until…

The password entry screen shown in Figure 8.2 is displayed:

Figure 8.2 Password entry screen
2. Key in the password for the User Management menu (111 is the default password). Refer to Entering Alphanumeric Values on page 14 for instructions on entering numeric characters. Press the Enter key…

   One of the displays shown in Figure 8.3 appears, depending on your area of operation.

   ![User Management Menu]

   **Figure 8.3 User Management menu**

3. To access a module, use the arrow keys to highlight the desired module and press the Enter key.

   Anytime you exit a menu to return to normal operating mode, you are asked if you want to save any changes that have been made. You can choose Yes, No, or Cancel. Choose Yes to save changes, choose No to disregard any changes made while in the menu or press Cancel to stay in the menu.

   The one exception to this is the Time and Date window. When you accept a new setting for time and date, that change takes place immediately and is unaffected by the Yes, No, Cancel choice.

   Each module is explained in the following sections.

   The screen is touch sensitive. When instructions state to select an item, use the up or down arrow to highlight that item and press the Enter key.
8.2 Overview of the Modules in the User Management Menu

When you access the User Management menu, there are four modules in this menu for operation in the United States. Below is a brief overview of each module followed by in-depth information on each.

**User Settings**
The User Settings module allows you to set the date and time, set the display contrast, set the speaker volume, set the keyboard repeat rate, view the phone number for a service contact and see the seal switch status. See User Settings Module on page 36 for full instructions.

**About ZM710**
The About ZM710 module lets you view part number and software version information about the ZM710. See About ZM710 Module on page 38 for full details.

**Audit Trail**
The Audit Trail module lets you choose to see the Audit Trail Viewer and the Audit Counter Viewer.

The Audit Trail Viewer displays the number of times the scale has been configured and the details of these configurations. This information may be useful when communicating with authorized service personnel or weighing certification inspectors. Use the scroll bars and up or down arrow keys to view all the data. This list cannot be changed or deleted. See Audit Trail Module on page 38 for full details.

The Audit Counter Viewer shows the number of calibrations the instrument has experienced and the date and time of the last calibration change.

**Database Viewer**
The Database Viewer module displays the database and all stored transactions that have occurred. The user cannot change any information in the database. See Database Viewer Module on page 42 for full details.
8.3 User Settings Module

Use the steps in Accessing the Menus and Modules on page 33 to access the User Settings module.

When you access this module, you will see the screen shown in Figure 8.4.

![Figure 8.4 Items in the User Settings module](image)

Each item in this module is explained below.

8.3.1 Date and Time

Select Date and Time and the display in Figure 8.5 appears.

![Figure 8.5 Date and Time entry screen](image)

Press the hour to highlight it, then click the left or right arrow to decrease or increase the value. Repeat for minutes. Time is always set as military time (24 hour) but displayed on the main screen as 12 or 24 hour clock time, depending on configuration.

Press on the screen and set the current date. You can click on the month and a drop down list appears. Click on the current month. See Figure 8.6.
You can also click on the year and increase or decrease the value with the small arrows which appear. If you click on the year and have an attached USB keyboard, you can type in the year directly on the keyboard and press the Enter key on your keyboard to accept the value.

Click the left or right arrows at the top of the calendar page to scroll month by month.

Click on the current day of the month.

An X in the Display on Weight Screen box means the time and date will appear on the operator mode screen. Press the box to remove the X if you don’t want time and date shown.

Press OK to accept the date and time and return to the main menu.

### 8.3.2 Speaker Volume

Select this item to set the speaker volume in the instrument. A slider bar appears. See Figure 8.7.

![Volume slider bar](image)

Click and drag the slider button to move it left or right to increase or decrease the volume. A tone will sound with each step of the slider to indicate the sound level for that setting. Click OK to accept and return to the previous screen.

### 8.3.3 View Service Contact

Select this item to see contact information for your service provider. This can be changed in a password protected menu. Contact your service provider for information.

Press OK to return to the main menu.

Press the Esc key in the User Settings screen to return to the User Management menu. Pick another module or press Esc to return to the default startup screen. If you press ESC, you will be asked if you want to save changes. Choose Yes to save changes and return to the main screen, choose No to return to the main screen without saving the changes or press Cancel to return to the menu screen.
8.4 About ZM710 Module

1. Use the steps in Accessing the Menus and Modules on page 33 to access the About ZM710 module.

2. When you choose About ZM710, a display similar to the one shown in Figure 8.8 appears.

   ![Figure 8.8 About ZM710 screen](image)

   This display shows you the Avery Weigh-Tronix company name, the model number, the part number, the version of software in the instrument, etc.

3. Press OK to return to the User Management menu.

   Pick another module or press Esc to return to the default startup screen. If you press ESC, you will be asked if you want to save changes. Choose Yes to save changes and return to the main screen, choose No to return to the main screen without saving the changes or press Cancel to return to the menu screen.

8.5 Audit Trail Module

Use the steps in Accessing the Menus and Modules on page 33 to access the Audit Trail module.

When you access this module, you will see the two choices shown below in Figure 8.9.

   ![Figure 8.9 Audit Trail choices](image)

Choose Audit Trail Viewer or Audit Counter Viewer.
If you choose **Audit Trail Viewer**, a screen similar to the one in Figure 8.10 appears.

![Audit Trail screen](image)

**Figure 8.10 Audit Trail screen**

This lists the record ID, date and time, parameter and old and new values of changes that have been made to the instrument.

Press and drag the scroll bars or press the **Page UP** and **Page Down** keys to move left/right/up/down through the information.

Press the **Print** key to print the record to a connected peripheral device. See the information in *Print Output from Audit Trail Screen on page 40* for serial output format.

If you choose **Audit Count Viewer**, a screen similar to the one in Figure 8.11 appears.

![Audit Count Viewer screen](image)

**Figure 8.11 Audit Count Viewer screen**

This lists the number of calibrations the instrument has experienced and the last date and time of the calibration.
8.5.1 Print Output from Audit Trail Screen

If you press the Print key in the Audit Trail screen, and if output is configured for comma delimited output, the serial output string is in this format:

RecordID,Date,ParameterID,OldValue,NewValue

\r = Carriage return
\n = Line feed

Here is a sample report:

Record Number: 32, 05/13/08 11:48AM, SOFTWARE VERSION, 0.0.56.1, 0.0.58.0
Record Number: 31, 05/13/08 11:45AM, SOFTWARE VERSION, 0.0.57.2, 0.0.56.1
Record Number: 30, 05/13/08 11:05AM, FLJ 100 Serial Number, 0, 987987987
Record Number: 29, 05/13/08 11:05AM, SOFTWARE VERSION, 0.0.56.1, 0.0.57.2
Record Number: 28, 05/13/08 10:54AM, SOFTWARE VERSION, 0.0.57.2, 0.0.56.1
Record Number: 27, 05/12/08 03:05PM, Scale.OutputCounts3, -2500, 0
Record Number: 26, 05/12/08 03:05PM, Scale.OutputCounts2, -2500, 0
Record Number: 25, 05/12/08 03:05PM, Scale.OutputCounts1, -2500, 0
Record Number: 24, 05/12/08 02:22PM, SOFTWARE VERSION, 0.0.56.1, 0.0.57.2
Record Number: 23, 05/06/08 12:30AM, SOFTWARE VERSION, 0.0.55.0, 0.0.56.1
Record Number: 22, 05/01/08 03:24PM, Scale.OutputCounts3, -2500, 0
Record Number: 21, 05/01/08 03:24PM, Scale.OutputCounts2, -2500, 0
If output is not configured as comma delimited, the serial output is in this format:

"Audit Trail Report\r\n"
"==================\r\n"
"\r\n"

Each record would be output as shown below:

"Record Number:  \r\n"
"ParameterID   \r\n"
"Date:        \r\n"
"Time:        \r\n"
"Old Value:    \r\n"
"New Value:    \r\n"
"\r\n"

\r = Carriage return
\n = Line feed

Here is a sample of the non-comma delimited output:

Audit Trail Report
==================

Record Number: 32
SOFTWARE VERSION
Date: 05/13/08
Time: 11:48AM
Old Value: 0.0.56.1
New Value: 0.0.58.0

Record Number: 31
SOFTWARE VERSION
Date: 05/13/08
Time: 11:45AM
Old Value: 0.0.57.2
New Value: 0.0.56.1

Press Esc or Enter to exit the Audit Trail screen and return to the USER MANAGEMENT screen.

Pick another module or press Esc to return to the default startup screen. If you press ESC, you will be asked if you want to save changes. Choose Yes to save changes and return to the main screen, choose No to return to the main screen without saving the changes or press Cancel to return to the menu screen.
8.6 Database Viewer Module

Use the steps in Accessing the Menus and Modules on page 33 to access the 
Database Viewer module.

When you access this module, you will see the information currently stored in the 
database. A sample screen for the database is shown in Figure 8.12.

![Database Viewer screen](image)

**Figure 8.12 Database Viewer screen**

Use the keys to:

- **Esc** Press Esc to return to previous screen
- **Find** Press Find to bring up a text search dialog box
- **Print** Press Print to print the database to a connected peripheral. See 
  the information in Print Output from Database Viewer on page 43 
  for serial output format.
- **Page Up** Press Page Up to move the highlight bar up the database list
- **Go To** Press Go To to access a particular record number. This is 
  convenient for moving quickly through a large database.
- **Page Down** Press Page Down to move the highlight bar down the database 
  list.

After you press ESC, pick another module or press Esc to return to the main screen. If 
you press ESC, you will be asked if you want to save changes. Choose Yes to save 
changes and return to the main screen, choose No to return to the main screen without 
saving the changes or press Cancel to return to the menu screen.
8.6.1 Print Output from Database Viewer

If you press the Print key in the Database Viewer screen, and if output is configured for comma delimited output, the serial output string is in this format:

"Database Report\n"
"==================================\n"
"r\n"

{
"ID: \n"
"ProNumber: \n"
"RecordType: \n"
"ScaleID: \n"
"CarriageID: \n"
"SiteID: \n"
"ForkLiftID: \n"
"EmployeeID: \n"
"Length: \n"
"Width: \n"
"Height: \n"
"User1: \n"
"User2: \n"
"User3: \n"
"User4: \n"
"User5: \n"
"User6: \n"
"TareDescription: \n"
"UnitOfMeasure: \n"
"Date: \n"
"Gross: \n"
"Tare: \n"
"Net: \n"
"\n"
} 
"==================================\n"
\r = Carriage return
\n = Line feed
Here is a sample report:

==================
Database Report
==================

ID: 1
ProNumber: 1
RecordType: 0
ScaleID: 0
CarriageID: 0
SiteID: 0
ForkLiftID: 0
EmployeeID: 111
Length: 0
Width: 0
Height: 0
User1: 0
User2: 2
User3: 0
User4: 0
User5: 0
User6: 0
TareDescription:
UnitOfMeasure: lb
Date: 01/29/01
Gross: 500
Tare: 0
Net: 500
9 Available Options

Figure 9.1 shows the available options for the ZM710. Following is a brief description of each.

9.1 FLW 100 Wireless Carriage

The FLW 100 wireless carriage option eliminates the interface cable between the carriage and the ZM710 instrument. The component parts are shown in Figure 9.2.

If your system uses the FLW 100 option, be sure to charge the battery pack for 6-7 hours before using.

Figure 9.3 RM 310 radio
9.2 Bar Code Scanners

You can attach an optional bar code scanner to the ZM710. Figure 9.4 shows two styles.

![Bar Code Scanners](image1.png)

Figure 9.4 Bar code scanners

9.3 FLP 100 Power Conditioner

The FLP 100 power conditioner takes voltages between 24 and 72 volts, usually found on battery powered forklifts, and brings the voltage down to a level usable by the ZM710, between 12 and 36 volts. See Figure 9.5.

![FLP 100 Power Conditioner](image2.png)

Figure 9.5 FLP 100 power conditioner
Daily Inspection Checklist for Forklift Scale

This list covers wired, wireless, digital and analog carriages.

**Mechanical**

- Check scale carriage for loose, worn, bent, broken or missing components.
- Inspect forks for damage.
- Check locking pins on forks for proper function.
- Make sure wire egress and junction box guards on digital carriage are fastened properly.
- Make sure junction box cover on analog scale is in place with all fasteners.
- Check center pin located on top of back carriage for wear. Replace if edges are worn, bent, broken or missing.
- Check that the fastener(s) for the center pin is in place.
- Check clamp fasteners at the bottom of scale carriage.
- Check Weigh Bar fasteners on back of scale carriage.
- Make sure instrument mounting is secure.
- Check instrument isolation mounts are not loose or cracked.
- Check and adjust the forklift chain so the heels of the forks have 1/2" to 1" of clearance from the floor when the carriage is down and the mast is vertical.

**Electrical**

- Make sure the power cable to the instrument is routed and fastened out of harms way.
- Tighten all cable connections at the instrument.
- Inspect that all cable clamps and cable ties are secure.
- Inspect the power cable to the instrument for nicks, cuts or wear.
- Remove excess and reconnect the retractile cable between the scale and instrument if it is stretched.
- Check that the instrument is active with applied power.
- Make sure cable connections from any peripheral devices are tight.

**Scale System**

- Check battery pack charge for wireless scale carriage to instrument.
- Make sure the instrument will show zero weight with forks raised, empty and upon pressing the **ZERO** key.
- Apply a load to the scale to make sure the instrument is receiving a weight value from the scale carriage.