

# **CMI FORKLIFT SCALE**

## **Operator's Manual**



**PART #FS-111A**

**PART #FS-111A-PRT (with printer)**





## **FORKLIFT USER'S MANUAL**

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## CHAPTER 1:

### WHAT'S IN THE BOX

*Standard option #1*



**#1. FS-TS-SGD-43A-** 4.3-A Touchscreen Scale Display

**#2. PT-5K-G-14M-4-2-M12-4-** Pressure Transducer

**#3. FS-RAM GSKT-** RAM Ball Mount

**#4. DISP-MNT-RAM-247U-3-** RAM Clamp Base with ball.

**#5. RAM-B-201U-** Double socket arm

**#6. FS-PRINTCBL-** Cable ASS'Y M12P,Fem socket x wire leads, 9.84FT

**#7. Fuse tap/ 2A Fuse** (Included)

**#8. FS-PT-CBL-M12-6.6FT-** CBL 4POS female to male 6.56 printer cable

*Option #2– Added products*



**#9. FS-PRINTER-** Printer

**#10. FS-PT-CBL-M12-6.6FT-** CBL 4POS female to male 6.56 printer cable. Made up from the USB cord and the Barrel connector that comes with the printer.

## CHAPTER 2: Installation

**Step 1:** Install the RAM clamp Base with ball and screws provided in your kit, onto the right side of the cage of the forklift. Using a 5/16 Allen key to tighten the screws.



- Take the double socket arm and clamp onto the RAM Clamp Base with ball and then clamp onto the ball mount that is on the display.

**Note:** Ensure your display is secure on the double socket arm, tighten the T-handle on top of the arm to tighten.



- Mount one end of the double socket arm to the rear of the display housing and the other end to the flanged base (shown).



### Tools required:

- Wire crimper 16-14 AWG.
- Zip ties to fasten wires.
- Wrenches and Sockets.
- Side cutters/ wire cutters.
- 1/8 Drill bit and Drill.
- 5/16 Allen key.
- Velcro strips for the printer.
- Teflon thread sealant tape for



## CONNECT POWER SOURCE

\*For ICE (LPG, gasoline) forklifts only. For electric units, please have a qualified service technician install

*(High voltage safety concerns)*

**Step 1:** In the fuse box of the forklift, find a power source capable of powering the forklift scale display (minimum 5A). Preferably a switched power source, which is inactive when forklift key is turned off.

- Check the fuse box map— do not use fuses that related to engine management, starter, controls of the forklift or lighting.
- CMI recommends using fuse slot for the gauge cluster

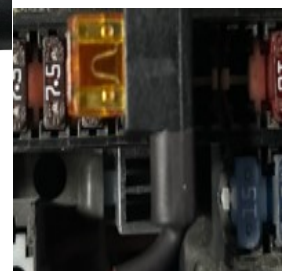
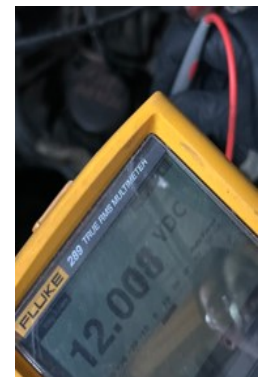
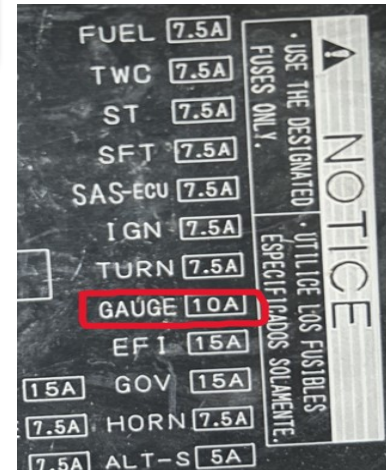
**Step 2:** Remove original fuse with fuse puller or needle nose pliers

- To prevent draining the forklift battery, please use a fuse slot that is disconnected from power by turning the ignition key off.

- **Step 3:** To ensure power is disconnected on your fuse slot choice, use a voltmeter or test light, touch the negative terminal to a un-painted metal surface on the forklift. Turn the key on, the voltmeter or test light will detect power and no power when the key is off.
- Test connection to make sure the forklift scale display functions.

- **Step 4:** Insert the the 2 amp fuse (for forklift display) on top slot of the fuse tap (red ) and the original fuse from the slot will go on the bottom. (orange)
- Plug the fuse tap in and ensure the forklift scale display powers up.

- **Step 5:** (If required) - drill hole for power cable—running to forklift display.
- Feed the fuse tap wire through the hole of the cover.



- **Step 6:** Route wires from the fuse box to your display, away from hot surfaces. Ensure it's not in the way of any hinges, sharp edges or anywhere it can be damaged.



- Step 7:** Find a bolt on the body of the forklift where you can ground the negative wire. Attach a spade or ring terminal to the black wire on the **FS-PRINTCBL** harness. (refer to pg. #7)

**Note:** It is recommended to use cable wrap to protect the wires. Especially if the wires are near a hot surface or will be subjected to abrasion or wear.



## Installing Pressure Transducer

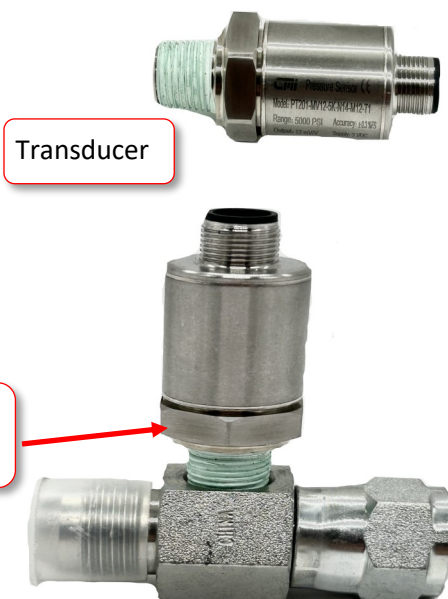
- Step 1:** Locate the hydraulic hose on the forklift that raises the forks. This will typically be near the bottom of the main mast cylinder(s). Determine line size/ connection type (JIC or ORB)



- Step 2:** Install a tee or gauge port fitting connector (matching hose/ connection size/ type) inline with the hydraulic hose.

- Step 3:** Thread the pressure transducer into the connection that is perpendicular to the flow through the hose. Ensure a high quality Teflon tape is applied to the male threads of the transducer. Tighten using the hex on the transducer—DO NOT apply force to the cylindrical shell above this.

**Note:** Be prepared to capture/ absorb leaked hydraulic fluid during this step.



**Note:** Please refer back to “WHAT’S IN THE BOX” and Pg. #4 for the cables that are shown below and the fuse box picture.

#### FS-PRINCBL

- Runs down into the fuse box.

#### FS-PT-CBL-M12-6.6FT

- 5 pin cable that runs down to the printers “COM Port” and to the “Power Port” (9V).

**Note:** You will have to solder the USB and the barrel connector to the 5 pin wire.

#### FS-PT-CBL-M12-6.6FT

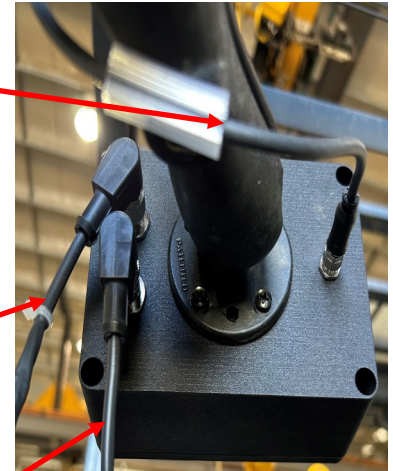
- 3 pin wire runs down to the pressure meter on the forklift.



(“COM Port”)

(“Power Port 9V”)

- Pressure meter, that the 3 pin wire will run down to.



- You will want to install the printer at the front and on the right side of your forklift, as your display will be positioned there already.
- Install Velcro strips on your forklift and on the bottom of the printer so that you can secure the printer in place.



Once you have your wires in place and hooked up, gather them up neatly and secure them with large zip ties.



## CHAPTER 3:

### Specifications:

#### 2.1 Scale Description:

- **Touchscreen** - 4.3" touch screen.
- **Resolution** - 480 x 272px.
- **Supply** - 5 to 30V d.c. (300mA typical at 5V d.c.)
- **Outside dimensions** - 144.78 (5.70) x 104.65 (4.12) x 77.22 (3.04) mm (in).

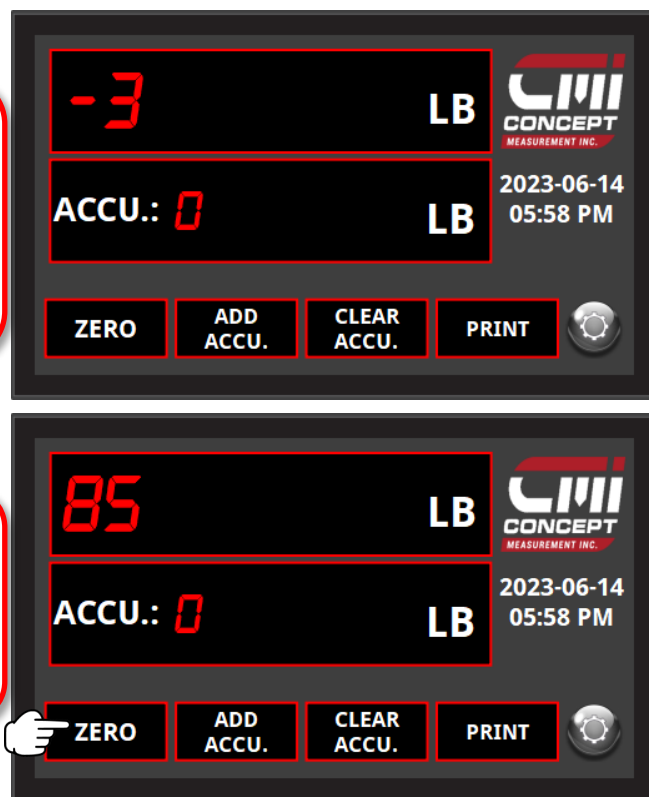
#### 2.2 Key Operation:

##### POWER:

- When you start the forklift the scale should also turn on. When you turn the forklift off the scale will turn off.

##### ZERO:

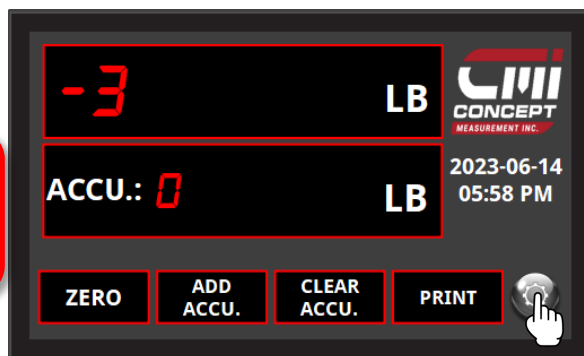
- Before picking up any load lift the forks up 1ft off the floor and then press "ZERO".



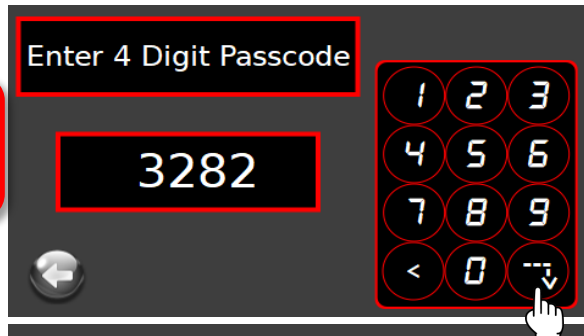


## SETUP

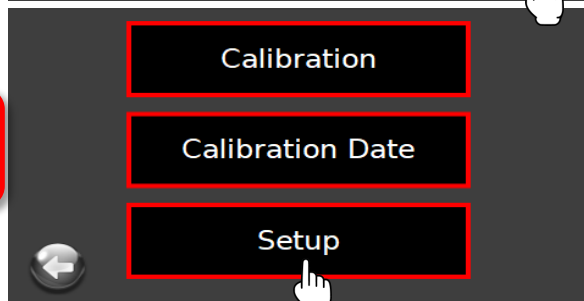
- If you need to switch units over you will press the “Settings” button to the far right.



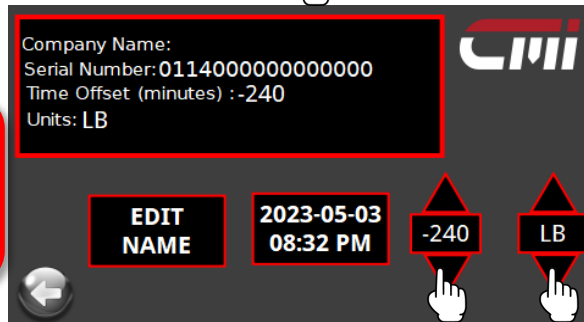
- You will enter the factory password “3282” and hit enter.



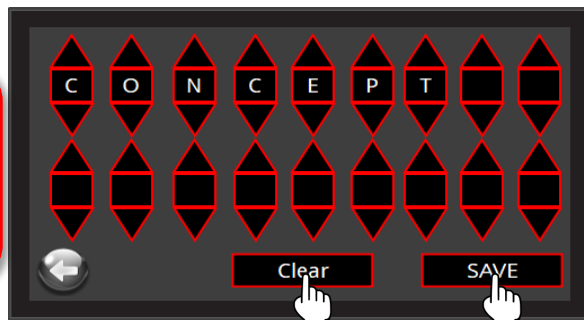
- Select “Set up.”



- You can use the arrow keys to switch over the units, and change the time offset, the offset is in minutes.



- Select “Edit Name”, you will be able to edit the name using the arrow keys, the name will appear on the printer tape. Press “Clear” to clear the value, or “SAVE” to save the selection.





## 2.3 OPERATING FORKLIFT SCALE

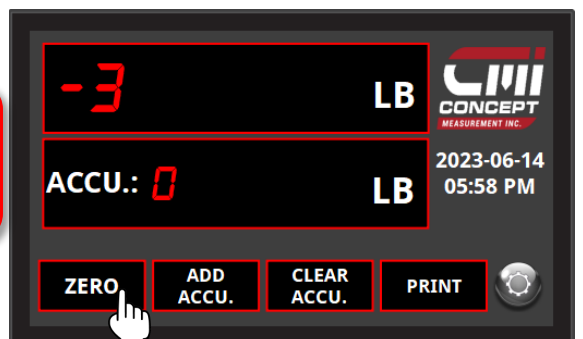
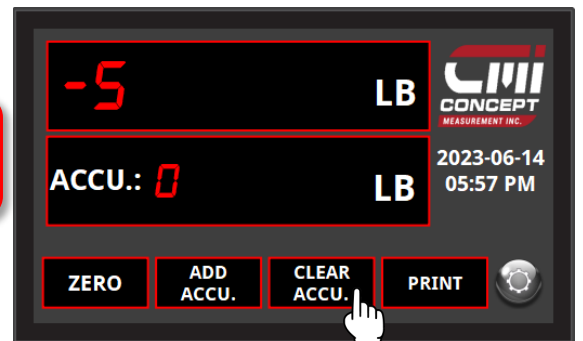
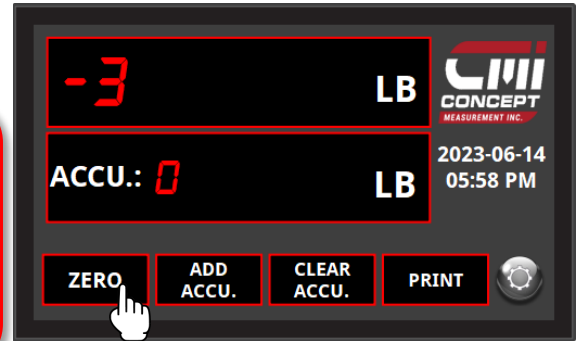
- Before lifting any load have the forks 1 FT off the floor and then press “ZERO.”
  - When weighing loads, please take the weight reading at the same location (1 ft from floor). Consistency with the calibration location will improve accuracy.
- When picking up a load for calibration, ensure the load is as close to the mast as possible.

- Lift the load up—wait for 5 seconds, then take your reading, you can also press “ADD ACCU.” which increases the cumulative weight reading.
- **Note:** It is important to take your measurements or press the “ADD ACCU.” button right at 5 seconds for best accuracy.

- After weighing objects press the “PRINT” button on the display, after first ensuring the printer is powered ON (BLUE LEDs).

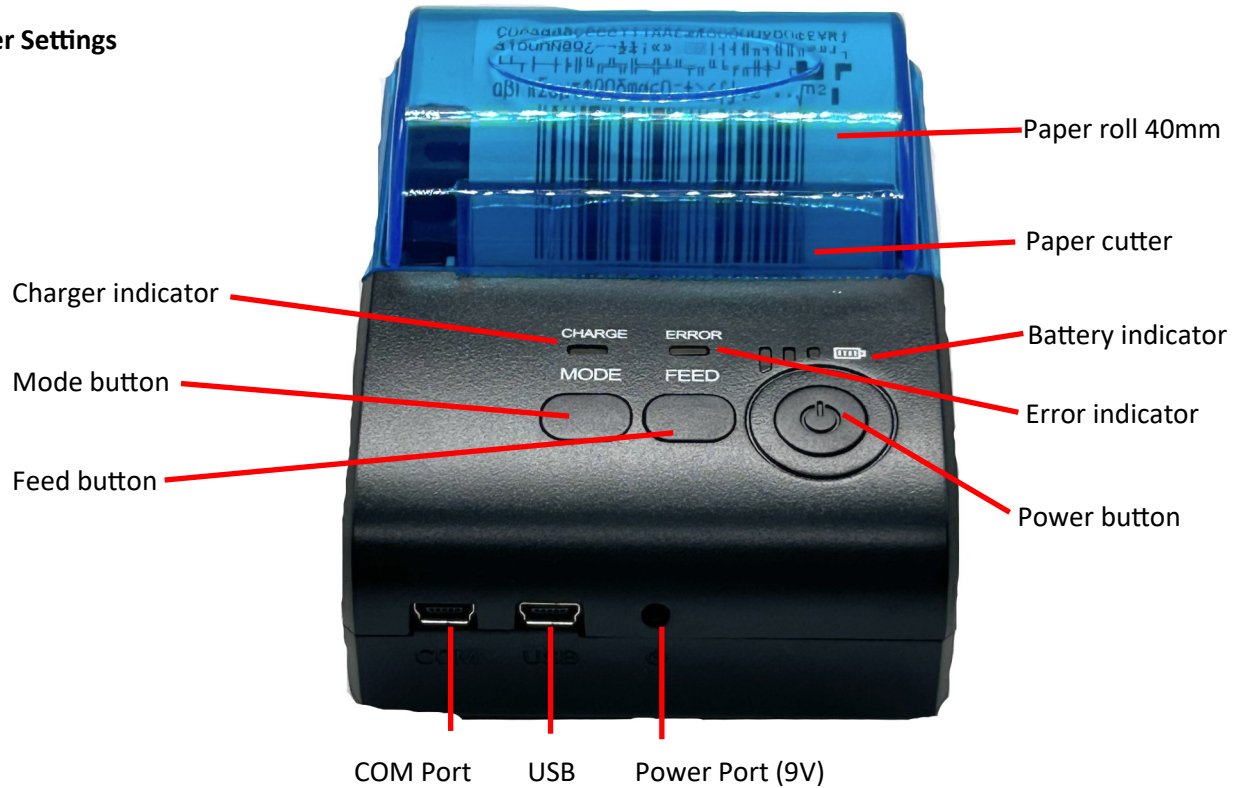
- Pressing “CLEAR ACCU.” will clear the cumulative weight value and allow for another cumulative weight measurement.

- Remove the load from the forklift and raise the forks 1ft above the floor, reset the scale display back to “ZERO” before lifting and weighing the next load.



## CHAPTER 4:

### Printer Settings



**Note:** When the printer is charging it will show a red light on the charger indicator. And when fully charged, a blue light is present.

- To turn on, hold the “POWER” button down for 3 seconds until battery indicator LEDs are lit.
- To print the receipts, wait for printer to fully power on before pressing PRINT on the forklift scale display.





### 2.1 Printer receipt:

CONCEPT  
2023-06-15  
04:39 PM  
SERIAL# 2522000201000  
BF3

|                    |   |                       |
|--------------------|---|-----------------------|
| CURRENT WT: 1935LB | ← | Current weight        |
| TOTAL WT: 3879LB   | ← | Total weight          |
| ACCU. 1 1944 LB    | ← | Accumulated weight #1 |
| ACCU. 2 1935 LB    | ← | Accumulated weight #2 |

**Note:** When you print out your receipt after you are done weighing your objects it should have the same format as the above picture.

- Your total weight is calculated from both of your “Accumulated” amounts.
- The clock and company name can be adjusted from the setup page.

### 2.2 Printer Operations:

- Press the (FEED) button to feed/dispense more paper through the printer.
- To self print test, turn the printer “Off” and then hold down the (FEED) button and press the “POWER” at the same time. Wait 2 seconds and release the (FEED) button, the current setting will be printed out.

### 2.3 Specifications:

- Speed - ≤90mm/sec
- Resolution - 203DPI (8dot/mm)
- Printing Width - 48mm (384dot)
- Roll Diameter - 40mm
- Paper Type -Thermal paper
- Battery - 7.4 VDC, 1500mAh
- Charging Mode -DC 9V/1.5A



## CHAPTER 5:

### CALIBRATION:

Before beginning, please obtain reference weights that have been measured/ weighed with a trusted (known to be accurate scale). The accuracy of this forklift scale will be a direct reflection of the accuracy of the weights used for calibration. It would be beneficial to have one weight that is equal or exceeding the maximum weight you anticipate lifting/ weighing. While this system can accommodate a maximum of 4 calibration weights, we recommend a minimum of 2 weights be used for this process.

**Step 1:** Press the settings button and enter 3282 as your password and proceed to calibration page.

**Tip:** Try to do the calibration as efficiently as possible, extended delays between steps will reduce the accuracy of the scale. Please do not sacrifice safety during this process, just work efficiently (do not take a coffee break in the midst of this process). Every button should be pressed for a minimum of 1 second to ensure that it registers a press.

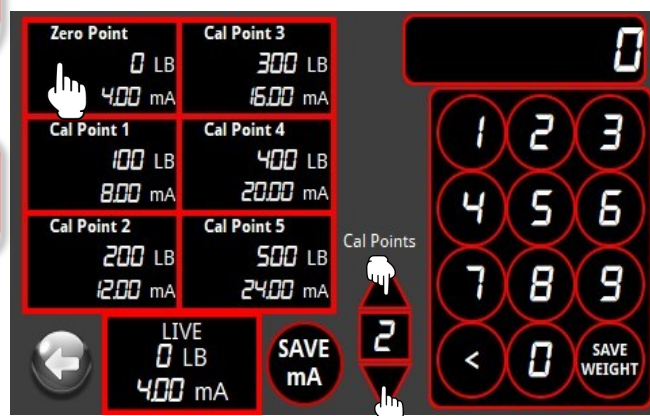
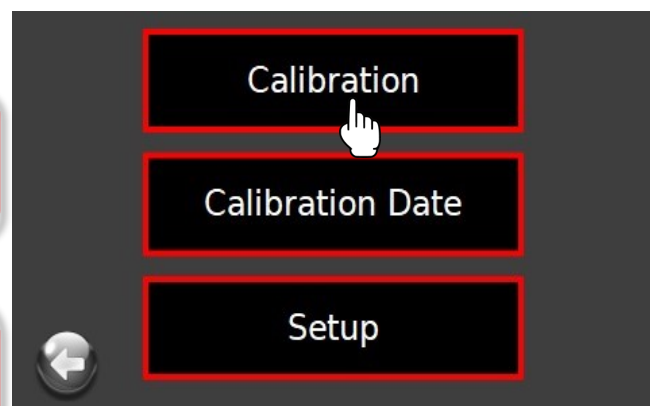
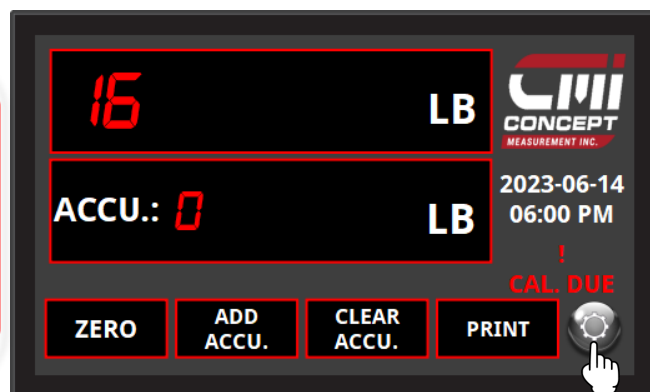
**DO NOT exceed maximum load rating of your forklift.**

- Forklift must be calibrated annually.

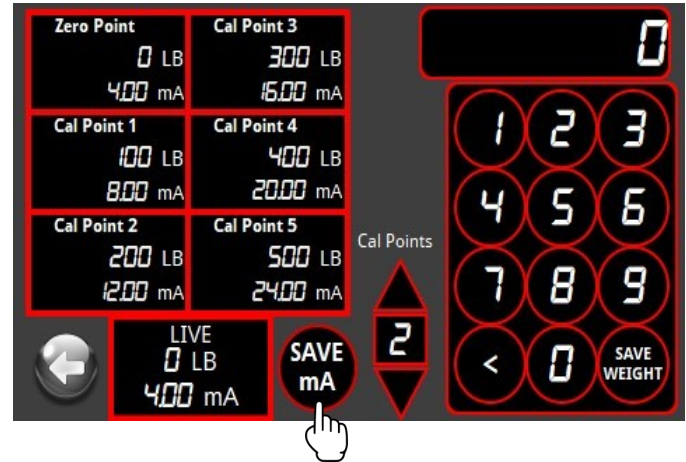
**Step 2:** Determine the quantity of calibration weights and the weight of each on hand. Press the “Calibration” button to proceed.

**Step 3:** Press the arrows on the “Cal Point” location, to enter the quantity of calibration weights you will be using. Always add an additional Cal Point– for the Zero Point measurement. If you have 3 calibration weights—enter “4” as your value here.

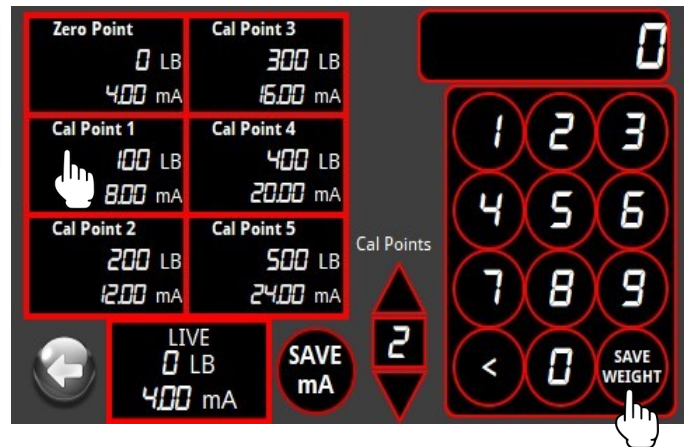
**Step 4:** Press “Zero Point”, it will tell you to have your forks off the ground touch the message and it will clear.



**Step 5:** Record Zero Point—Lift the forks 1ft of the floor.  
Press “save mA” - to record the value for this Zero Point.



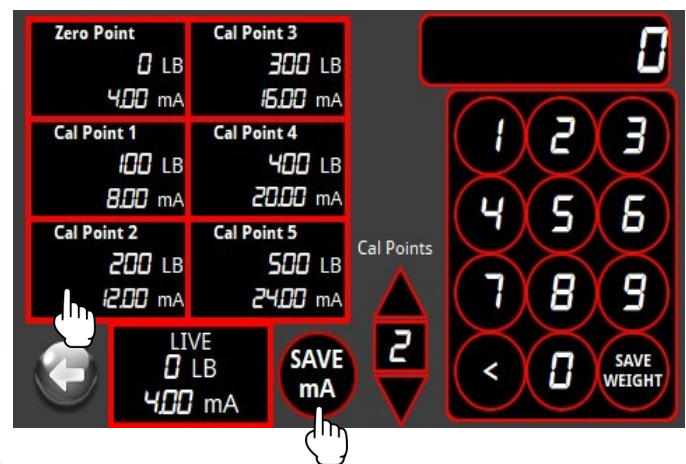
**Step 6:** Press “CAL point 1” and enter the weight of the first calibration weight (the lightest of the group). Then press “save weight”. Once you have saved the weight it will return to zero.



**Step 7:** Load (fully inserted/ close to mast) and lift the first calibration weight 1ft from floor and stop—wait 5 seconds, at the 5th second - press “save mA”.

**Step 8:** Move on to the next heaviest calibration weight (calibrate in an ascending weight order—start with lightest—end with heaviest). Proceed to the next CAL point (Cal point 2). Type the (calibration) weight into the keypad and press “save weight”, once you have saved the weight it will return back to zero.

Lift the weight up 1ft and stop, then wait 5 seconds and press “save mA”.



**Step 9:** Repeat Step 8 for all remaining Cal Points/ Cal weights.

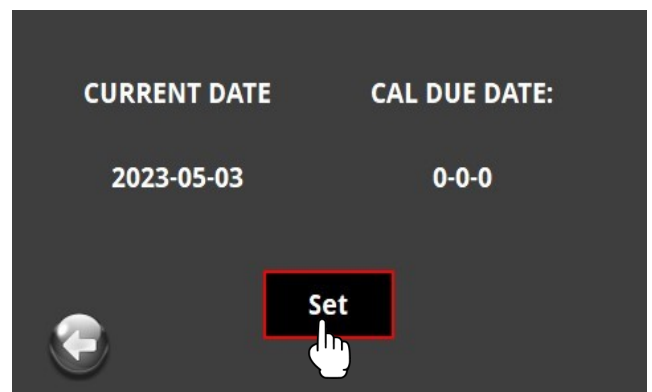
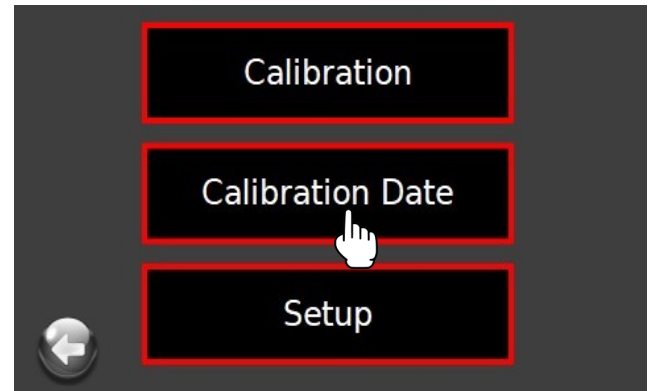
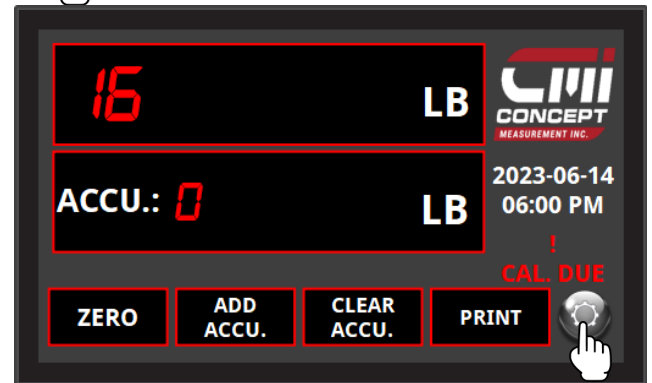
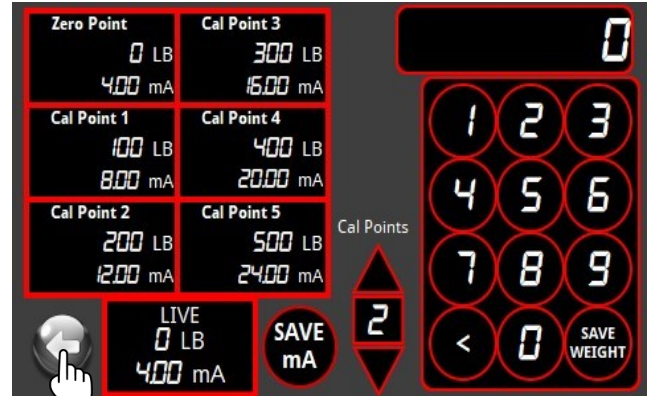


**Step 9:** After all calibration points and weights have been recorded, reset the calibration date.

*Press the back arrow to return to main screen, and press "settings" again.*

- Press "Calibration Date".

Set the current date (when calibration was completed) and press "Set".





## Notes and Troubleshooting

- Take care to install and protect wires from pinching, friction or other possibly damaging mounting locations. Avoid routing wires near or against any surface heated from forklift engine.
- Try not to exceed the maximum ratings, otherwise the unit maybe permanently damaged.
- Be sure to protect the printer from moisture, it is not water resistant.
- Each load that you weigh make sure you "ZERO" it out before starting.
- For safety reasons, make sure not to tap power from a fuse that is crucial for the operation of the forklift, Engine Management, ECU, Fuel Injection, Starter, any external lighting, controls related to the operation of the forklift, or any other computer on the forklift. It is recommended for you to find a fuse for the gauge cluster to tap into. The power must be 12V. Consult CMI for connection to higher voltage electric forklifts.
- This scale should be kept away from strong magnetic fields, corrosive substances, flammable and explosive materials.
- When using or moving your scale, avoid drops and hits against hard surfaces, as they could result in damage to the display, housing or electronic components. Ensure it is properly mounted to your lift.
- Basic maintenance such as keeping the housing, hardware, screen, and keypad as clean as possible will contribute to better and longer use of your scale.
- For any problem or malfunction and for maintenance and calibration, please contact CMI. Do not attempt to repair the scale yourself.

### **Problem**

Forklift scale display doesn't power on

If calibration is unsuccessful

Printer does not turn on

Printer is charged but still will not power on

### **Solutions**

Check the fuse box as there might be a blown fuse. Check wires and connections with a test light, to confirm power is reaching the display.

Go back to beginning of steps and make sure you have not missed a step.

If there are red lights on the battery indicator that means it is dead. You will have to charge it and wait till there are blue lights which means charged.

The printer probably has dirt or dust inside of the power button. Clean around the button to remove dirt and debris.



## LIMITED WARRANTY:

CMI warrants their products against manufacture defects, faulty design, material, and workmanship for the periods listed below. The warranty starts on the delivery date to the retail owner and is non-transferable.

### WARRANTY PERIOD:

From the delivery of the product to the original user of CMI products - 12 months on all components against manufacture defects.

### WARRANTY SERVICE:

All new CMI products are warranted to be free from defects in material and workmanship, which may cause failure under normal usage and service when used for the purpose intended. The CMI warranty covers faulty workmanship and defective parts manufactured by CMI. The warranty does not extend to transportation cost of parts, nor does it cover consequential loss. CMI products must be operated in accordance with the recommended procedures and within the ranges as specified in the Operating Manual.

Any claims under this warranty must be made within fourteen (30) days after the buyer learns of the facts upon which claim is based. All claims not made in writing and not received by CMI within the time specified above may be deemed waived. CMI will not be responsible for nor accept any charges for work carried out by out of house repairs, or for charges for spare parts fitted to any CMI products without written approval from CMI.

CMI's liability on all losses and damages to buyer resulting from any cause whatsoever, including CMI negligence irrespective of whether such defects are discoverable or latent, shall in no event exceed the purchase price of the parts, with respect to which losses or damages are claimed, or, at the discretion of CMI.

### VOID WARRANTY:

This warranty is void if field repairs or modifications have been made to the CMI product without prior written approval. The complete unit must be available for inspection in its original but alleged failed condition. This warranty does not apply to normal wear or to damage resulting from accident, abnormal use, abuse, or neglect.

CMI makes no other warranty. All other warranties, whether expressed or implied, such as warranties of

Merchantability or fitness for a particular purpose, are hereby excluded and disclaimed to the extent that they exceed the warranties expressly granted in this limited warranty. In no event shall CMI be liable for consequential or incidental damages.

### RETURNED GOODS POLICY

CMI reserves the right to determine whether products claimed to be defective shall be inspected when returned to the factory. If judged by CMI to be defective in material or workmanship, the product will be replaced, or a credit issued at the option of CMI.

Upon notification of defect, CMI warranty department will issue a Return Materials Authorization (RMA) number. All returns for replacement or credit MUST be accompanied by an RMA number. Products returned without an RMA number will be rejected and returned to the sender freight collect. All returns must be shipped "prepaid". Products shipped "collect" will be refused. Proof of purchase, such as an invoice number, must accompany returns.

All RMA's must be returned within to CMI within 7 days of the request.