

# **INSTRUCTION MANUAL**

**For**

# **Downloading F-Meter<sup>®</sup>**

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Software for the Meter Downloads are on our web site	
Go to <a href="http://www.allenface.com">www.allenface.com</a>	
Find Meter Downloads Tab	
Read Disclaimer	
Open Zip File & Extract	
Run Software Installer	
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# **I. BATTERY CHARGING, RE-CALIBRATION, & MAINTENANCE**

## **A. Charging the Li-ion Battery Pack**

To charge / recharge the F-Meter's internal Li-ion battery pack, plug the charger body into a 115 volt grounded outlet and plug the charger lead into the socket (located behind the swivel door marked "Charger Socket") on the backside of the unit. Full recharging of an empty battery pack (indicated by a green light on charger) should take no more than six (5) hours.

## **B. Li-ion Battery Pack Performance**

- Li-ion battery packs are easily maintained and do not require discharging like the old ni-cad batteries.

## **C. Re-Calibration Requirements**

The F-Meter's calibration is set at the factory and cannot be changed by the operator. Unless the unit is dropped or otherwise obviously damaged, the factory calibration should remain constant well beyond the annual re-calibration period.

Every F-Meter must be returned annually to the factory for re-furbishing and re-calibration. (There is a nominal charge for this service.) The required return date is displayed on the F-Meter screen every time the unit is turned on. Normal turn-around time for re-furbishment and re-calibration is one-week (excluding transit time), and replacement units may be borrowed at no extra cost, if requested at least two-weeks in advance (freight both ways to be paid by borrower).

Undamaged F-Meters in current calibration are fully warranted indefinitely for both parts and labor.

## **D. Routine Maintenance**

1. Use Windex and a soft cloth to clean all exterior surfaces. NEVER use any organic solvent to clean the unit.
2. The wheel axles, bar and side plate fasteners, odometer wheel buttons, and towing eye are all ferrous. Oil these parts occasionally to prevent rust formation. All other exposed parts are either plastic, stainless steel, or aluminum, and thus require no maintenance other than routine cleaning.
3. For the F-Meter software to work properly the round carbide contacts mounted at the bottom of the right front and floppy arm sensor "wheels" must remain fixed in their factory calibrated position. Lateral setscrews prevent both these "wheels" from rotating. The position of the carbide contacts should be examined periodically. If it appears that either one has moved, the unit should be returned immediately to the factory for re-calibration.

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**Warning!** The F-Meter is a sealed unit. NEVER attempt to remove the side plates!

**!!! IRREPARABLE ELECTRONIC DAMAGE WILL OCCUR !!!**

\*\*\*\*\*

**Warning!** NEVER immerse the unit.  
NEVER run the unit through standing water.  
NEVER expose the unit to steady rain.

**!!! IRREPARABLE ELECTRONIC DAMAGE WILL OCCUR !!!**

**Warning!** All liabilities attendant to the use of any F-Meter shall reside entirely with the user. AF&C does not warrant the accuracy or adequacy of any of the information provided by the F-Meter and will not be liable for any damages suffered as a consequence of any use thereof or reliance thereupon by any party.

\*\*\*\*\*

4. If the unit "hangs-up", and the display can not be returned to the "<OFF>" screen by pressing the <STOP/ESC> key, reset the entire system by pressing POWER <OFF> then POWER <ON>.
5. Questionable or troublesome units should be returned immediately to the factory for inspection and repair along with a note describing the problem(s) in detail.
6. After removing the manual and download cables from the F-Meter case, return units requiring service to:

**ALLEN FACE & COMPANY, LLC**  
2725 Old Wrightsboro Road (12 - 5)  
Wilmington, North Carolina 28405

Tel: **(910) 763-4501**  
Fax: **(910) 763-4502**

\*\*\*\*\*

**Note :** Please include your business card (or other identifying note) inside the case along with specific instructions regarding billing and return shipment. Unless arranged otherwise, return shipment will be sent UPS Ground.

\*\*\*\*\*

## II. SETTING-UP THE DOWNLOAD SOFTWARE

Open you Internet browser.

- 1- Go to [www.allenface.com](http://www.allenface.com) (HOMEPAGE) Or Use Disc Provided With Rentals
- 2- Click on the tab **Meter Downloads**
- 3- Read disclaimer and scroll to the bottom of page and click on download zip file
- 4- Check open or save then ok
- 5- Next extract the files
- 6- The extraction wizard will open click next
- 7- Click next to show destination
- 8- Click Finish to end
- 9- You should now have a folder with the installer on your desktop
- 10- Double left click the ICON
- 11- Look for Allen Face Meter—install
- 12- Double left click the install
- 13- Double left click run
- 14- This brings you to download manager setup wizard
- 15- Install by clicking next
- 16- Installation complete click close
- 17- Close out install manager
- 18- The program will make a icon **Allen Face Download Manager** on your desktop
- 19- This is the program to download any meter to Excel
- 20- In the Zip File there is a PDF that explains how to use the software

### III. GENERAL OPERATION

#### A) Recommended Run Pattern

Select the run pattern to be measured. ASTM E-1155 (see Appendix) requires that the measurement lines conform to one of the following two schemes:

1. Runs parallel and perpendicular to the longest slab boundary, where the aggregate run length in each direction is approximately equal, or
2. Runs of any length all oriented at 45° to the longest slab boundary.

Owing to the great data collection speed of the F-Meter, it is strongly recommended that all tests always be performed using an “X the Bays” approach – even if the N/S and E/W column spacings are not exactly equal. Standardizing the run pattern on the bay diagonals offers a number of practical advantages:

1. The minimum  $q$  and  $z$  sampling requirement will always be well satisfied.
2. Uniform coverage is automatically obtained.
3. No run location decisions are required of the operator.
4. No measurement line diagrams ever have to be produced or archived.
5. Straight line steering of the unit without the aid of a taut string reference is facilitated.
6. Tests can always be easily duplicated in future.
7. Results from different projects can always be reasonably compared.

#### B) Unit Power-Up & Memory Clearance

Press the **<ON>** button to turn the unit **ON**. Observe the various system status screens during power up. Attach the leash to the hook on the front of the unit.

Respond to all memory status inquiries as prompted:

At the “VOID Clears Memory” prompt, pressing the **<VOID PREV RUN>** button initiates the MEMORY CLEARANCE routine. At the “Are You Sure ?” query, pressing the **<GO/OK>** button will then permanently delete all resident run records from memory. Be careful when clearing the memory! Erased (and voided) runs are **unrecoverable**.

Pressing **<STOP/ESC>** exits the MEMORY CLEARANCE routine at any prompt.

#### C) “<FF Only>” and “<FF & FL>” Operation Modes

Pressing the **<GO/OK>** button at the “Measure FF Only ?” query puts the unit into “FF Only” mode. In this mode, point elevations and FL numbers are not recorded. Only a run’s FF numbers are measured and summarized. In “FF Only” mode, both the “pausing” and “unit reversal” procedures (see below) are suppressed, and the unit operates like the original F-Meter. “FF Only” mode is convenient for testing elevated slabs where FL is not required, and run graphs are not wanted. (Once selected, the operation mode is set for the entire session; the only way to change the operation mode is to restart the unit.)

Pressing the **<STOP/ESC>** button at the “*Measure FF Only ?*” query puts the unit into “FF & FL” mode. In this mode, all ASTM E-1155 profile features (FF, FL, and the individual run point elevations) are recorded, and the “pausing” and “unit reversal” protocols described below must be followed.

**D) “Start New Session ?” Query**

If the operational mode (i.e. “<FF-Only>” or “<FF and FL>”) is kept the same as that used for the previous power up, the “*Start New Session ?*” query will next appear. Answering “NO” (by pressing the **<STOP/ESC>** key) to this query will cause the runs collected during this power up to be added to those of the previous session. Answering “YES” (by pressing the **<GO/OK>** key) will cause the runs collected during this power up to be assembled under their own new session number.

**E) “<End Reversal Run>” Message**

When the unit is operating in “<FF and FL>” mode and the message “<End Reversal Run>” appears after the **<GO/OK>** button is pressed to start a new run, the unit reversal procedure described in Section III.H.4 below must be performed at the end of that run. The F-Meter automatically determines when an end reversal reading is required, and, depending upon the operational environment, may or may not require the procedure after every run.

**F) The “<OFF>” Screen**

After the operation mode and session number selection, the unit displays the “<OFF>” (i.e. “not recording”) screen. The yellow INDEX light illuminates every inch of travel, and the distance counter increments every inch. Pressing **<STOP/ESC>** at any time resets the distance counter.

**G) Recording Runs in “FF Only” Mode**

**1. Starting an “FF Only” Mode Run:**

Place the unit on the floor at the desired run start point. Align the sensor side (i.e. the side with the floppy arm) “wheels” with the desired run line. Manually rotate the odometer wheel (i.e. the rear wheel with the six side studs) as required until the yellow INDEX light stays **ON**.

**NOTE:** *Throughout the run recording procedure, the yellow INDEX light must be **ON** whenever the **<GO/OK>** or **<STOP/ESC>** buttons are pushed.*

\*\*\*\*\*

**Warning!** Prior to each run, make sure that the follower arm swings freely. Any binding of the follower arm (usually caused by grit caught between the arm and the adjacent wheel mounting bars, or by binding of the 1/4" brass hex connecting rod on the 1/8" diameter black pin) will compromise measurement accuracy. **If the brass connecting rod is bound on the black pin, manually slide the connecting rod back and forth along the pin until it feels "loose".**

.....

Press the **<GO/OK>** button to initiate “FF Only” run recording. The screen will immediately display “<Go>”. As soon as the unit is moved, the “<ON>” screen will appear, and the distance counter will start to increment every inch as the unit advances.

A recording speed of 2 to 3 feet per second (i.e. a slow to medium walk) is recommended. Note that the yellow INDEX light now only flashes every foot.

\*\*\*\*\*

**Note:** Sampling accuracy is generally insensitive to speed variations or stops and starts, provided that the “wheels” never lose contact with the measured surface. Nonetheless, a steady deliberate pace is recommended. Measurement accuracy will obviously be compromised if unit is pulled too fast on a rough surface so that it bounces and/or chatters.

Considerable experience has shown that measurement accuracy is not adversely affected by running across unfilled sawcuts, construction joints, or other wide cracks. It is suggested that these routine breaks in the surface be ignored.

\*\*\*\*\*

**Warning!** Measurement accuracy will be compromised, if the unit is not pulled approximately in a straight line.

Measurement accuracy will be compromised by any reading taken in reverse.

Measurement accuracy can be compromised by dirt on the measured surface.

Occasionally, a grit particle will become embedded in one of the wheels (even on a "clean" floor) and cause the unit to "clunk" every 3 - 6 inches of travel. If this happens, continue the run (as measurement accuracy will not be seriously affected) and simply wipe the wheels clean as they rotate.

\*\*\*\*\*

## 2. Ending an “FF Only” Mode Run:

The minimum run length is **11'- 0"**. Attempting to terminate a run that is shorter than this distance will automatically cancel the run and return the unit to “<OFF>” (i.e. “not recording”) mode.

The maximum run length is **120'- 0"**. Pulling the unit in “<ON>” mode beyond this distance will automatically cancel the entire run and return the unit to “<OFF>” mode. (The unit may be pulled any distance in “<OFF>” mode without consequence.)

A run may be terminated any time the unit is stopped with the yellow INDEX light **ON** (i.e. at any exact foot down the run). If the unit is inadvertently pulled beyond the desired end point (so that the yellow INDEX goes **OFF**), simply continue on to the next exact foot. With the unit stationary and the yellow INDEX light **ON**, press the **<STOP/ESC>** button to end the run. The screen will immediately display “*Computing Run ##*”. After the run calculation is completed and results are recorded, the red RECORD light will go **OFF**, and the unit will return to the “<OFF>” screen.

## H) Recording Runs in “FF & FL” Mode

### 1. Starting an “FF & FL” Mode Run

Make sure that you have the slotted brass bar and a pencil with you.

Place the unit on the floor at the desired run start point. Align the sensor side (i.e. the side with the floppy arm) “wheels” with the desired run line. Manually rotate the odometer wheel (i.e. the rear wheel with the six side studs) as required until the yellow INDEX light stays **ON**.

NOTE: Throughout the run recording procedure, the yellow INDEX light must be **ON** whenever the unit is **PAUSED** (see below), or the **<GO/OK>** or **<STOP/ESC>** buttons are pushed.

\*\*\*\*\*  
**Warning!** Prior to each run, make sure that the follower arm swings freely. Any binding of the follower arm (usually caused by grit caught between the arm and the adjacent wheel mounting bars, or by binding of the 1/4" brass hex connecting rod on the 1/8" diameter black pin) will compromise measurement accuracy. **If the brass connecting rod is bound on the black pin, manually slide the connecting rod back and forth along the pin until it feels "loose".**  
\*\*\*\*\*

Press the **<GO/OK>** button to initiate run recording. The screen will now display “<Don't Move>”. **Do not move** the unit until the red RECORD light comes **ON** and the screen says “<Go>”. As soon as the unit is moved, the “<ON>” screen will appear, and the distance counter will start to increment every inch as the unit advances.

A recording speed of 2 to 3 feet per second (i.e. a slow to medium walk) is recommended. Note that the yellow INDEX light now only flashes every foot. Continue to observe the distance counter on the screen as the run is recorded.

\*\*\*\*\*  
**Note:** Sampling accuracy is generally insensitive to speed variations or stops and starts, provided that the “wheels” never lose contact with the measured surface. Nonetheless, a steady deliberate pace is recommended. Measurement accuracy will obviously be compromised if unit is pulled too fast on a rough surface so that it bounces and/or chatters.

Measurement accuracy is not appreciably affected by running across unfilled sawcuts, construction joints, or other wide cracks. These width breaks in the surface may be ignored.

\*\*\*\*\*  
**Warning!** Measurement accuracy will be compromised, if the unit is not pulled approximately in a straight line.

Measurement accuracy will be compromised by any reading taken in reverse.

Measurement accuracy can be compromised by dirt on the measured surface.

Always sweep the measurement line clear of any grit or debris prior to data. Occasionally, a grit particle will become embedded in one of the wheels (even on a "clean" floor) and cause the unit to "clunk" every 3 - 6 inches of travel. If this happens, continue the run (as measurement accuracy will not be seriously affected) and simply wipe the wheels clean as they rotate.

\*\*\*\*\*

## 2. Pausing an "FF & FL" Mode Run:

Starting at **8'-1"**, and then every 10'-0" thereafter, the red RECORD light will start blinking, and the "<PSE>" screen will appear. When this happens, the unit must be stopped **within the next 3 feet** so that the yellow INDEX light stays **ON**. When the unit remains stationary for 2 seconds in this PAUSE mode (with the yellow INDEX light **ON**), the red RECORD light will go **OFF**, and the screen will display "<Don't Move>".

Recommence the run only after the red RECORD light comes back **ON**, and the screen says "<Go >". After pausing, before the unit is moved again, there is no prohibition against ending the run by pressing the **<STOP/ESC>** button, thereby initiating the UNIT REVERSAL routine (see below).

Repeat this RUN PAUSE routine every time the red RECORD light starts blinking and the "<PSE>" screen appears.

## 3. Ending an "FF and FL" Mode Run:

The minimum run length is **11'- 0"**. Attempting to terminate a run that is shorter than this distance will automatically cancel the run and return the unit to "<OFF>" (i.e. "not recording") mode.

The maximum run length is **120'- 0"**. Pulling the unit in "<ON>" mode beyond this distance will automatically cancel the entire run and return the unit to "<OFF>" mode. (The unit may be pulled any distance in "<OFF>" mode without consequence.)

A run may be terminated any time the unit is stopped with the yellow INDEX light **ON** (i.e. at any exact foot down the run). If the unit is inadvertently pulled beyond the desired end point (so that the yellow INDEX goes **OFF**), simply continue on to the next exact foot. With the unit stationary and the yellow INDEX light **ON**, press the **<STOP/ESC>** button to stop the run. The red RECORD light will go **OFF**, and the screen will display "<Don't Move>".

### 4a .Closing an "<End Reversal Run>" (Reversing the Right Side Sensor "Wheels"):

If the "<End Reversal Run>" message has appeared at the start of an "FF & FL" mode, the run must be closed by taking a reversed reading taken at the run end point. *The entire run does not have to be reversed !* Only a single reversed reading at the final measurement point is required.

After the **<STOP/ESC>** button has been pressed (with the yellow INDEX light **ON**), **do not move** the unit until the red RECORD light comes back **ON**, and "< Reverse Unit >" appears on the screen.

Place the slotted brass bar (slot side up) on the floor behind the odometer wheel (i.e. the right rear wheel with the six side studs). Fit the slotted brass bar up against the back of the odometer wheel so that the slot engages the wheel tread and the top edge of the bar rests against the wheel rim. Put a pencil mark on the floor in front of (and in line with) the fixed right front sensor “wheel”.

Grasp the F-Meter’s handle with your right hand and lift the unit off the floor so as **not to move** the slotted brass bar. Holding the slotted brass bar in place with your left hand set the F-Meter back down on the floor so that the fixed right front sensor “wheel” snugly engages the slot and the right rear odometer wheel aligns precisely with the pencil mark. The net effect of this unit reversal, therefore, is simply to interchange the positions of the right front and right rear sensor “wheels” at the final reading point. (A diagram illustrating the proper reversing procedure is given on the following page.)

If necessary, without displacing the unit, lift and manually rotate the odometer wheel until the yellow INDEX light stays **ON**. With the sensing side (i.e. the “floppy arm” side) of the unit now reversed at its final measurement position, press the **<STOP/ESC>** button. The red RECORD light will go **OFF**, and the screen will again display “<Don’t Move>”.

**Do not move** the unit until the red RECORD light comes back **ON**, and “Computing Run ##” appears on the screen. After completing the calculation, the unit will automatically return to “<OFF>” mode.

#### 4b. Closing a Regular “FF & FL” Mode Run

If the “<End Reversal Run>” message has not appeared at the start of an “FF & FL” mode, the run will be closed automatically. After the <STOP/ESC> button has been pressed (with the yellow INDEX light **ON**), **do not move** the unit until the red RECORD light comes back **ON**, and “Computing Run ##” appears on the screen. After completing the calculation, the unit will return automatically to the “<OFF>” screen.

##### I) Displaying Run Results

Individual and combined F-Number results and run profile elevations are displayed (or deleted) using the <PREV RUN>, <ALL RUNS>, <VOID PREV RUN>, <GO/OK>, and <STOP/ESC> buttons. See Section III for a detailed explanation of the key press sequences used to manage and display the individual and aggregate session run records..

\*\*\*\*\*

**Note:** F-Meter FF, FL, and Profile Elevation run results conform fully to all ASTM E-1155 requirements.

\*\*\*\*\*

##### J) Check Codes

Immediately following each display of <PREV RUV> or <ALL RUNS> results, a nine (9) character “Check Code” will now appear. This check code encrypts the pertinent FF/FL and run date information to permit independent confirmation of all reported values.

A contractor self-testing his FF/FL numbers, for example, can submit his results (along with the associated check codes) to an owner, who can then independently confirm the veracity of the contractor’s report simply by accessing the Check Code screen on the AF&Co website: [www.allenface.com](http://www.allenface.com). A match between these deciphered results and those presented in the contractor’s original report is absolute confirmation of the report’s veracity.

##### K) Automatic Retention of All Run Records

The unit may be turned off at any time by pressing the <OFF> button. If the unit is running “ n #.## “ version software, all resident run data will be saved automatically, even if the battery pack loses charge. Pressing the <GO/OK> button after power up at the “Are You Sure ?” prompt is the only way that run records can be cleared from non-volatile memory. When the memory has been cleared in this manner, the total run capacity is reset to **99** runs, and the session number (see below) is reset to **1**.

The run records in all non-volatile memory units are organized under “session numbers”, and the run numbers shown on the <OFF> and <ON> screens now consist of two parts: the associated session number and the sequential run number. Run number “3, 14”, for example, was recorded during the third session and is the fourteenth run in memory.

Every time the unit is turned **ON**, a new session begins. Turning the unit **OFF** terminates the current session. This protocol allows runs taken on different projects (or slabs) to be collected under different session numbers and thus be kept separate from one another. The **<ALL RUNS>** routine reports the aggregate FF/FL results for all the runs collected during each individual session as well as the aggregate FF/FL for all the sessions combined (i.e. all the runs in memory).

Units running “ v #.## “ version software lose all resident data whenever the unit is turned off (or the battery pack loses charge) and do not support the “Session Number” organization protocol.

#### **L) Automatic Downloading of All Run Records to Excel®**

All units running “ n #.## “ version software have been fitted with serial communication ports and are fully capable (with the requisite cabling and PC software) of downloading all retained data directly into Microsoft Excel. After attaching the unit to the COM port of any PC or laptop (fitted with Excel and running the associated F-Meter VBA Download Program), all resident run data can be downloaded to the host computer in a matter of seconds.

The F-Meter Download Program puts the run data directly into Excel, and immediately displays the individual run statistics, graphs, and data lists as soon as all the files have transferred. Each download becomes a new Excel Workbook; each downloaded session becomes a separate Worksheet in that Workbook; and each run becomes a separate Chart on its session’s Worksheet. With just a rudimentary knowledge of Excel, these downloaded data may be manipulated quickly to produce any type of formal report desired.

## IV. DETAILED KEY & LIGHT DESCRIPTIONS

### A. KEY FUNCTIONS

#### 1. POWER Section

- a. <ON> : turns power "On"
- b. <OFF> : turns power "Off"

\*\*\*\*\*

**Warning!** The POWER <OFF> key is functional at all times ! On all volatile memory models (i.e. all units running [v #.##] version software), pressing POWER <OFF> will immediately turn the unit off and erase all saved data !

\*\*\*\*\*

#### 2. RECORD Section

- a. <GO/OK> : Deletes all runs in memory and resets unit (from the "Are You Sure ?" screen)
  - : Selects "< FF Only Mode >" (from the "Measure FF Only ?" screen)
  - : If yellow INDEX lamp is lit, starts run recording (puts unit in "<ON>" mode)
  - : Displays selected run results (from the "OK Shows Run ss,rr" screen)
  - : Displays individual point elevations (from the "Run rr: Show H's ?" screen)
  - : Deletes selected run from memory (from the "OK Voids Run ss,rr" screen)
- b. <STOP/ESC> : Exits memory clearance routine (from the "<VOID> Clears Runs" screen)
  - : Exits memory clearance routine (from the "Are You Sure ?" screen)
  - : Selects "< FF & FL Mode >" (from the "Measure FF Only ?" screen)
  - : If yellow INDEX light is ON in "< FF Only Mode >", stops run recording and starts run calculation (from the "<ON>" screen)
  - : If yellow INDEX light is ON in "< FF & FL Mode >", stops run recording and starts "<Reverse Unit>" routine (from either the "<ON>" or "< Go >" screens)
  - : If yellow INDEX light is ON in "< FF & FL Mode >", after the unit has been reversed, starts the run calculation (from the "<Reverse Unit>" screen)
  - : Resets the odometer (from the "<OFF>" screen)
  - : Displays the battery status and number of runs left (from the "Reset Odometer" screen)
  - : Displays the current GMT date and time (from the "rr Runs Left" screen)
  - : Displays the continuous front-to-back right side sensor "wheel" elevation difference in inches (from the "Run Time: hh:mm GMT" screen)
  - : Returns to the "<OFF>" screen (from the "+ i.iii" screen)
  - : Returns to the "<OFF>" screen (from the "Run rr: Show H's ?" screen)
  - : Exits the sequential run point elevation display (from the "ff: H = iii + screens")
    - : Returns to the "<OFF>" screen after any error message

### 3. RESULTS Section

- a. <PREV RUN> : Selects the particular run results to be displayed beginning with last run recorded  
Sequentially pushing the <PREV RUN> key scrolls the elected run number  
When the desired run number appears in the “<OK> Shows Run ss,ss” screen, pressing the RECORD <GO/OK> key displays the results for that run
- b. <ALL RUNS> : Displays composite results for all recorded (unvoided) runs  
In all non-volatile memory units (i.e. all units running [n #.##] version software), aggregate results are displayed for all runs in memory and for all the runs contained in each session
- c. <VOID PREV RUN>
  - : Selects particular run to be deleted beginning with last run recorded  
Sequentially pushing <VOID PREV RUN> scrolls the selected run number  
When desired run number appears in “<OK> Voids Run ss,rr” screen, press the RECORD <GO/OK> key to void that run

\*\*\*\*\*

**Warning!**                      Once voided, run records can not be recovered.

\*\*\*\*\*

### B. LAMP DESCRIPTIONS

- 1. POWER lamp (green): When steady, indicates unit power is ON  
: When flashing, indicates low battery condition (i.e. unit needs charging)
- 2. INDEX lamp (yellow) : When ON in “<OFF>” mode, indicates unit has advanced 1 inch  
: When ON in “<ON>” or “<PSE>” modes, indicates the unit is at an acceptable static reading point  
: When ON in “<Reverse Unit>” mode, after the right side sensor “wheels” have been properly reversed at the run termination point, indicates that the <STOP/ESC> key should be pushed

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**Note!**      The yellow INDEX lamp must be ON whenever: 1) the <GO/OKAY> key is pushed to start a run, 2) the <STOP/ESC> key pushed to stop a run, or 3) the <STOP/ESC> key is pushed after the unit reversal procedure to start the run calculation.

\*\*\*\*\*

- 3. RECORD lamp (red) : When steady, indicates unit is in “<ON>” mode  
When flashing, indicates run should be paused, or that recording has been stopped automatically by a "soft-fail" or "run length error" event

## V. DETAILED SCREEN DESCRIPTIONS

### A. STATUS / INFORMATION SCREENS

1. F-Meter [x #.##] " : Software version identification. x = "n" for non-volatile memory versions; x = "v" for volatile memory versions
2. " © 2003: Allen Face" : Software copyright notice
3. "FF/FL per ASTM E1155" : ASTM conformity verification
4. " S/N: #### " : The unit's serial number
5. "Re-calibrate by:" The date by which unit must be returned to factory for re-  
"mmm dd, yyyy " calibration

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**Note!** F-Meter warranty terms require that each unit be returned annually (every three years for international units) to the factory for re-calibration. Please consult our website ([www.allenface.com](http://www.allenface.com)) for the current fee charged for this service. In-shop time for routine re-calibrations averages less than 3 days. Free loaner units (customer pays all freight charges) are usually available upon request.

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6. "< FF Only Mode > " : Indicates the unit is operating in "<FF Only Mode>". Pausing and unit reversal procedures are suspended, and only FF results are recorded (i.e. no FL or point elevation results are produced)
7. "< FF & FL Mode > " : Indicates the unit is operating in full measurement mode. Pausing and unit reversal procedures are in full effect, and all FF, FL, and point elevation results are recorded.
8. "<End Reversal Run > " : The unit reversal run closing procedure must be performed at the end of the "FF & FL" mode run now being recorded.
9. " No Runs Stored " : The run memory is empty
10. " rr Runs Stored " : There are currently "rr" run records stored in memory
11. "Deleting All Records" : The desire to clear memory has been confirmed  
" Re-starting Unit "

12. " *Session # ss* " : The current session number is "ss"
13. " *rr Runs Left* " : "rr" runs can still be recorded before the memory is full
14. "Max Run Lngth = 120' " : Reminder that the maximum length allowable for any run is 120 feet
15. "ss,rr:<OFF> ff' ii'" : The "<OFF>" screen. The unit is not recording. "ss" is the current session number. "rr" is the next recordable run number. "ff" + "ii" are the feet and inches traveled since the last odometer reset.
16. "ss,rr:<ON> ff' ii" " : The "<ON>" screen. The unit is recording a run. "ss" is the current session number. "rr" is the run number being recorded. "ff" + "ii" is the current run length (in feet and inches) recorded.
17. "ss,rr:<PSE> ff' ii'" : The "<PAUSE>" screen. The unit is recording a run. "ss" is the current session number. "rr" is the run number being recorded. "ff" + "ii" is the current run length (in feet and inches) recorded. The "<ON>" screen changes to this screen (and the red RECORD light starts flashing) every time the run length reaches an exact multiple of 10 feet. Within the next 3 feet, the unit must now be paused with the yellow INDEX light ON.
18. "Computing Run ss,rr" : In <FF Only Mode>, run recording has been properly exited by pressing the <STOP/ESC> key with the yellow INDEX light ON.  
In <FF & FL Mode>, after reversing the right side sensor "wheels" at the run termination point, the unit reversal routine has been properly exited by pressing the <STOP/ESC> key with the yellow INDEX light ON.  
The run just recorded (session number "ss", sequential run number "rr") is now being calculated.
19. "ss,rr: qqqqqq Rdgs" : This screen appears after the run calculation has been completed. "ss" is the current session number. "rr" is the next run number to be recorded. "qqqqqq" is the aggregate number of *q* readings (see ASTM E1155) recorded in the current session. Pressing the <STOP/ESC> key or spinning the odometer wheel will cause the "<OFF>" screen to reappear.
20. " Reset Odometer " : The <STOP/ESC> key has been pressed with the "<OFF>" screen displaying a distance greater than 1'-0". After this screen appears momentarily, the "<OFF>" screen will reappear with the distance counter reset to 1'-0".
21. " Serial I/O Active " : This message scrolls across the screen whenever the F-Meter is communicating with another computer through the serial cable.

## B. QUERY SCREENS

1. " <VOID> Clears Runs " : Pressing the <VOID PREV RUN> key at this start-up prompt will initiate memory clearance and unit reset.  
Pressing the <STOP/ESC> key at this prompt will skip the memory clearance routine and retain all current run records
2. " Are You Sure ? " : The memory clearance routine has been entered by pressing the <VOID PREV RUN> key at the "<VOID> Clears Runs" query.  
Pressing the <GO/OK> key at this query will permanently delete all run records and cause the unit to perform a full reset.  
Pressing the <STOP/ESC> key at this query will exit the memory clearance routine and retain all current run records.
3. " Measure FF Only ? " : Pressing the <GO/OK> key at this query puts the unit into "<FF Only Mode>". Pausing and unit reversal procedures are suspended, and only FF results are recorded (i.e. no FL or point elevation results are produced)  
Pressing the <STOP/ESC> key at this query puts the unit into "<FF & FL Mode>". Pausing and unit reversal procedures are in effect, and all FF, FL, and point elevation results are recorded.
4. "<OK> Shows Run ss,rr" : Pressing the <GO/OK> key at this prompt causes the results for run "rr" in session "ss" to be displayed.  
Pressing the <PREV RUN> key at this prompt scrolls "rr" to the next recorded run number.  
Pressing the <STOP/ESC> key at this prompt exits the run results selection routine and returns to the "<OFF>" screen.
5. " Run rr: Show H's ? " : Pressing the <GO/OK> key at this query causes the point elevations (on 1 foot centers) down run number "rr" to be displayed sequentially. The display rate (40 elevation readings per minute) allows the readings to be keyed into a spreadsheet manually.
6. "<OK> Voids Run ss,rr" : Pressing the <GO/OK> key at this prompt causes the results for run "rr" in session "ss" to be deleted permanently from memory. Pressing the <VOID PREV RUN> key at this prompt scrolls "rr" to the next recorded run number.  
Pressing the <STOP/ESC> key at this prompt exits the void run results selection routine and returns to the "<OFF>" screen.

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**Warning!** Once voided, run records cannot be recovered.  
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**C. INSTRUCTION SCREENS**

1. " < *Reposition Unit* > ": An erroneous attempt has been made to start a run (by pushing the <GO/OK> key with the INDEX light OFF. Reposition the unit until the yellow INDEX light is ON and push the <GO/OK> key again.
2. " < *Don't Move* > " : The unit is automatically recording a static reading. Do not move the unit until prompted to do so.
3. " < *Go* > " : The unit is ready to proceed with dynamic run recording. Pull the unit down the measurement line at a slow, steady walk until the "<PSE>" screen appears, or the desired end point is reached.
4. " < *Continue Run* > " : An erroneous attempt has been made to stop the run with the yellow INDEX light OFF. Pull the unit down the measurement line to the next exact foot and stop the unit with the yellow INDEX light ON. Press the <STOP/ESC> key again to stop the run.
5. " < *Reverse Unit* > " : Run recording has been stopped by pressing the <STOP/ESC> key with the yellow INDEX light ON. A final reversed reading must now be taken at the run stop point. See **Section II.F** for detailed instructions on how to perform this critical reversed end-of-run reading procedure properly.
6. "<*Adjust Odometer Wheel*>" : After the unit has been lifted and reversed at the run stop point, an erroneous attempt has been made to record the reversed end-of-run reading by pressing the <STOP/ESC> key with the yellow INDEX light OFF. Without displacing the unit from its reversed end-of-run position on the measurement line, carefully lift the back right odometer wheel, rotate it manually as required, and set it back down on the floor so that the yellow INDEX light stays ON. Press the <STOP/ESC> key again to record the reversed end-of-run reading.

**D. RESULTS SCREENS**

1. " *Run Date: mm/dd/yy* " : Depending upon context, in month / day / year format, either:  
 The GMT date the run being reported was recorded,  
 The GMT run date of the last run recorded in the particular session being reported, or  
 The current date (GMT) displayed by pressing the <STOP/ESC> key at the "*Reset Odometer*" screen.

2. " *Run Time: hh:mm GMT* " : Depending upon context, in military Greenwich Mean Time, either:  
 The time the run being reported was recorded,  
 The run time of the last run recorded in the particular session being reported, or  
 The current time displayed by pressing the <STOP/ESC> key at the "*Reset Odometer*" screen.
3. " + *i.iii* " : In inches, the instantaneous unzeroed elevation difference between the front and rear right side sensor "wheels". This display is initiated by pressing the <STOP/ESC> key at the "*Reset Odometer*" screen, once again at the "*Battery*" status screen, and once again at the "*Run Date*" screen. The display may be exited at any time by pressing the <STOP/ESC> key to return to the "<OFF>" screen.

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**Note!** These displayed front-to-rear elevation differences may or may not be perfectly zeroed. Thus, a value of " 0.00" " will not necessarily indicate perfect level. Their relative magnitudes will be correct to within +/- 0.002", however.

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4. " *No Runs Saved* " : The memory is empty. There are no run records to display.
5. " *Run rr Voided* " : Run number "*rr*" has previously been deleted from memory and can no longer be displayed.
6. "*ss,rr: L = ###.0 ft*" : The length of run number "*rr*" in session number "*ss*" is "*###.0*" feet.
7. " *ss,rr: FF = ###.#*" : The FF number calculated for run number "*rr*" in session number "*ss*" is "*###.#*"
8. " *FL not recorded !* " : The current run or session being reported was measured in "<FF Only Mode>", so there were no FL results recorded.
9. " *ss,rr: FL = ###.#*" : The FL number calculated for run number "*rr*" in session number "*ss*" is "*###.#*"
10. "*90%CI= < aaa.a.- zzz.z>*" : The 90% confidence interval (see ASTM E1155) for the FF or FL value being reported ranges between the lower limit "*aaa.a*" and the upper limit "*zzz.z*".
11. "*Chk Code: \$\$\$\$\$\$\$\$*" : The check code for the current run or session being reported is "\$\$\$\$\$\$\$\$".

12. " *ff*:  $H = iii +$  " : The profile elevation "*ff*" feet from the start point of the run currently being reported is "*iii*" / 1000 inches. The sign (+ or -) indicates whether the reported elevation is above (+) or below (-) the mean profile elevation.

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**Note!** For consistency of reporting and graphing, every run profile is arbitrarily referenced to its mean elevation. Thus, elevation "0000" (i.e. the x-axis) simply corresponds to the average profile elevation (i.e. the area under the run profile above the x-axis will always equal the area above the run profile under the x-axis.)

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13. " *All ss Sessions* : " : The results which follow are the aggregation of all the runs contained in all "ss" sessions in memory.
14. " *Session ss* " : The results which follow are the aggregation of all the runs contained in session number "ss".
15. "*rr Runs: ffff.0 ft*" : The aggregate length of all "*rr*" runs in the current session being reported is "*fff.0*" feet.
16. "*rr Runs: FF = ###.#*" : The aggregate FF number for all "*rr*" runs in the current session being reported is "*###.#*".
17. "*rr Runs: FL = ###.#*" : The aggregate FL number for all "*rr*" runs in the current session being reported is "*###.#*".

## E. BATTERY STATUS SCREENS

1. " *Battery : bb%* " : The Li-Ion battery pack voltage is currently at "*bb*" percent of its nominal maximum value.
2. " *Battery: Full* " : The Li-Ion battery pack voltage is currently at more than 99% of its nominal maximum value.
3. " *<Recharge Battery>* " : The Li-Ion battery pack voltage is approaching its nominal minimum operating value. There is less than 15 minutes of operating power remaining.
4. " *<Recharge Unit ASAP>*" : The Li-Ion battery pack voltage is at its nominal minimum operating value. Immediately turn unit OFF off and re-charge for at least 3 hours.
- " *<Turn Unit Off ASAP>*"

## F. ERROR MESSAGE SCREENS

1. “ *Run Structure Error* ” : The subject run record has been corrupted.  
Clearing the memory of all runs at unit start-up will usually correct this problem. If this problem occurs repeatedly, however, the unit will have to be returned to the factory for service.
2. “ *Memory Error* ” : The current run pointer has been corrupted.  
Clearing the memory of all runs at unit start-up will usually correct this problem. If this problem occurs repeatedly, however, the unit will have to be returned to the factory for service.
3. “ *Operator Error* ” : The operator has violated the required operational protocol.
- 4a. “*Index Light Not On*”  
“*When <\_\_\_> Pushed*” : Either the <GO/OK> key has been pressed in “<OFF>” mode, or the <STOP/ESC> key has been pressed in “<ON>” or “<PSE>” mode when the yellow INDEX light is OFF.
- 4b. “ *Unit Has Moved* ” : The unit has moved with the “< Don't Move >” screen displayed. Press the <STOP/ESC> key to cancel the run and return to the “<OFF>” screen.
- 4c. “ *Run Not Paused* ” : Recording in “< FF & FL Mode >”, the unit has not been properly paused after the “<PSE>” screen has appeared.
5. “ *Run rr Too Short* ” : Run “rr” has been terminated before 12'-0" have been measured.
6. “ *Softfail @ fff' ii* ” : A reading outside the permitted range has been taken in “<ON>”, “<PSE>”, or “<Reverse Unit>” modes. Press the <STOP/ESC> key to cancel the run and return to the “<OFF>” screen.
7. “*Run Lngth > 120' Max*” : The length of the run being recorded has exceeded the maximum 120'-0" allowable.
8. “*Run ss,rr Cancelled*” : The run being recorded has suffered a fatal recording error and has been cancelled. Press the <STOP/ESC> key to return to the “<OFF>” screen.
9. “<OK>= Yes <ESC>= No ” : A key other than the <GO/OK> and <STOP/ESC> keys has been pressed in response to a query screen requiring a “Yes” or “No” answer. Press the <GO/OK> key for “Yes”, or the <STOP/ESC> key for “No”.

## G. ERROR CODES

- 0 : Fatal RAM test failure during unit start-up.
- 1 : NVRAM Memory Corrupted (invalid next run number)
- 2 : Very Low Battery (recharge immediately)
- 3 : Low Battery (recharge as soon as possible)
- 4 : NVRAM Memory Corrupted (invalid control character)
- 5 : Calculated FF not a number
- 6 : Calculated FF = positive infinity
- 7 : Calculated FF = negative infinity
- 8 : Calculated 90% Confidence Interval for FF not a number
- 9 : Calculated 90% Confidence Interval for FF = positive infinity
- 10 : Calculated 90% Confidence Interval for FF = negative infinity
- 11 : Calculated FL not a number
- 12 : Calculated FL = positive infinity
- 13 : Calculated FL = negative infinity
- 14 : Calculated 90% Confidence Interval for FL not a number
- 15 : Calculated 90% Confidence Interval for FL = positive infinity
- 16 : Calculated 90% Confidence Interval for FL = negative infinity
- 17 : Slope sensor reading outside allowable range
- 18 : Invalid key press (recording)
- 19 : Invalid key press (pausing)