Instruction & Operation Manual

Friability Test Apparatus
Model: µFTCal$_{10}$

Version Number : _____

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1. INTRODUCTION

The μFTCal10 is an advance Friability tester, offers fast and accurate measurements at a value price for routine production as well as for R & D test. It has been designed and develops as per pharmacopeia requirements. Large LCD display shows % friability reading. Weight of tablets can feed manually for calculation purpose.

2. ENVIRONMENT CONDITION

The Instrument can operate within temperature and relative humidity conditions of 0°C to 55°C and 5 to 95 % respectively. However, an environment comfortable for human habitation (reasonable constant temperature and humidity conditions) is recommended for optimum performance and instrument lifetime.

Exposure to corrosive substances (weather gas, liquid or solid) may affect materials and components used in instrument and should avoid.

3. INSTALLATION PREREQUISITES

Power Supply Requirements:

1) Stabilized Power supply 230 VAC ± 10 %, 50Hz.
   (Earth voltage should be **Less than 3V AC** – between Earth & Neutral)
2) One 5 Amp. Points for Main unit.

Accessories Required:

1) Analytical Balance (0.0001 gm capacity)
2) Clean Cloths

Location

The μFTCal10 requires a conventional laboratory bench 60 cm. Long, 60 cm. Deep.

4. PACKING LIST

Sr. No.	Description	Qty	Packed √ | X
01	Friability Test Apparatus- Basic Unit μFTCal10	01	
02	Friability Drums: Sr. NO. _____ & _____	02	
03	Knobs for Drum fixing	01	
04	Tablet Collection Tray Holder MOC: Acrylic	01	
05	Tablet Collection Tray MOC: SS	02	
06	Power Supply Cable	01	
07	Instructional & Operational Manual with SOP	01	
08	Manufacturer test certificate	01	
09	Warranty Card	01	
Optional Items (If ordered)			
10	Keypad Screen Guard	01	
11	IQ/OQ/PQ/DQ Documents	01 Set	
12	Abrasion Drum – Sr. No. _____ (Optional)	01	

Serial No.: _____ Packed By: _____

UNPACKING PROCEDURE

a. Open the box to indicate arrow.

b. Take out the bonded Accessories carefully.

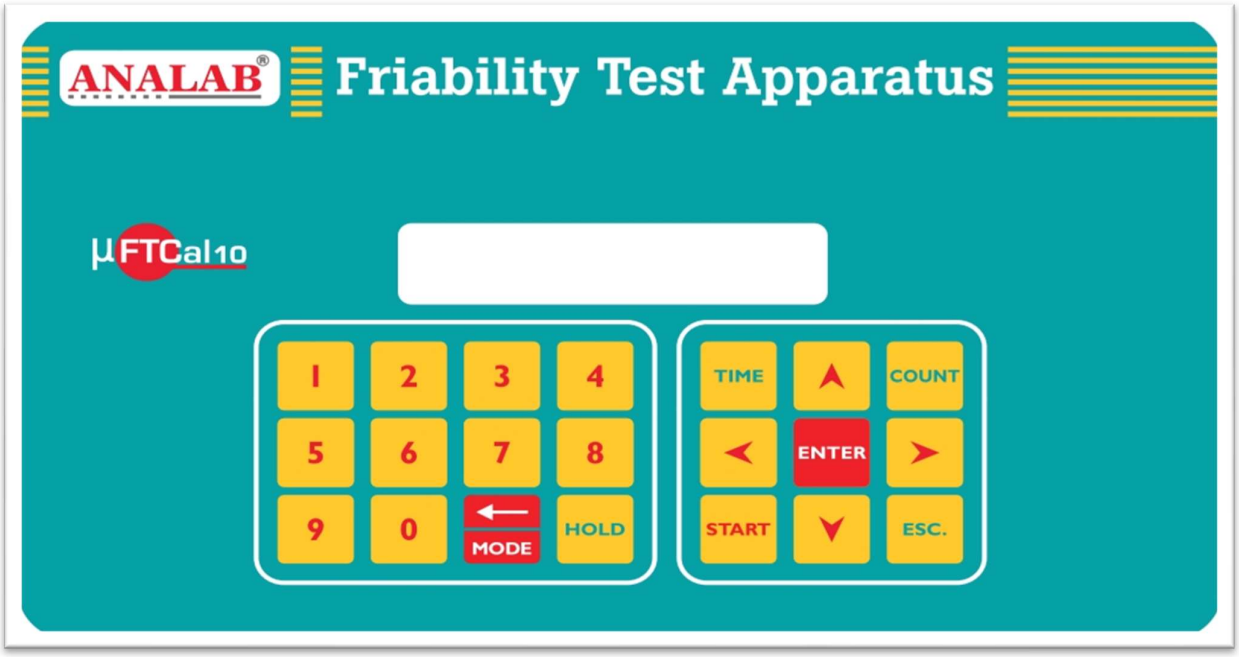
c. Install the unit according to procedure of installation.

5. TECHNICAL SPECIFICATIONS

- **Speed** : Fix 25 RPM
- **Accuracy** : + 0.5 RPM
- **Timer** : Variable from 1 sec. to 9 hrs. 59 min 59 sec.
- **Counter** : 1 to 9999 revolutions
- **No. of drums** : Two
- **Display** : 16 x 2 Line Alphanumeric Backlit LCD
- **Keyboard** : **Membrane** waterproof polyester soft keypad compliance to UL/ROHS
- **Pharmacopeia Complies** : As per USP, IP, Ph. Eur.
- **Date** : 12/24 Hours Format
- **Time** : Real time clock
- **Tablet Discharge** : Automatic in the Sample tray from drum after completion of analysis.
- **10º tilt** : Manual with Tilting legs
- **Calculation of result** : Friability in %
- **Power failure detection** : Un-interrupted tablet testing after power resume
- **Power Supply** : 230VAC ± 10%, 50/60 Hz

6. DESCRIPTION OF KEYPAD

µFTCal10 is having TWENTY-TWO keys with 16 x 2 LCD displays.



Part 1 consisting TEN keys for alphanumeric characters, to enter values & characters, ONE keys is use for **backspace and Mode selection** function and one for Hold.

Part 2 Consist of **START** key to start analysis, **ESC** to come out from last display, **ENTER** to confirm or select command or Value, ▲▼►◄ keys to take character or lines to UP / DOWN or LEFT / RIGHT ,**TIME** for set analysis time and **COUNT** for set analysis count

7. DESCRIPTION OF REAR PANEL

- Power Supply - to connect 230 Volts supply.

8. INSTALLATION

Install the unit in dust and water vapors free area.
Connect Friability drums with the instruments as per left / right side mention on each drum with supplied knobs. Also connect Tablet collection Tray and Tablet tray holder with the instrument.

Connect power cable and check mains supply 230 VAC±10%, 50Hz supply. Check proper earth voltage between Neutral and Earth pin should be less than 3 VAC. Switch ON the mains switch.

ANALAB Friability Test	Instrument will Display: Manufacturer Name
Model : FTCal10 Version : 180910	Model No and version no. of instrument.
Serial Number 2018-19/ 002	serial Number of Instrument.
Detecting Home Position	Instrument will detect Home Position for sample analysis
ANALAB 18:21 14/SEP/18	Company Name with current date time (Standby Screen)

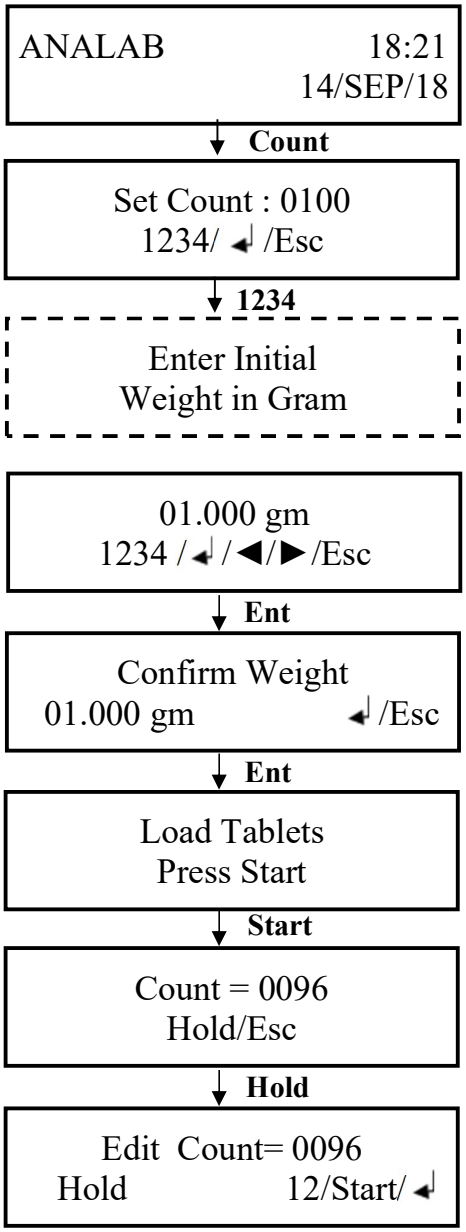
9. OPERATION PROCUDURE

µFTCal10 operation is very simple and easy. Analysis with Time and count can perform directly from keypad, and separate modes are given for validation and utilities like date time and name set. All values in different parameters can feed through numerical key pad.

For Sample analysis, separate START key given on keypad.

9.1. Sample Analysis with COUNT

Before sample analysis with count, set required counts with pressing **COUNT** key. Keep samples ready for analysis. Take the weight of sample. (It should be as per monogram of sample) .If sample analysis require TILT, open tilt legs given below the instrument.



Standby Screen

Set Count with numerical keys

Weigh tablets approx. 650 mg

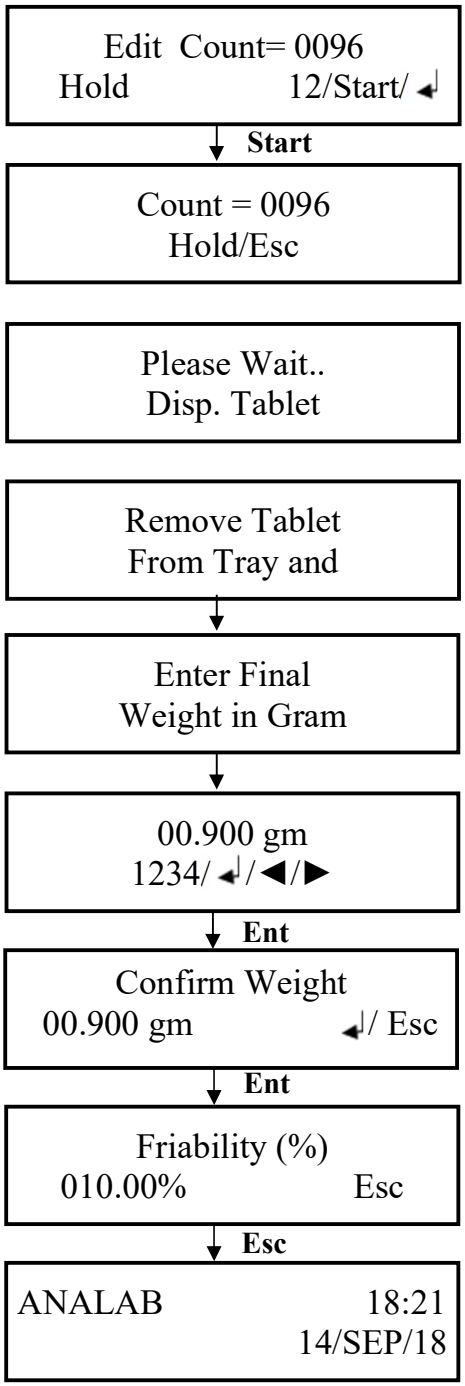
Enter weight with numerical keys and

Confirm entered weight. If wrongly feed, press Esc or press Ent

Load tablets in drums and press Start

Drums starts rotating. Display shows reverse count from set count.

Press Hold to stop test in between, friability drum stops, and actual count holds.



Press **START** to restart at actual counts at which it was halt. User can **Edit** value if require.

Drums starts rotating from the count, where it was hold

When Actual counts reaches at Set counts, tablets will dispense in the dispensing tray and will hold at home position for next analysis.

Remove tablets from tray and take the weight of all tablets.

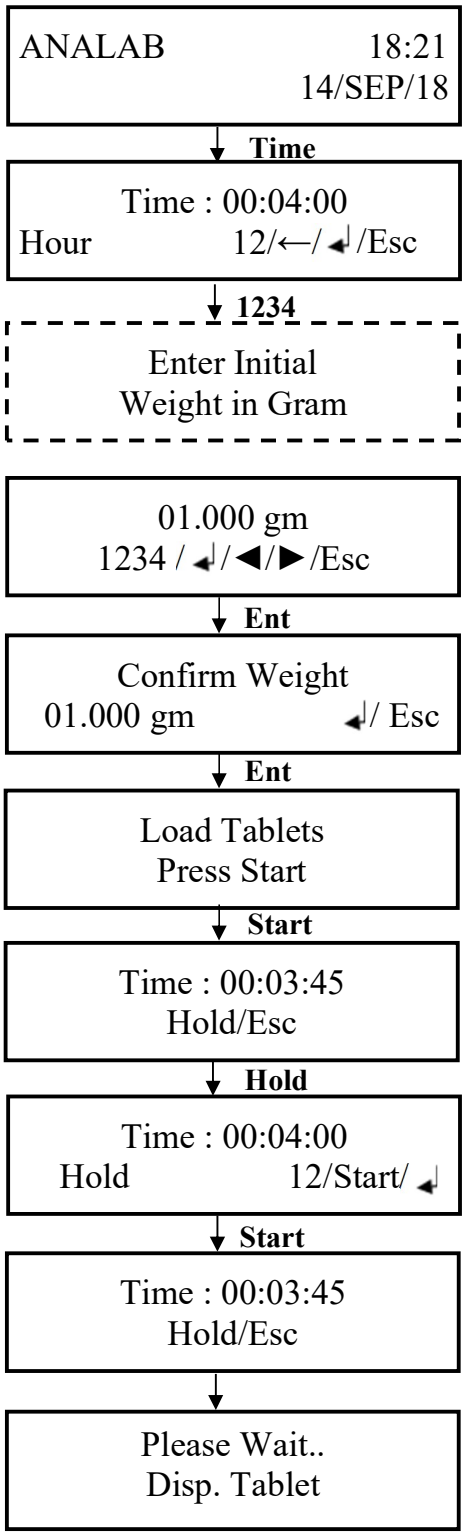
Enter weight as a final weight in gram with numeric keys and press **ENTER**

% Friability Result will display.

Standby display

9.2. Sample Analysis with TIME

Before sample analysis with time, set required time with pressing **TIME** key. Keep samples ready for analysis. Take the weight of sample. (It should be as per monogram of sample).If sample analysis require TILT, open tilt legs given below the instrument.



Standby Screen

Set Hour ,minute and second with numerical keys

Weigh tablets approx. 650 mg

Enter weight with numerical keys and

Confirm entered weight. If wrongly feed, press Esc or press Ent

Load tablets in drums and press **START**

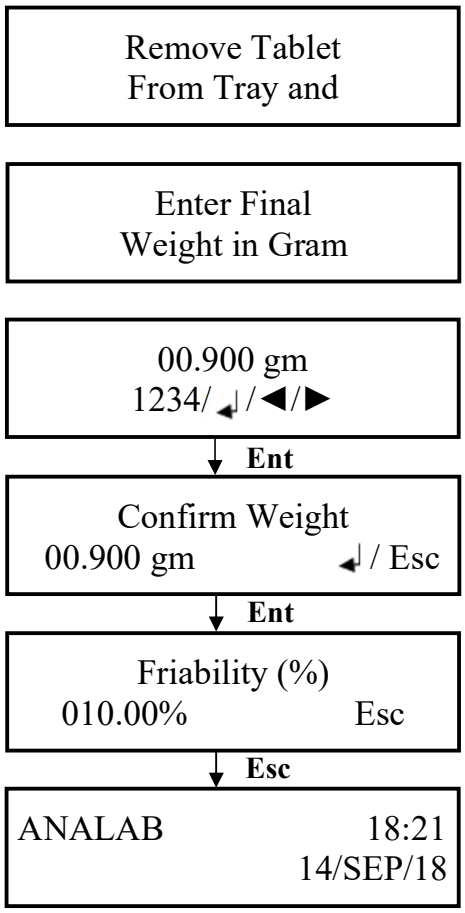
Drums starts rotating. Display shows reverse time from set time

Press Hold to stop test in between, friability drum stops, and actual time holds.

Press **START** to restart from actual time at which it was halt. User can **Edit** time if require

Drums starts rotating from the time, where it was hold

When Actual time reaches at Set time, tablets will dispense in the dispensing tray and will hold at home position for next analysis



Remove tablets from tray and take the weight of all tablets.

Enter weight as a final weight in gram with numeric keys and press **ENTER**

Confirm final weight.

% Friability Result will display.

Standby display

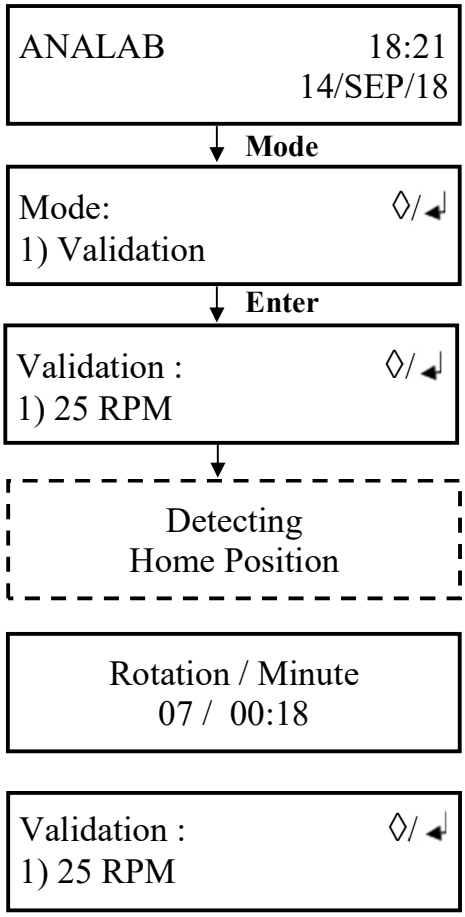
$$\text{Formula use for \% Friability} : \frac{\text{(Initial Weight in gram – Final Weight in gram)}}{\text{Initial Weight in gram}} \times 100$$

MODE 1 : VALIDATION

µFTCal10 has unique inbuilt facility to validate RPM,TIME and COUNT. Use Calibrated Time and RPM meter only to validate the system.

1.1. Validation With RPM

RPM Validation can perform with fix 25 RPM.



Press **MODE** to select Validation or Utilities

Press **Enter** to validate system with RPM, Time or with count.

Press **Enter** for 25 RPM validation

Use Calibrated RPM meter to validate.

Instrument will detect home position.

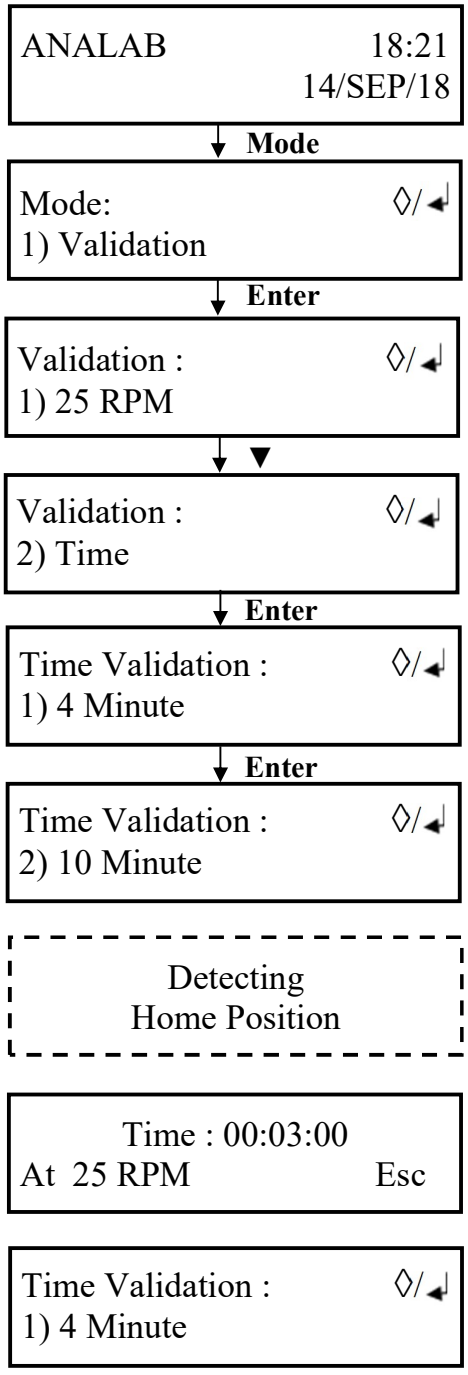
Actual rotation starts with beep sound. Start RPM meter at this point. Drums rotates 25 rotation in 1 minute.

Press **ESC** to come out from RPM validation

1.2. Validation with Time

Time Validation can perform with 4 Minute / 10 Minute or user define time.

1.2.1. Validation with fix Minutes (4 or 10)



Press **MODE** to select Validation or Utilities

Press **Enter** to validate system with RPM, Time or with count.

Press ▼ key to select Time validation

Use Calibrated Stop Watch to validate.

Press **ENTER** to select time i.e. 4-minute, 10 minute or user define.

Select 4 minute

OR

10 minute with ▼▲ keys.

Press **Enter**

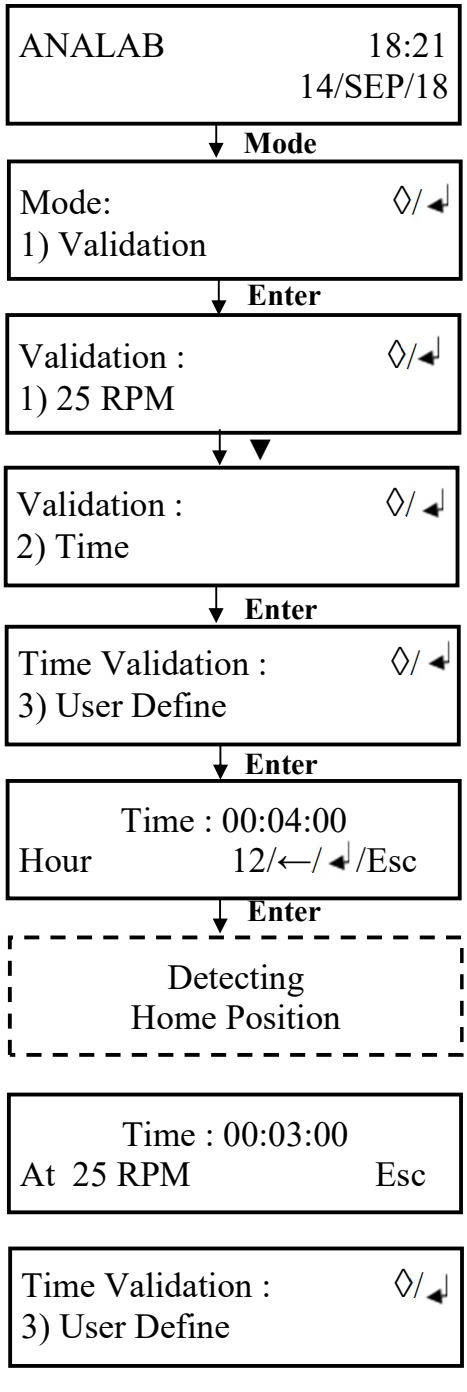
Instrument will detect home position.

Actual rotation starts with beep sound. Start stop watch at this point. Drums rotates for 4 minutes or 10 minutes as per selection at 25 RPM.

Press **ESC** to come out from Time validation

1.2.2. Validation with User Define Time

User can define time for validation.



Press **MODE** to select Validation or Utilities

Press **Enter** to validate system with RPM, Time or with count.

Press ▼ key to select Time validation

Use Calibrated Stop Watch to validate.

Press **ENTER** to select time i.e. 4-minute, 10 minute or user define.

Select User Define time validation

Press **Enter**

Define Time as require with numeric keys in Hour :Min: Sec format and press **Enter**

Instrument will detect home position.

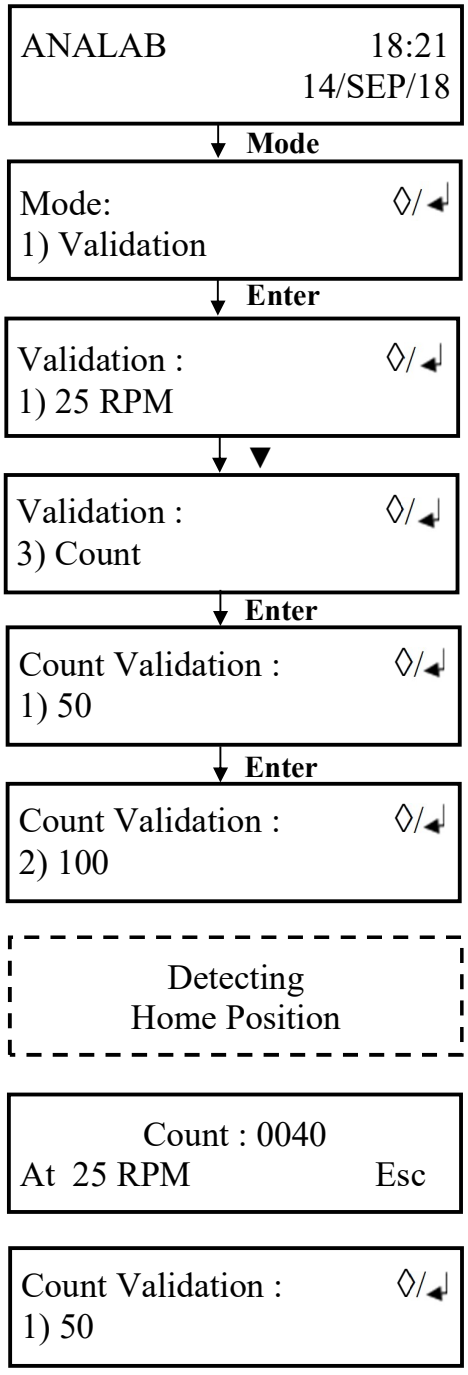
Actual rotation starts with beep sound. Start stop watch at this point. Drums rotates for 4 minutes or 10 minutes as per selection at 25 RPM.

Press **Esc** to come out from Time validation

1.3. Validation with Count

Count Validation can perform with 50 / 100 or user define counts.

1.3.1. Validation with fix Counts (50 or 100)



Press **MODE** to select Validation or Utilities

Press **Enter** to validate system with RPM, Time or with count.

Press ▼ key to select count validation

Use Calibrated RPM meter to validate.

Press **ENTER** to select count i.e. 50, 100 or user define.

Select 50 count

OR

100 count with ▼▲ keys.

Press **Enter**

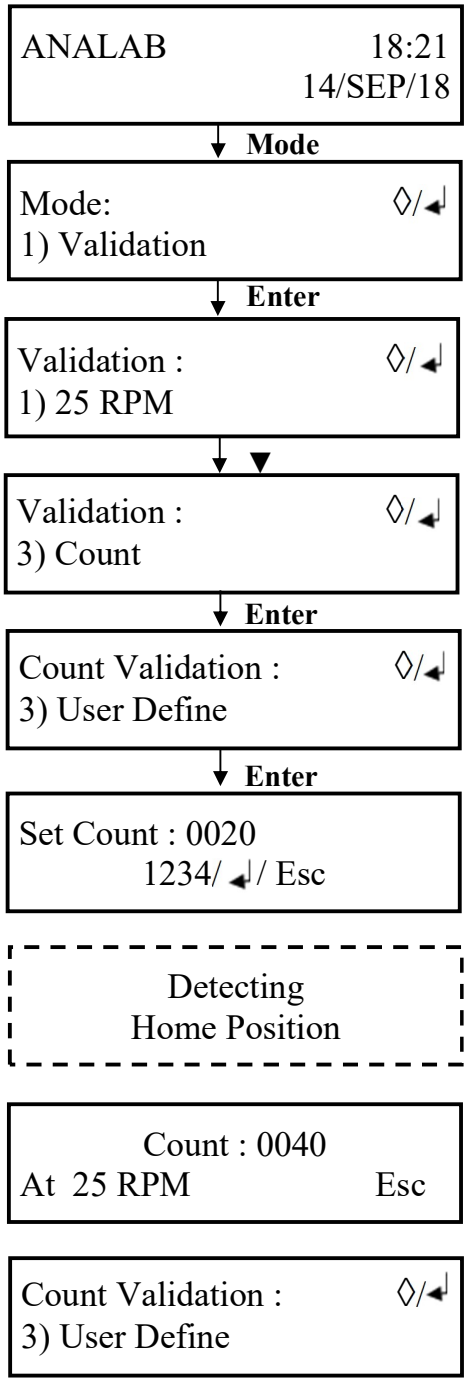
Instrument will detect home position.

Actual rotation starts with beep sound. Start RPM meter at this point. Drums rotates for 50 or 100 times as per selection at 25 RPM.

Press **ESC** to come out from count validation

1.3.2. Validation with user define counts

User can define counts between 1 to 9999 for validation.



Press **MODE** to select Validation or Utilities

Press **Enter** to validate system with RPM, Time or with count.

Press ▼ key to select count validation

Use Calibrated RPM meter to validate.

Press **ENTER** to select count i.e. 50, 100 or user define.

Select User Define with ▼▲ keys.

Press **Enter**

Set counts as require with numeric keys and press **ENTER**

Instrument will detect home position.

Actual rotation starts with beep sound. Start RPM meter at this point. Drums rotates for user define set counts at 25 RPM.

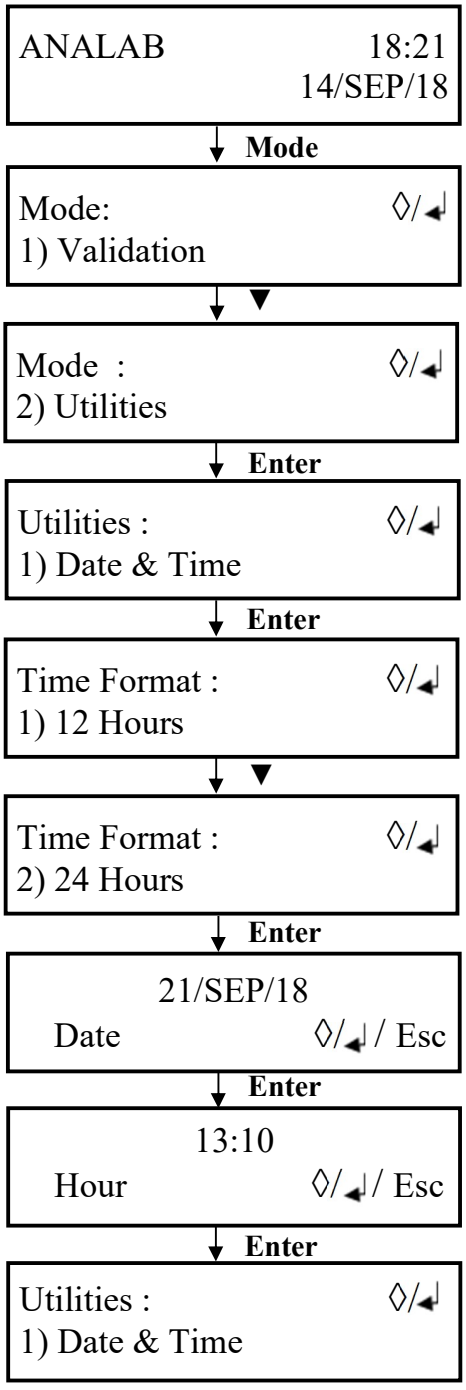
Press **ESC** to come out from count validation

MODE 2 : UTILITIES

This mode is useful to set instrument parameters require to set /edit Date and Time of instrument, company name set and to view serial no. of instrument

2.1. Date & Time

µFTCal10 has in built clock which will updates with inbuilt battery. User can set date and time from this utility.



Press **MODE** to select Validation or Utilities

Press ▼ to select Utilities mode.

Press **Enter** select utilities i.e. Date & Time, Name Set and serial number

Press **Enter** to set / edit date and time.

User can select time format between 12 & 24 hours with ▲▼ keys.

Press **Enter** to set Date / Month and Year .

Use ▲▼ keys to set date / Month or year. Press Enter to accept set value.

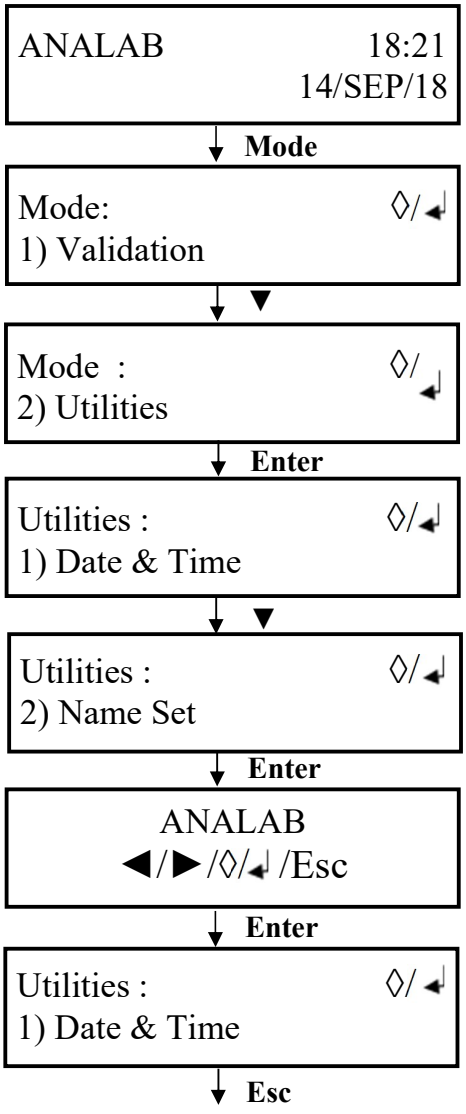
Use ▲▼ keys to set Hour and Minute. Press Enter to accept set value and date/time will update.

Time Format Type	Time Display
24 Hours	13:10
12 Hours	01:10 PM

Press **Esc.** to come out from date/time setting.

2.2. Name Set

Set the name of company to display on standby screen of the instrument.



Press **MODE** to select Validation or Utilities

Press ▼ to select Utilities mode.

Press **Enter** select utilities i.e. Date & Time, Name Set and serial number

Press ▼ to set Name of the company.

Press **Enter** to set / edit name

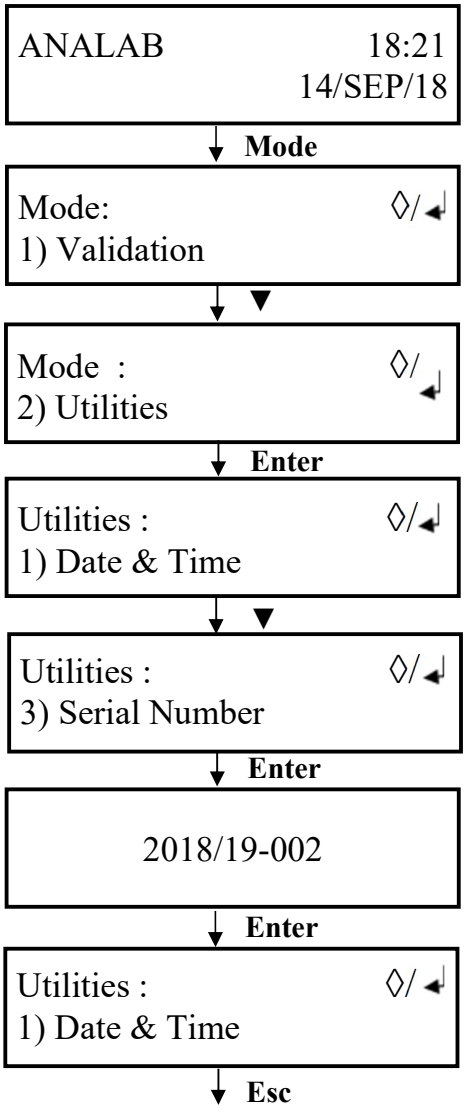
Use ▲▼ keys to write alphabetics. ►◄ keys to shift next alphabet. Press **Enter** to accept new name.

(Max. Six character can set)

Press **Esc.** to come out from date/time setting.

2.3. Serial Number

Serial number is factory set number. User can not change the value. User only can view.



Press **MODE** to select Validation or Utilities

Press ▼ to select Utilities mode.

Press **Enter** select utilities i.e. Date & Time, Name Set and serial number

Press ▼ to set Name of the company.

Press **Enter** to set / edit name

Use ▲▼ keys to write alphabetics. ►◄ keys to shift next alphabet. Press **Enter** to accept new name.

(Max. Six character can set)

Press **Esc.** to come out from date/time setting.

10. GUARANTEE

Friability Test Apparatus is guaranteed for a period of 12 calendar months from the date of installation OR 18 calendar months from the date of delivery (whichever is earlier) against defects in material or workmanship other than valves, semiconductor, electrodes, batteries, PVC & Polycarbonate material etc. During the guarantee period, our liability is limited to the repair or replacement at our option of the instrument or parts thereof found to be defective.

11. SERVICE AFTER SALES

Utmost care is taken in the design, manufacture, and inspection of all ANALAB makes instruments to ensure trouble free service for long period. However, in case of unsatisfactory performance of any our instruments please contact our distributor for your area through whom the instrument was purchased under intimation to us.

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