Digital differential cell counter

µDCC-100

Operating instructions

Contents

1. Safety

The following symbols mean:

Caution!

Read these operating instructions fully before use and pay particular attention to sections containing this symbol.

GENERAL SAFETY

- Operation of the unit must be carried out according to the given operating instructions.
- The unit should be saved from shocks and falling.
- After transport or storage in humid conditions dry out the unit (2-3 hrs) before connecting it to the mains power supply.
- Do not make modifications in design of the unit.

ELECTRICAL SAFETY

- Connect only to a power supply with a voltage and polarity corresponding to that on the serial number label.
- Ensure that the mains connector is easily accessible during use.
- Before moving the unit, disconnect the power supply units from the mains.
- If liquid is spilt inside the unit, disconnect it from the mains power supply and have it checked by a competent person.

DURING OPERATION

- Do not operate the unit in premises with aggressive or explosive chemical mixtures.
- Do not operate the unit outside the laboratory premises.
- Do not operate the unit which have not been correctly installed or repaired.
- Take all necessary precautions to ensure safe operation.
- Do not leave the operating unit unattended.

BIOLOGICAL SAFETY

- It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilt on or inside the equipment.

2. General Information

Digital differential cell counter µDCC-100 is designed for use in hematology laboratories, these microcontroller based differential cell counters calculate percent (%) and absolute WBC values with a feature of alert activated at every 100 counts with an option of 100 count lockout. Channels are displayed simultaneously on a bright backlit LCD screen. The counter is available in 6 cell count key model and counts up to 12 cell particles under normal and abnormal cell category.

3. Getting started

UNPACKING:
Remove packing materials carefully and retain for future shipment or storage of the unit.

THE UNIT SET INCLUDES:
Digital differential cell counter……1 unit
Power supply unit……1 unit
Operating Instructions……1 unit

SET UP:

- Place the unit upon even horizontal non-flammable surface away from any flammable materials (not less than 30 cm);
- Plug the mains power supply into the socket and position the unit so that there is ease access to the instrument.

4. Operation

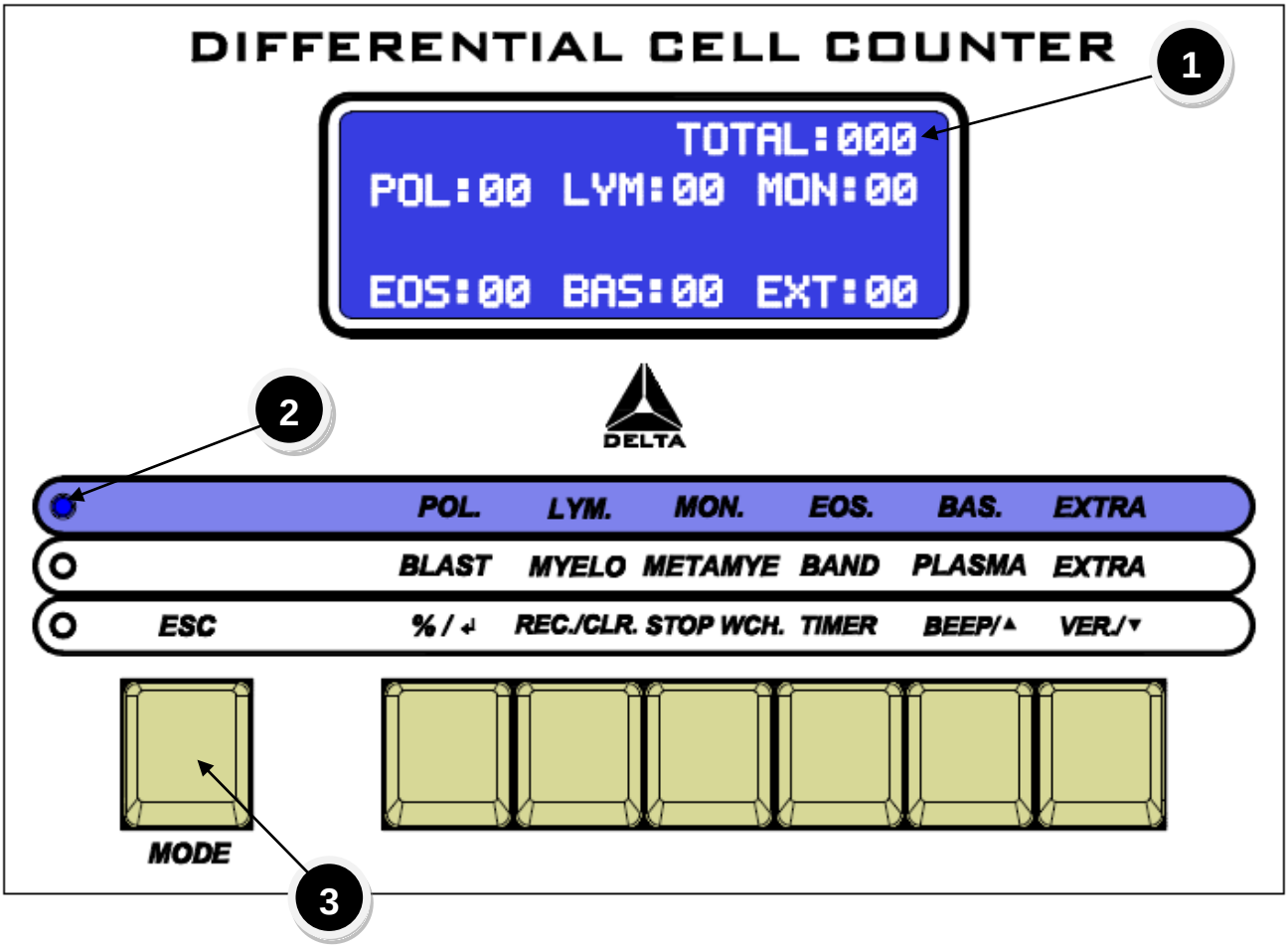


Fig. 1 MODE-A (NORMAL CELL PARTICLES)

4.1 Connect power supply to the mains.

4.2 Switch **ON** the unit and the display shows **MODE-A** (Fig.1) where normal cell particles (Poly, Lym, Mon, Eos, Bas and Extra) are counted by pressing the respective key given below each cell particle's name.

MODE-A (Fig.1) is the default mode for every time the unit is switched **ON** which is indicated by a glow of blue led light (Fig. 1/❷).

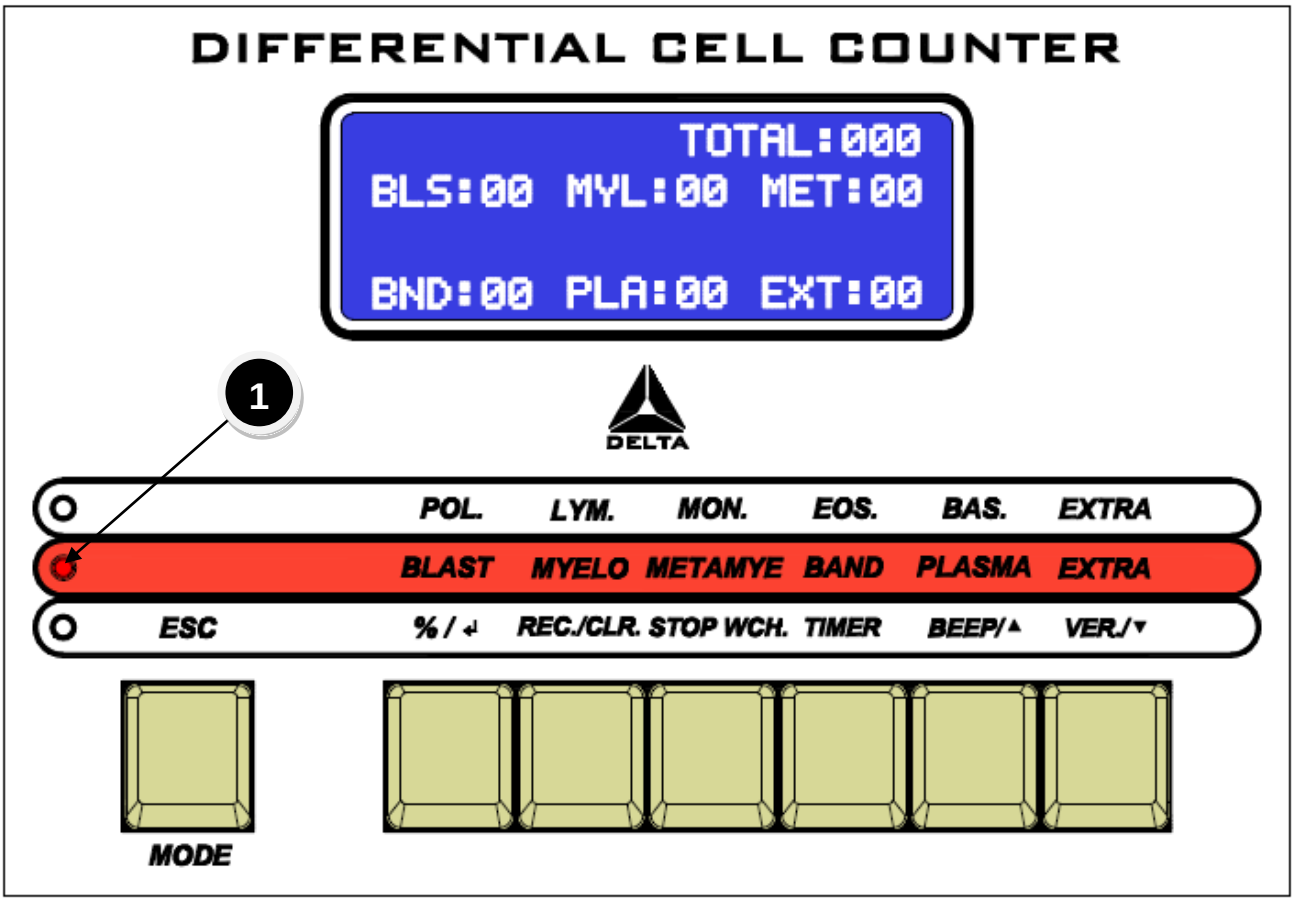


Fig. 2 MODE-B (ABNORMAL CELL PARTICLES)

4.3 Press **MODE** key (Fig. 1/❸) to choose **MODE-B** (Fig. 2) where abnormal cell particles (Blast, Myelo, Metamye, Band, Plasme and Extra) are counted by pressing the respective key given below each cell particle's name.

MODE-B is indicated by a glow of red led light (Fig. 2/❶).

4.4 Using the respective key under **MODE-A** and **MODE-B**, count the cell particles. The sum total of each cell particles is shown on the upper right corner **TOTAL: 000** (Fig. 1/❶).

4.5 After every **TOTAL: 100** (Fig. 1/❶) count the unit gives a long beep sound signal.

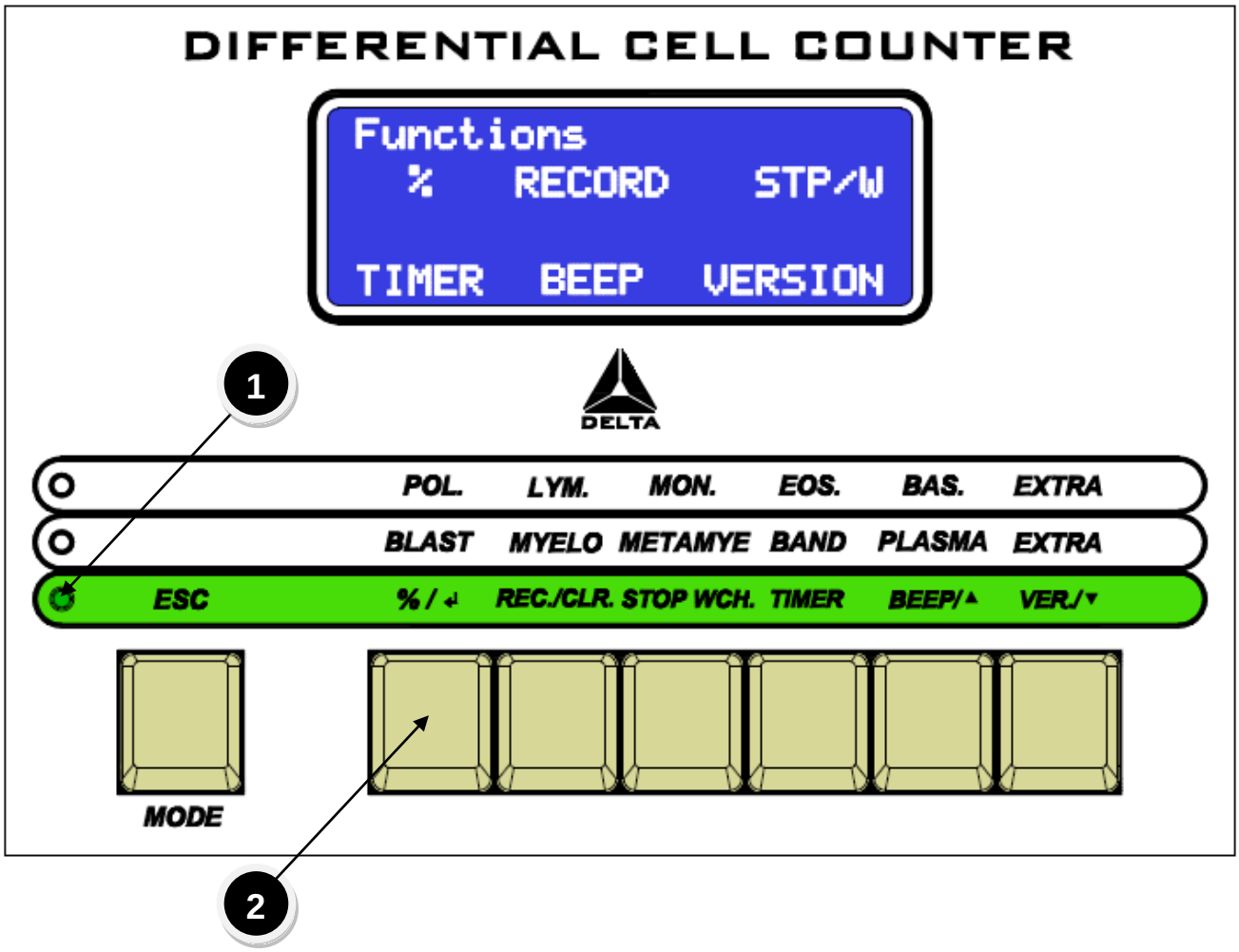


Fig.3 MODE-C (FUNCTIONS)

4.6 Press **MODE** key (Fig. 1/❸) to choose **MODE-C** (Fig. 3) for **FUNCTIONS** like Percentage calculator, Record, Stop Watch, Timer and Beep (Key sound).

MODE-C is indicated by a glow of green led light (Fig. 3/❶).

4.7 Press **MODE** key (Fig. 1/❸) to select from **MODE-A**, **B** & **C**.
Each press of **MODE** key (Fig. 1/❸) consecutively activates the next **MODE** in ascending order, which is indicated by a glow of led provided on the left hand side of respective **MODE**.

Blue led light : **MODE-A** NORMAL CELL PARTICLES (Fig. 1/❷)
Red led light : **MODE-B** ABNORMAL CELL PARTICLES (Fig. 2/❶)
Green led light : **MODE-C** FUNCTIONS (Fig. 3/❶)

FUNCTIONS

PERCENTAGE %

Percentage function enable user to calculate the **%** value of individual cell particle with **TOTAL** value.

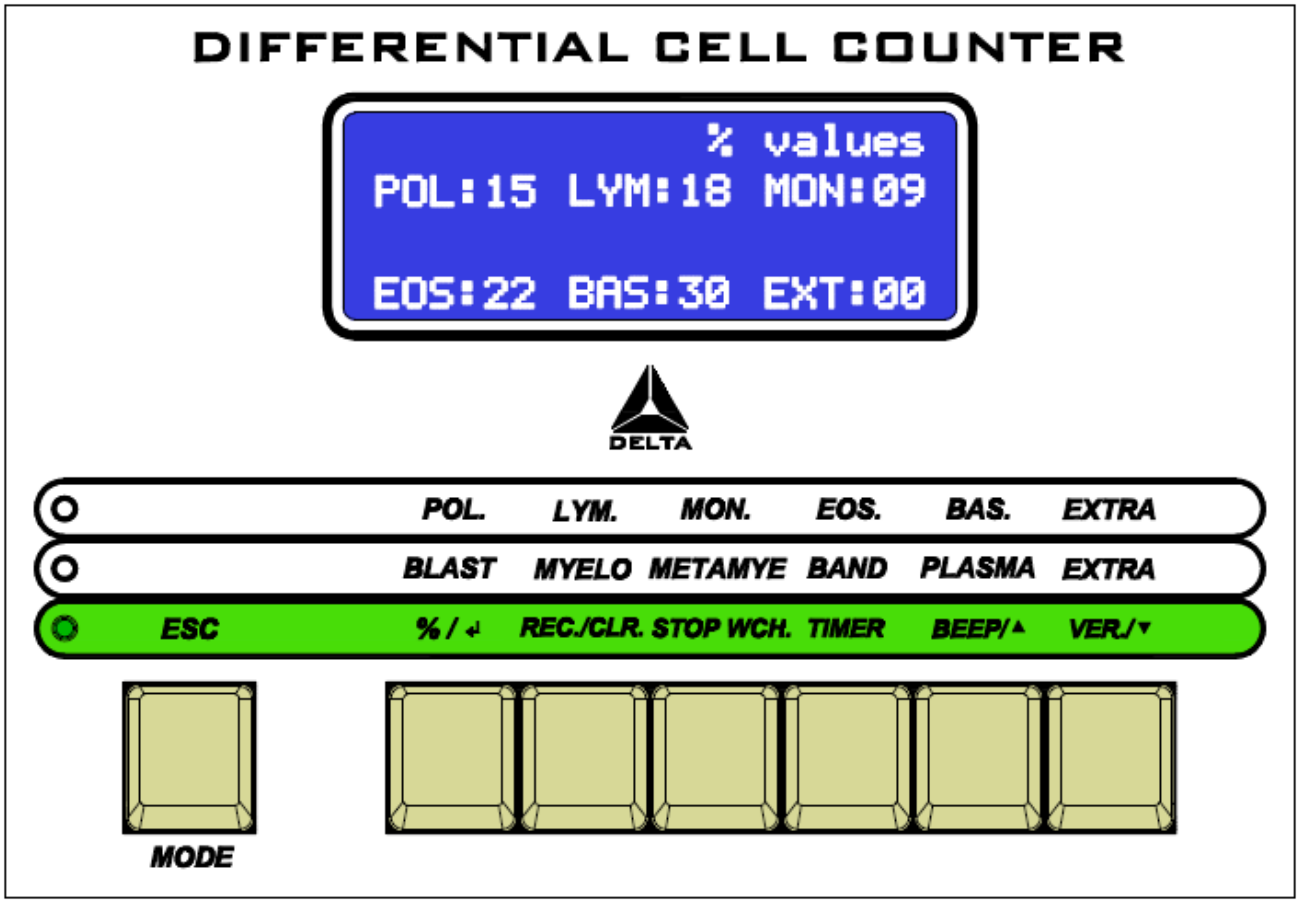


Fig. 4 Percentage Value

4.8 Press **%/↵** key (Fig. 3/❷) to see **%** value of Normal cell particles followed up by % value of Abnormal cell particles by pressing **%/↵** key another time.
Subsequently, press **%/↵** key (Fig. 3/❷) to save data by selecting "**YES**" with the help of ↵ (Enter), ▲ (Up), ▼(Down) and **ESC** key or select "**NO**" to return to **MODE-A** (Fig. 1).

4.9 In case of no value entered by user, by pressing **%/↵** key (Fig. 3/❷) it display "**NO VALUE FOUND!**" message.

RECORD

Record function allows user to view, print and delete stored data.

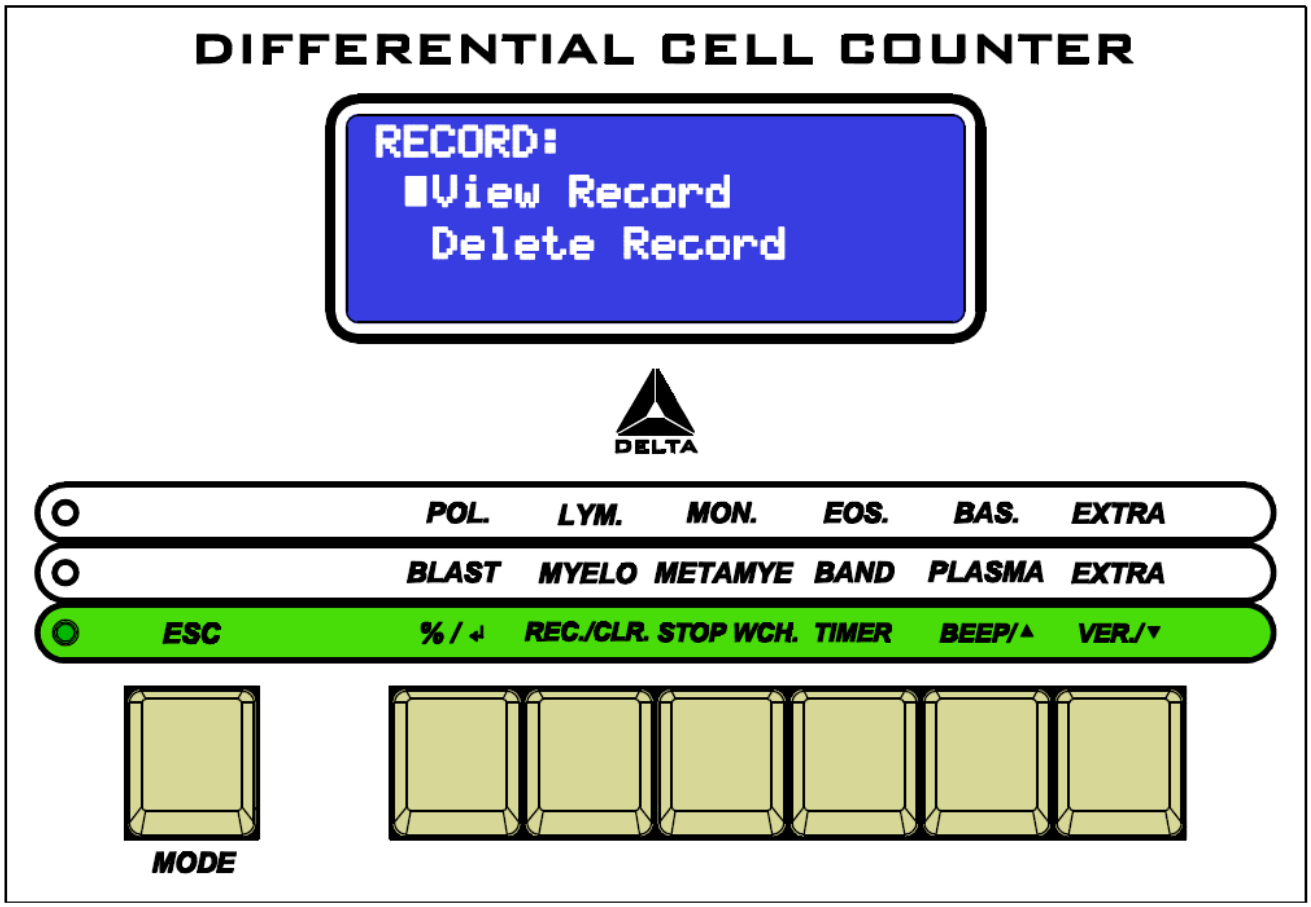
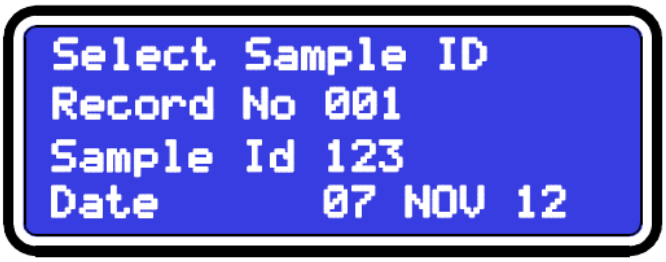


Fig. 5 Record

4.10 Select "**View Record**" or "**Delete Record**" by pressing ▲ (Up), ▼(Down) and press ↵ (Enter) key to select function.

4.11 To view stored results select appropriate **Record no. / Sample Id.** using ▲ (Up), ▼(Down) and press ↵ (Enter) key, which display the following message.



4.12 To delete stored data select ”**Delete Record**”. by pressing ▲ (Up), ▼(Down) and ↵ (Enter) key, which display the following message.

Select “**Sample Id**” to delete record “**One by one**” or “**All record**” to delete all stored data by pressing ▲ (Up), ▼(Down) and ↵ (Enter) key.

STOP WATCH

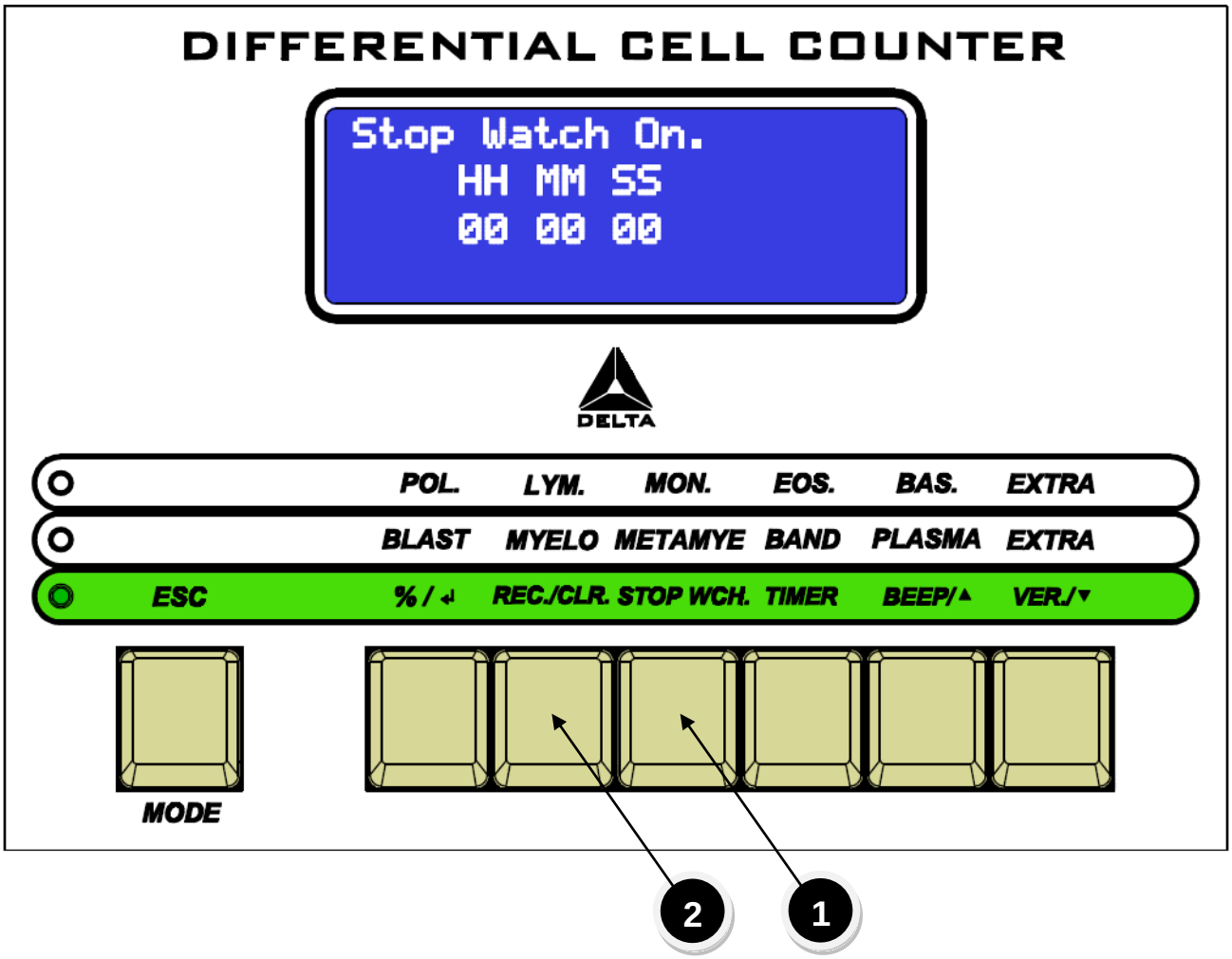


Fig. 6 Stop watch

4.13 To start and stop the "**Stop watch**" press stop watch key (Fig.6/❶).
Reset stop watch by "**Clear**" key (Fig.6/❷).
Maximum stopwatch limit can be up to 99 Hours, 59 Minutes and 59 Seconds.

TIMER

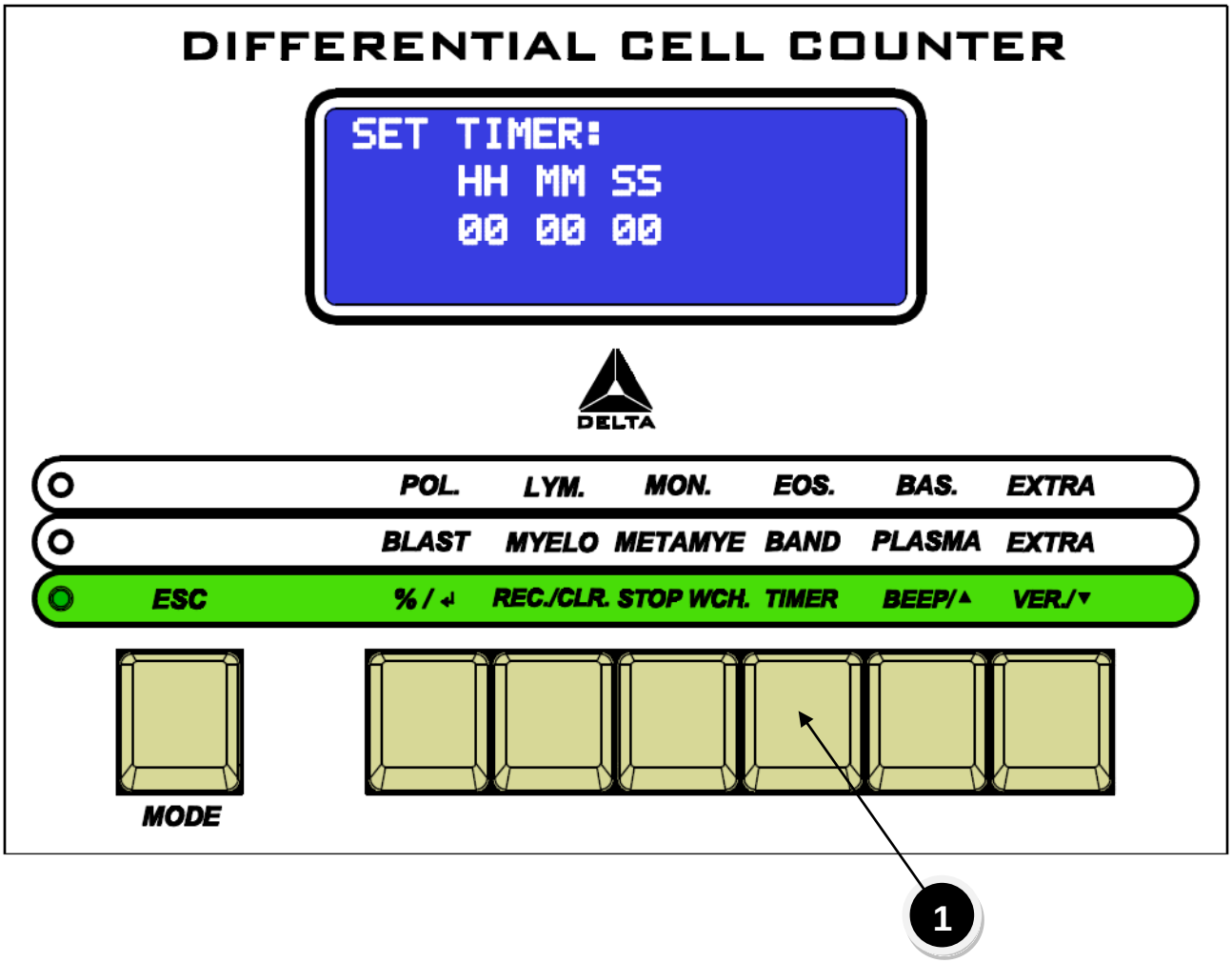


Fig. 7 Timer

4.14 Set desired "**Countdown Timer**" by pressing "**Timer**" key (Fig.7/❶).
Set parameter in order of **Hours (HH)**, **Minutes (MM)** and **Seconds (SS)** respectively by pressing ▲ (Up), ▼(Down) and ↵ (Enter) key.
Maximum timer limit can be set up to 99 Hours, 59 Minutes and 59 Seconds.

4.15 Unit will give" **Alarm**" (beep audio signal) as the countdown time is over.
Switch off alarm by pressing any key.

SETUP FUNCTIONS

SET DATE & TIME

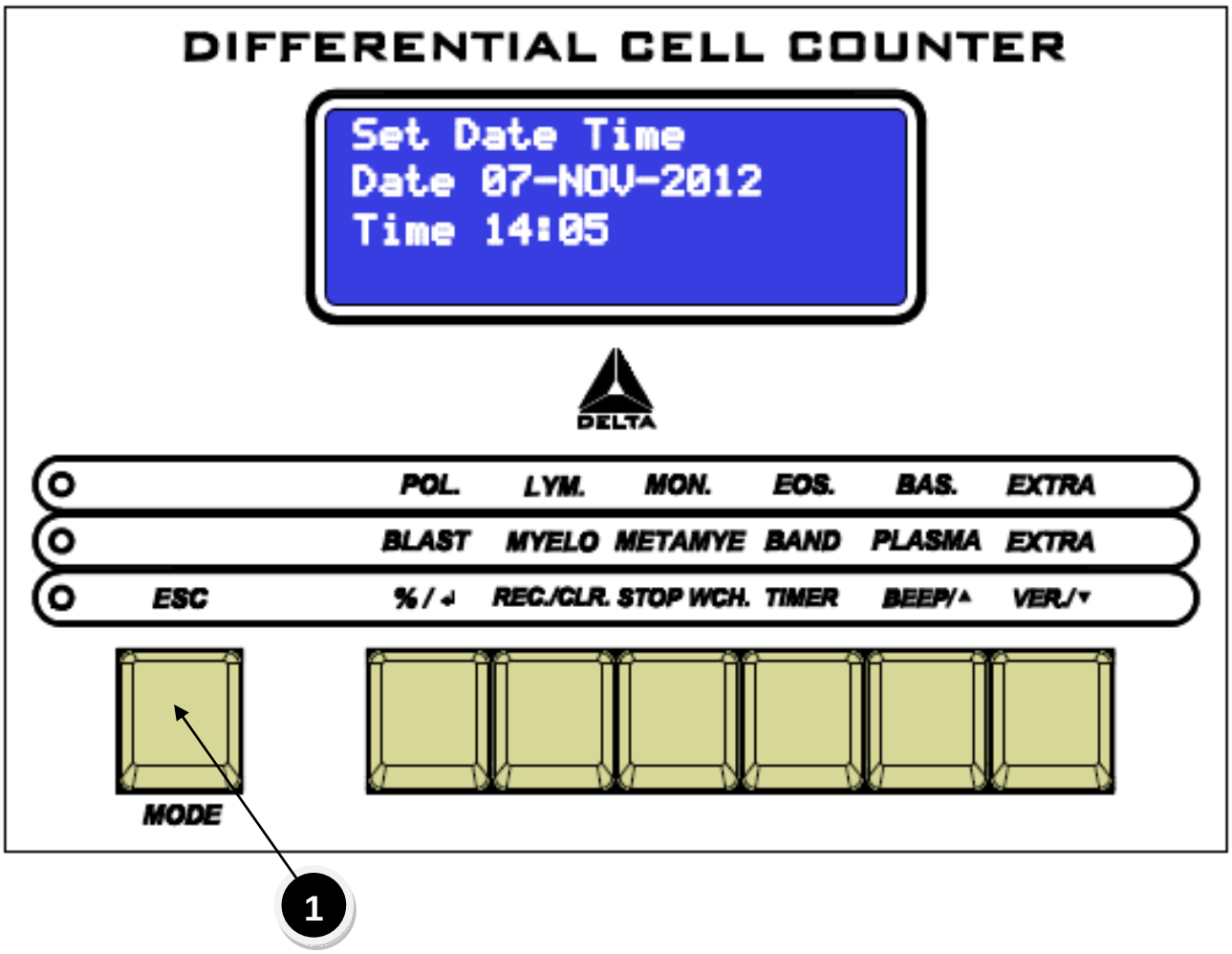


Fig. 8 Set Date Time

4.16 Keep pressing "**Mode**" key (Fig.8/❶) with "**On/Off**" key to "**Set Date & Time**" (Fig.8).

4.17 Set parameter in order of **Date**, **Month**, **Year**, **Hours** and **Minutes** respectively by pressing ▲ (Up), ▼(Down) and ↵ (Enter) key.
Each press of ↵ (Enter) key will activate the next parameter to edit.
Press ↵ (Enter) key after setting "**Minutes**" to return to "**Mode A**".

5. Specifications

The unit is designed for operation in cold rooms and closed laboratory rooms at ambient temperature from +10°C to +40°C.

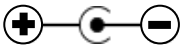
5.1 Technical specifications

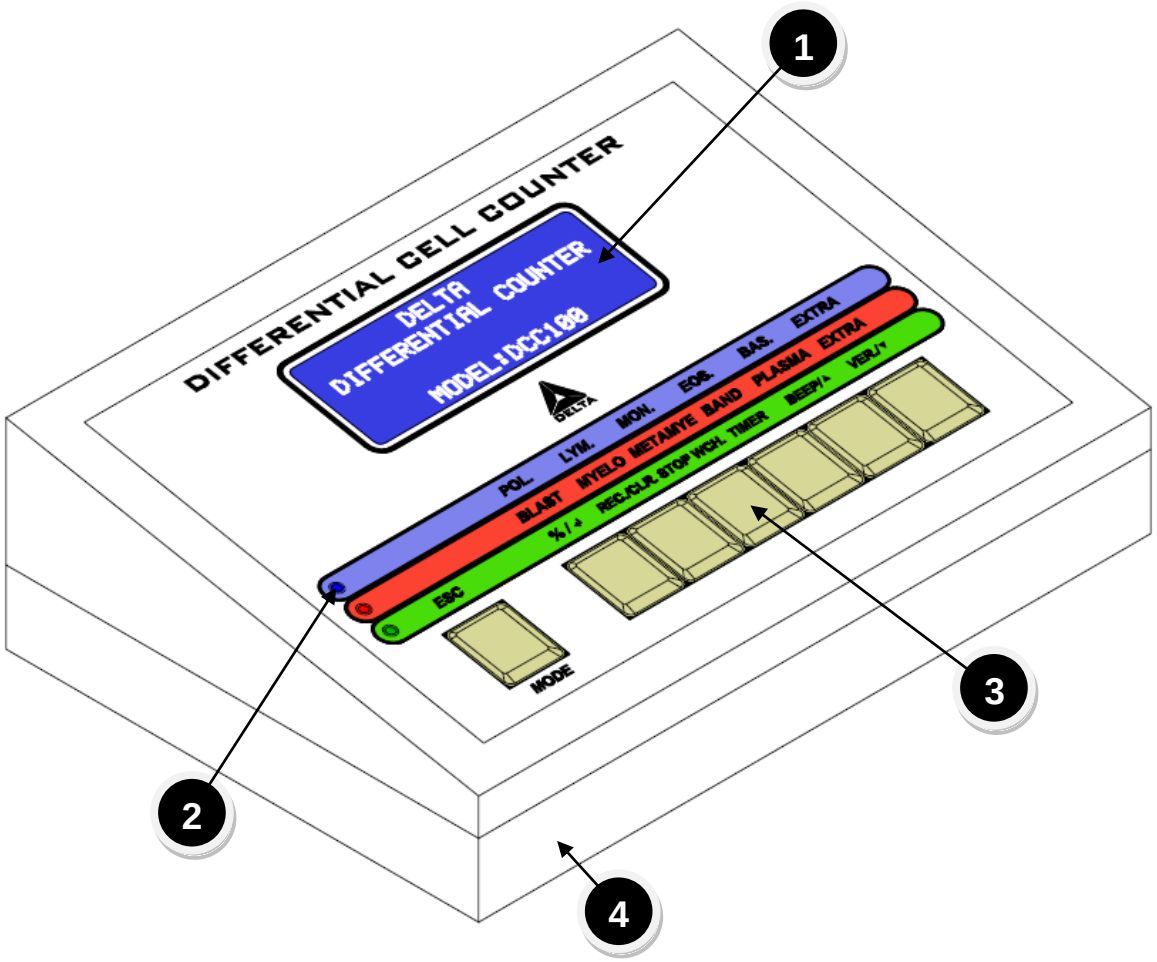
- Total 12 types of cell particles can be counted under NORMAL & ABNORMAL category.

  NORMAL Cell particles: Poly (Neutrophils)
  Lymphocytes
  Monocytes
  Eosinophils
  Basophils
  Extra (User defined).

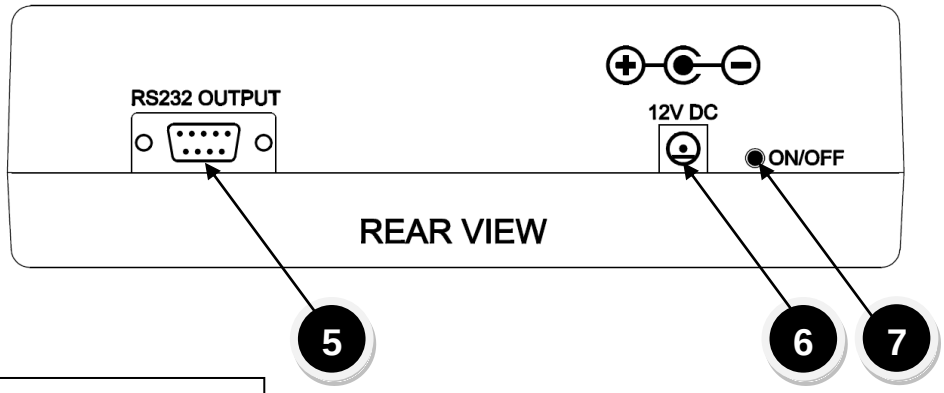
  ABNORMAL Cell particles: Blast
  Myelocytes
  Metamye
  Band
  Plasma
  Extra (User defined).
- Built in percentage calculator for NORMAL & ABNORMAL cell particles.
- Built in DATA STORAGE MEMORY, STOP WATCH & COUNTDOWN TIMER.
- Data storage memory of 500 test result.
- Stored test result can be deleted individually or all at a time.
- Maximum limit of Stop watch and Countdown timer can be set up to 99 hrs 59min 59 sec.
- A long beep audio signal at every 100 counts.
- Seven keys operation.
  (1 key for MODE selection and 6 keys for counting and other operational functions.)
- Premium quality and long life computer keyboard switches allows users to gain highest operating speed with least error.
- RS232 output for computer connectivity or external thermal recorder.
- Adjustable key stroke timing for fast performance of counting, allowing highest accuracy during operation.
- Push button ON/OFF.

5.2 General specifications

- Big 20X4 Character LCD with back light.
- ABS plastic body which prevents electric shock.
- External power supply 12V/9V DC, Polarity: Centre negative 
- Dimensions (W X L X H cm): 18.5 X 13 X 5
- Weight < 0.4kg.



DIGITAL DIFFERENTIAL CELL COUNTER



❶ DISPLAY
❷ MODE LED
❸ KEYBOARD
❹ CABINET
❺ RS232 OUTPUT
❻ 12V/9V DC IN
❼ PUSH BUTTON ON/OFF

6. Guarantee and Service

6.1 **Guarantee**

When used in laboratory conditions according to this manual, this product is guaranteed for ONE year against faulty materials or workmanship.

6.2 **Service & Maintenance**

There are no user-serviceable parts inside the unit. For all maintenance and repairs return to our service department or our distributor.

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