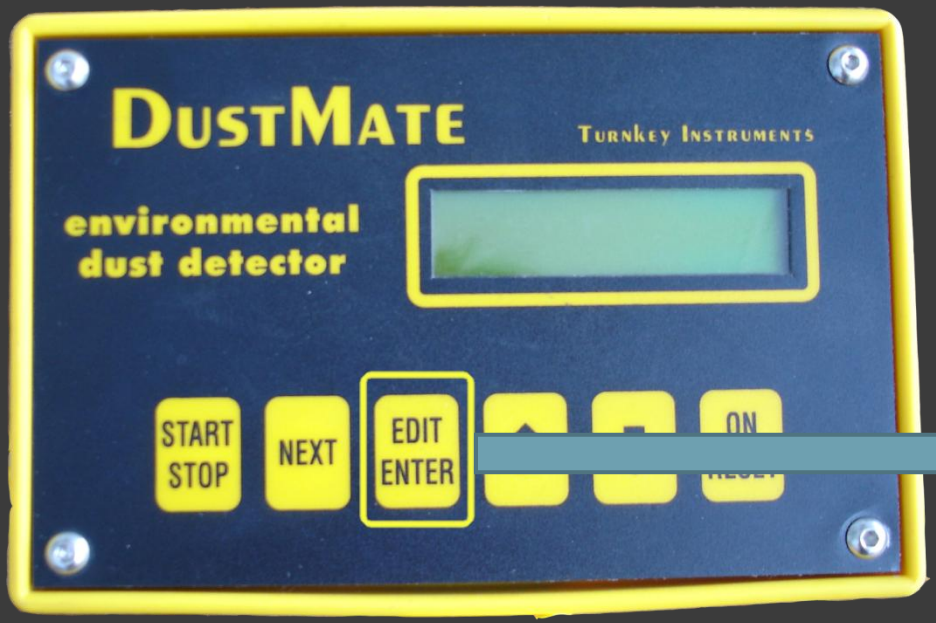
Dustmate

On / Reset

- To switch on
- To quit editing
- To see battery condition & location

Edit / Enter



►To select the Dustmate Editor

►To select an operation or confirm a response

►To enter the changes made during editing

Start / Stop

- To start or stop sampling
- To clear memory
- To review stored results
- To clear a value during editing

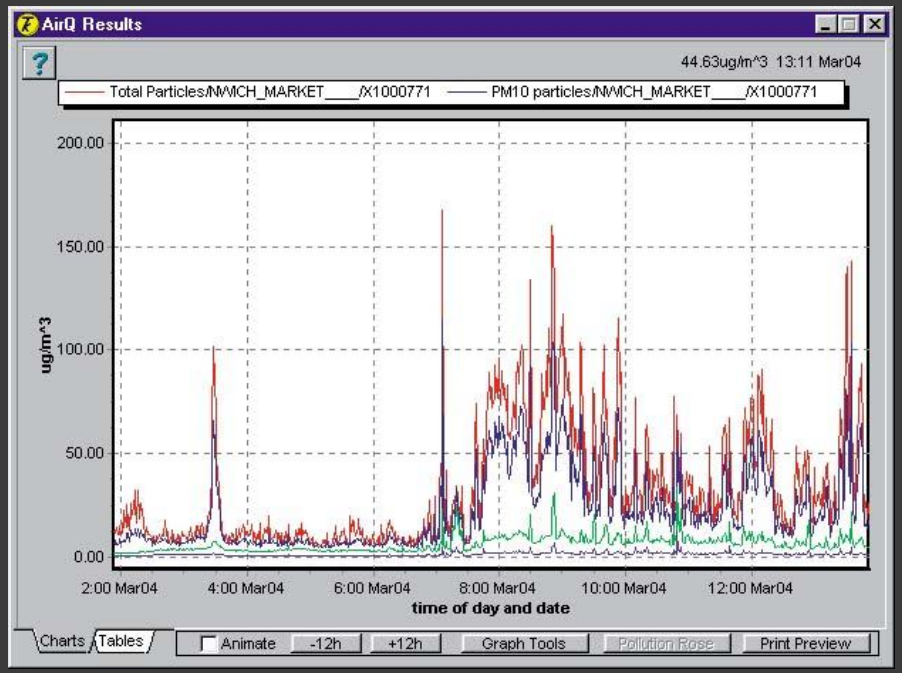
- To increase a value
- To say YES

- To decrease a value
- To say NO

Next

►To go to the next item or display

Air32Q Installation



To install in Windows: Insert CD it will launch automatically, then follow the on-screen instructions

Uploading Stored Results

- To upload stored results to AirQ connect the PC-Link lead to the 8 pin DIN connector on the battery pack and to one of the serial ports of your PC. Then refer to the on-line help provided with AirQ. You can upload stored results while DUSTMATE is still sampling (although you cannot upload the current sample being taken).
- If the DUSTMATE is not sampling you can also use AirQ to erase its memory and change other settings of the instrument.

DUSTMATE SAMPLING MODE

- The Sampling Mode allows you to manually tell DUSTMATE to start or stop sampling and to review the sample results stored in its memory. To select the Sampling Mode press **[START] when the display shows *"DUSTMATE ready". You will then be*** prompted with various questions:
- **RESET MEMORY ?**

  : Select YES if you wish to set the instrument memory back to the beginning and the sample number back to 1. You must do this before changing to or from Workplace Mode. Make sure you have uploaded all the results you wish to keep before doing this as they will be lost irretrievably when the memory reset. Press **[ENTER] to execute the** selection. As a precaution, if you have said YES, the instrument will prompt you with:

  ARE YOU SURE ?

  : select YES to confirm the memory reset and then [ENTER].

- **START SAMPLE nn: where nn is the identification number (between 1 and 85) of** the sample you are about to start. It will be Sample 1 if you have just reset the memory. Select YES if you wish to start sampling and press **[ENTER] to** execute. The pump will turn on and dust sampling will commence and the display will show ***"…sampling…". If display cycling is not selected, use*** **[NEXT] to step through the results channels. If you select NO the review** results option appears (providing some results are already in memory).
- **REVIEW RESULTS: select YES if you wish to review the results saved so far,** then **[ENTER] to execute. The review will show on the LCD. For each** completed sample, the sample identification number, its start and stop time, its location and the mean dust concentration over the sampling period will be displayed. Press **[NEXT] to move on to the next sample.** Press **[RESET] to quit.**

- **STOP SAM PLE nn: where nn is the identification number (between 1 and 85) of the** dust sample currently being taken. Select YES if you wish to stop sampling and press **[ENTER] to execute. The pump will stop and dust sampling will** cease. Providing the sampling duration was long enough to have saved results in memory, when you next start sampling the sample identification number will automatically increase by one. If no results were saved, the sample number will not change. If Sample 85 is reached you will be invited to reset the memory to Sample 1.

- The present time and date, the time the sample started and the sample number can also all be displayed on the LCD whilst DUSTMATE is sampling by pressing and releasing **[RESET]. Note that the time the sample started is recorded as when the** first result is stored.

Warning

The DUSTMATE photometer contains a Class 3B laser which may cause eye damage if the photometer is opened.

The are no user serviceable parts inside the DUSTMATE instrument case. The manufacturer's warranty is invalidated if the case seal is broken.

MAINTENANCE

- **CHARGING THE BATTERY:**

  To re-charge DUSTMATE battery, connect the charger supplied with the instrument 8 pin DIN connector on the battery pack. Switch on the mains power to the charger. A full charge takes about 12 hours.

  With a fully charged battery, DUSTMATE can be operated for over 4 hours. For longer sampling periods you must leave the battery charger (or any other 12 volt dc power supply) permanently connected to the battery pack.

  Always recharge the battery as soon as possible after the ***"Charge Battery" warning appears on the display.***

MAINTENANCE

Always recharge the battery as soon as possible after the ***"Charge Battery" warning appears on the display.***

To get the best performance and battery life out of your DUSTMATE it is important that the battery is kept in good condition.

If the battery has gone into deep discharge through neglect or miss-use, it may take up to 72 hours of re-charging to fully recover its capacity.

The battery pack can recharged separately from the instrument and spare battery packs can be purchased to swap during sampling.

MAINTENANCE

- **CHANGING THE CAL IBRATION FILTER:**

  The calibration filter is designed to collect dust particles for calibration purposes and to protect the pump and photometer.

  It is located on the rear of the instrument.

  The recommend filter type is Whatman GF/A 25mm fiber glass circles.

  To change the filter, remove the 3 countersunk screws securing the filter cap to its base. The cap contains the filter circle secured by an O-ring. Check the O-ring is in good condition when replacing the filter. Check too the smaller O-ring for the off-centre exhaust tube on the base. Proper sealing cannot be obtained unless both O-rings are fitted. Make sure the small O-ring is aligned with the exhaust tube before refitting the filter cap.

MAINTENANCE

Never run the instrument without the calibration filter. There is a foam pad which acts as a backup filter in the filter cap but damage to the pump or photometer might still occur. The foampad is washable.

CAL IBRATION: To calibrate the instrument divide the weight of dust on the filter (in micrograms) by the volume of air passed through it. This is the *Filter Concentration and the Calibration Factor should be adjusted by the ratio*

(Filter Concentration)/(Average Dust Reading). For a single sample the accumulated dust reading is equal to the average dust reading for that sample. See below for calibrations over multiple samples.

As an aid to calibration Dustmate will automatically record the number of minutes the filter has been used for, up to a maximum of 65536 (about 45 days). It will also record the *Accumulated Dust Mass in milligrams it has* seen (over all samples) using its old calibration factor and assuming a flow rate of 600 ml/min. See the *Filter and Airflow section of the Editor. In* this case, the Calibration Factor should be adjusted by the ratio (Increase in Filter Mass)/(Accumulated Dust Mass).

Because the instrument cannot determine the material density, the calibration factors may change depending on the type of dust.

- **CLEANING THE INLET:** Before sampling begins make sure that the TSP Inlet or Impactor is clean. The inlet is a push fit into the metal Luer fitting on the instrument ltop. Remove the inlet by gently pulling and twisting to leave the Luer fitting in the lid.

  The Impactor cap is held in place by three M3 Allen cap screws.

  The impactor plate is exposed when the cap is removed and should be cleaned and lightly coated with Vaseline petroleum jelly to make sure that impacted particles are retained on it.

  Do not remove the four Allen button screws on the instrument lid which hold the Luer fitting in place.

  When replacing the impactor make sure the Luer fitting is pushed down hard.

  The Luer Inlet can itself be removed for cleaning by gently pulling and twisting. Replace by carefully pushing and twisting.

- **CORRECT FLOW RATE:**

  To provide the correct particle size selection characteristic the instrument the flow rate must be set to 600 cc/min. It is recommended that the instrument flowrate is checked and adjusted periodically using a rotameter or other type of flowmeter.