

DIVERSE
PCS - 2000
PARTICLE COUNTING SYSTEM SERIAL SOFTWARE

A guide to using PCS2000 serial software (versions 2.2.x and 2.3)

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A1 Installing PCS2000 software(if not pre-installed)

Insert installation disk into the PC floppy drive. Use Windows Explorer or a similar programme to view the contents of the a: drive. Double click on the setup.bat file. A DOS window will appear. Once the installation is complete close the window. A PCS2000 icon will now appear on the desktop. A program directory (c:pcs2000\programs) and a data directory (c:pcs2000\data) will have been created on the PC hard drive.

Before using PCS2000, Borland Database Engine (BDE) must be installed. Insert PCS_DBE Disk 1 into the PC floppy drive. Use Windows Explorer or a similar programme to view the contents of the a: drive. Double click on the setup.bat file. Follow the instructions on the screen.

A2 Using PCS2000 software

If this is the first use of the software after installation you will need to contact Diverse (01223 844444) for a password. The software is designed to allow download of data from one or more PCS master units. This data is stored in a database (dBase format).

1. To run the software double click on the desktop icon PCS2000. This will open the main user interface screen. The current database will be displayed at the base of the main user interface screen under **Data Log** with navigation tools just above on the left hand side.
2. Go to **File / Open new log** and give a name to the database that will collect the download data from PCS. Click on **Save** (The Data Log will not show this file until it holds data). Previously saved databases can be reopened using file **ReadinLog**. If this option is used then next downloaded data will be appended to the database.
3. Ensure that the PCS master which you are using has data within its database (refer to Operating Instructions if unsure).
4. Connect the PC to the PCS master using the cable supplied. Use one of the PC serial ports (COM ports) and the nine pin connector on the side of the PCS master unit.
5. Check that the PCS unit is in a main menu i.e. **Run, Serial** etc.
6. Select the COM port which you connected to the PCS unit using the COM port radio group on the main screen of the PC.
7. Click on the **Connect** button on the main screen. The connection status is displayed at the bottom of the main screen and should now be connected.
8. To ensure the connection between the PC and PCS is good click in the **Transmit** box. Any characters typed in the **Transmit** box are sent to the PCS master. Type 'r' in **Transmit** and observe the PCS display. The menu should step one to the right (i.e. **RUN** should go to **ALARMS**). If the menu does not step there is a communication problem. In

this case, switch the power to the PCS master off and then on. Typing 'r' in the **Transmit** box should now shift the menu to the right.

Acceptable commands to the PCS unit:

CommandAction

	(alternative key in brackets)
D	Move down menu
U	Move up menu
L	Move right through menu
R	Move right through menu (arrow keys also carry out above functions)
M(Home)	Returns to first item of main menu (Run)
E(Escape)	Returns to last item in main menu, or Run if already in main menu
Enter	Select current item

To download from the PCS master go to **Set-up / SetComPorts**. A COMS select window will appear. Select the COM port to which you connected the PCS unit. (Note if you connect a number of PCS units to different COMS ports you can select all the COMS port which have a unit connected to them). Click **OK** once the COMS ports have been selected. Now click **Download**. The software will now download the data from the PCS unit. If you have more than one unit connected the data will be download sequentially from each unit.

Data being received by the software is displayed in the **Receive** window. If it is valid data it will be stored in the database displayed at the base of the screen. Once download is complete the downloaded records can be viewed by using the database tools. (For fast scrolling double click on the arrow.)

Provided the download is successful, the software will instruct the PCS master unit to clear its database. You can check this is the case by viewing the number of records in the PCS database (refer to Operating Instructions for details).

A3 Analytic tools

A number of analytic tools are available within the PCS2000 software

To graph data saved in the database you must first select the data.

1. Go to Analysis/ SetRange

A window will appear, select a letter which corresponds to the unit whose data you would like to graph. (The **PCS Mapping** on the main form indicates which serial numbers corresponds to which letters.)

2. Enter the start time and date of the first record you wish to graph in the appropriate boxes. Similarly enter the time and date for the last record you wish to graph. Ensure that the end time and date is not after the end time and date of the final record in the database for the particular PCS unit.

To view the graph go to **Analysis / Graph**. A graph of counts as a function of time will be displayed. Each of the different particle size counts (i.e. 2-3micron etc.) are displayed as a different colour line.

A second form of graph can be obtained by **Analysis / Graph(stacked)**. In this case the counts for a particular particle size are indicated by thickness of a band of colour. This form of stacked graph allows the proportion of counts for a particular particle size, in comparison to the total counts for all particles, to be readily seen.

The software allows stored data to be output in comma separated variable (.csv) format. This can then be read into other software packages, such as MS excel, for further analysis. To do this, go to **Analysis / SetRange**. Select the unit and times and dates for the data which you wish to output as csv. Click **OK** once you've entered the data. Now go to **File / Savedata(csv)** and name the file for this data.

The data you have downloaded is stored in dBase databases in c:\PCS2000\data. Files in dBase format can be opened directly in MS excel. If you choose this option make a copy of the dBase file in a separate directory. This will ensure that the PCS software can still open the original file and add to it if required. Note that the PCS software makes an index file (.mdx) for each dbase file. Ensure that index and Dbase files are not moved from c:\PCS2000\data

A4 Automatic download

If the computer is left connected to one or more PCS units it can download data automatically at preset times.

1. Use the **PCS DownloadTimes** grid on the main form to enter your required schedule. Ensure that:
 - a. The connected COMs ports are selected using **Set-up / SetComPorts**
 - b. The status bar at the base of the main screen reports connected.
 - c. The currently opened database is the one in which you wish to save the data.
2. Click the **Go Live** button.

The software is now in automatic mode and the only active button is the **Running** button. Clicking the **Running** button will return the software to the normal manual mode. During the automatic mode the **Time To Next** event string grid displays:

- a. The current time
- b. The number of minutes until the next download
- c. The numbers of user selected COM ports. These are the ports from which the software will download once the time to next event reaches zero.

A5 Software Updates

Version 2.2.2

- i. Updated online help.
- ii. Modifications allow graphing of data from one of multiple nodes connected to a single PCS master. By clicking on analysis|set range the user can now select the PCS unit and one of 16 possible nodes which may be connected to it. The previous version of the software allowed for only one node to be connected to a master unit.
- iii. Database index now added at File Open - stops conflicts.

Version 2.2.3

- i. Additional hot keys on the main menu bar
- ii. Ticks added to x-axis of graphs (spacing dependent on overall scale 10min, 30 min etc)
- iii. Grey gridlines added to standard graphs.

Version 2.2.4

- i. Pressure added to database log

Version 2.25

- i. Splash screen timer increased to 10s.
- ii. Main form now displayed in normal window, not maximised.
- iii. Check item added to setup/autoeraseDB. If not crossed during manual download user prompted to clear database. Flag ignored in automatic mode.
- iv. Warning screen added to inform user if download attempted from more PCS units than licences.
- v. Fixed bug associated with automatic download.

Version 2.30

- i. Rxmemo cleared during large download before it is full
- ii. Particle count of 65535 displayed graphical as 0 as it represents an error condition.
- iii. Currently open database name now displayed.