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TPS Software For Use With 90 Series Instruments

Thank you for choosing a TPS 90 series instrument. The versatility of the 90 series increases considerably when fitted with the RS232 computer interface port option. The RS232 port is standard when the extended datalogging function is fitted.

This software package allows you to take advantage of the many features that are available with computer interfacing.

The best way to get to know all of the functions of this software package is to try them out. We suggest that you take the time to try all of the functions detailed in this instruction leaflet before you try it with genuine data. To use some of the functions of the software, it is necessary to have some readings stored in your 90 unit's memory. Use the "Notepad" function or the datalogging function (if fitted) to store about 10 readings into the meter's memory before going on to try out the software.

Whenever the instructions in this leaflet ask you to type a command into the computer, the command is written in bold text. It must be typed EXACTLY as shown, and it is understood that you will press the "Enter" key after typing in the command. This avoids repeated use of the phrase "then press Enter".

If you have any problems or questions, please don't hesitate to contact us...

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Computer requirements

IBM (or compatible) computer, with at least 1 x RS232 interface port, designated as "COM1" and, if applicable, "COM2".

Plug one end of the cable supplied into the "COM1" serial port of the computer and the other end into the charger socket of the 90 unit.

If "COM1" is unavailable, "COM2" may be used. The System configuration must be changed to select "COM2". The configuration program is run automatically the first time you use the software, but can be subsequently altered with command 12.

MAKE A BACKUP COPY OF THE DISK.

See your DOS manual on how to copy all of the information from the TPS floppy disk to another floppy disk. The command you would use would be either COPY or DISKCOPY.

(Optional) Copy software to a New Directory on a Fixed Disk.

To avoid having to find the working copy of the TPS software whenever you wish to use it, it may be more convenient to copy the software to a fixed disk, if this is available on your computer. The instructions below describe how to make a new directory called "TPS" on a fixed disk designated "C" and then copy the information from the floppy disk to this directory.

- a) Log on to the fixed disk (eg: Type C:).
- b) Make a new directory called "TPS" on the fixed disk (Type MD TPS).
- c) Copy all of the information from the floppy disk to the TPS directory of the fixed disk (eg: Type COPY A:*. * C:\TPS).
- d) To run the program from the fixed disk in future, you will first need to log on to the TPS directory of the fixed disk. (eg: At the "C:\>" prompt, type CD\TPS).

Start-up

- a) Turn the 90 unit OFF, using the "OFF" key of the 90 unit itself. For the software to work correctly later, it is necessary to turn the 90 unit on and off using the "Power Up" and "Power Down" functions of the software, NOT with the "ON" and "OFF" keys of the 90 unit.
- b) At the prompt, type 90.

The screen that comes up has the following functions listed. Functions 0 and 11 can be used without plugging in the 90 unit.

0 - Exit to DOS

1 - Power Up

11 - File Utilities

12 - Configure System

- c) If you have plugged in the 90 unit, type 1 to Power Up the meter.

The FIRST TIME you run the program, you will be asked to check the System Configuration.

- 1) First, you are asked to select baud rate. This is the speed with which the computer and the 90 unit communicate. If you are using a short cable, type 9600. If a longer cable is being used and you experience communication errors (see troubleshooting section) you may need to select 1200 or even 300.

IMPORTANT: Ensure that the baud rate is identical to the baud rate that has already been set in the 90 unit.

- 2) Second, you are asked to select which Communication Port you wish to use.

Type in COM1 or COM2, to correspond to the port into which the 90 unit is plugged.

This configuration can be changed any time later on by using function 12.

- d) The complete Main Menu will now be displayed. Failure to do so could mean a communication problem exists. Check Baud Rate on the 90 unit and that it is plugged into the correct port. Try again.

Functions available

0 - Exit to DOS

This allows you to leave the program, and return to the DOS prompt.

1 - Power Up

This allows you to remotely switch the meter on from the computer.

IMPORTANT: When using this software, always use this function to turn the meter on. Turning the meter on using its own "ON" button can result in communication problems.

2 - Power Down

This allows you to remotely switch the meter off from the computer. Note that when the main menu is restored only a limited number of functions are available. These are the only ones that can be used when the meter is switched off.

IMPORTANT: When using this software, always use this function to turn the meter off. Turning the meter off using its own "OFF" button can result in communication problems.

3 - Display Data

This makes the computer sample the data from the meter at intervals that you can specify. The 90 unit must remain ON continuously between readings. After selecting option 3 from the menu, you are asked to enter the interval for sampling readings. You can select any interval from a reading every 1 second to a reading every 600 seconds.

For example, try entering 2 to display the data every 2 seconds. The screen now shows the actual data that is displayed on the 90 unit every 2 seconds. You can see the countdown to the next reading in the bottom right hand corner. If the 90 unit has the extended data logging option fitted the date and time are also displayed.

Note also that each reading is numbered, starting at number 1. If you leave this function and come back to it later without starting or stopping disk storage mode (function 10), then the file will automatically continue the numbering sequence after the last reading.

If you are using the Display Data function with a Display Rate of greater than 250 seconds then set the Battery Saver Time on the 90 unit to 1 hour to prevent the 90 unit turning OFF between readings.

Always use the battery charger if the 90 unit is to be left ON for extended periods or if the stirrer is to be used frequently during measurements.

4 - Display Logged Data

This displays the data that is currently stored in the 90 unit's memory. After selecting this function, the software displays the number of readings that are contained in the 90 unit's memory. It also asks you "Display From:". If you type ALL, all of the readings in the 90 unit's memory will be downloaded. Alternatively, if you want to download only part of the 90 unit's memory, you can start from any reading by typing in the number of that reading (eg: type 5 to start downloading from reading number 5).

After you enter the number of a reading to display from, you are asked to enter the number of a reading to display to (eg: type 9 to finish downloading at reading number 9).

The "Display From / To" function is particularly useful if you have large numbers of readings in the 90 unit's memory, and you don't wish to wade through all of them to analyse a small section.

5 - Display Status

This displays the model name of the instrument that is currently connected to the computer, along with any options that are fitted. It also shows the number of readings that are currently stored in the memory. The Battery Voltage is also displayed, if available.

6 - Erase Log

This remotely erases the logged memory of the meter. The 90 unit's memory is not restoreable after erasing, so proceed with caution when you have collected genuine data.

7 - Enable Logger

This function enables the automatic data-logging function of the meter. The meter should be switched off after the logger is enabled, as the logger function does not work when the meter is switched on.

IMPORTANT: Remember to use the Power Down function of this software to turn the meter off, not the 90 unit's "OFF" switch.

8 - Disable Logger

This function switches the automatic data-logging function of the meter off. You need to switch the 90 unit back on using the "Power Up" function of this software before disabling the logger.

9 - Printer Mode

If you have a number of readings that you wish to take and transmit to the computer, then you can use the "Printer Mode" function. Type 9 to select printer mode. The computer now waits for you to manually transmit readings FROM THE 90 UNIT.

To transmit readings from the 90 unit, press the "F3" key.

This function is useful, for example, if you have a number beakers that you wish to measure and only want the computer to log each reading when you are ready.

The "Printer Mode" function also demonstrates the ability of the meter to transmit readings from the meter directly to an RS232 printer. The RS232 printer can be plugged directly into the 90 unit and readings printed out one at a time by pressing the "F3" key on the meter.

10 - Disk Storage Mode

To this point, all of the functions detailed above have been used only to display data. The "Disk Storage Mode" function allows you to permanently store the displayed readings into a disk file.

After selecting this option, the computer asks you to type in the file name that you wish to use. You do not need to enter a DOS extension, as the software automatically adds ".DAT". The file name you enter can be any combination of up to 8 letters and numbers.

When trying this for the first time, we suggest you type "TEST" and press enter.

Now that the computer is in Disk Storage Mode, all readings that are obtained using functions 3, 4 and 9 of this demo program are automatically written to the file name you entered. When you are in Disk Storage Mode, three stars "***" will be shown beside the menu functions that store data to disk.

Also, option 10 is now labelled "Stop Disk Storage". When you have entered all of the data you want into the file, you must select "Stop Disk Storage" to make it permanent, and to avoid further data being added to the file.

If, when entering "Disk Storage Mode", you type in a file name that already exists, the message "File Exists" flashes on the screen. The software then gives you the following options...

- | | |
|-------------------------|---|
| 1 --- Append File | Allows you to add more data to the end of the current file, without deleting any data that it already contains. |
| 2 --- OverWrite File | Deletes all information currently in the file, and replaces it with the data you are about to download. |
| 3 --- Re-Enter Filename | Takes you one step back and allows you to type in an alternative file name. |
| 4 --- Quit | Quits entirely, without entering "Disk Storage Mode". |

Tips for programmers and advanced users: Data is stored in sequential ASCII format as shown on the screen. Each line is terminated with <cr><lf>. (ASCII 13 & 10) This file can be PRINTed and TYPEed when at DOS.

11 - File Utilities

This function accesses the File Utilities menu, which has the following functions :

- | | |
|--|---|
| (0) - Exit File Utilities | Return to Main Menu. |
| (1) - Type Disk Data File | This function is used to display the readings in any data file. For example, type TEST to display the data in the "TEST.DAT" file. |
| (2) - Print Disk Data File | This function is used to Print the readings in any Data file. A printer must be plugged into parallel printer port LPT1. Type TEST to print the data in the "TEST.DAT" file. |
| (3) - Directory | Display the entire contents of the current directory. |
| (4) - Create a Lotus Format ASCII File | This function converts an existing data file (eg. TEST.DAT) into an ASCII file that can be IMPORTED by LOTUS 1-2-3. The file created has a ".123" DOS extension. (eg. TEST.123) |
| (5) - Create a EXCEL Format ASCII File | This function converts an existing data (eg. TEST.DAT) into an ASCII file that can be used by EXCEL. The file created has a ".CSV" DOS extension. (eg. TEST.CSV) |

12 - Configure System

This function allows you to select the baud rate and Communication Port. The 90 unit should be plugged in as a test of the port is attempted at the end of configuration.

- a) First, you are asked to select baud rate. This is the speed with which the computer and the 90 unit communicate. If you are using a short cable, type 9600. If a longer cable is being used and you experience communication errors (see troubleshooting section) you may need to select 1200 or even 300.

IMPORTANT: Ensure that the baud rate is identical to the baud rate that has already been set in the 90 unit.

- b) Second, you are asked to select which Communication Port you wish to use. Type in COM1 or COM2, to correspond to the port into which the 90 unit is plugged.

Troubleshooting

Program Stops, "Locks Up".

Hold down the IBM 'Ctrl' key and press the 'Break' key.

Now type RUN.

Ensure the System Configuration is correct (use command 12).

Program Stops, Error displayed.

Note the Error Number and Line Number in case problem re-occurs.

Contact TPS if problem persists.

Error number 57 is a communication error and is often the result of incorrect configuration. Ensure the System Configuration is correct, using command 12 from the main menu. Remember, the baud rate **MUST** be the same on the 90FL as what you enter using command 12.

Press 'Enter' to re-start program.

Notes

Do Not turn the 90 unit ON or OFF manually when running program. Use the Power Up or Power Down functions.

DOS Version

This software has been written using MSDOS Version 3.3 . It can be used on systems with Version 3.3 or higher.

MODE.COM requirement

This program shells to the DOS program MODE.COM during the Power Up command. This program is supplied on your MSDOS installation disks. MODE.COM is DOS Version dependant and so is not supplied by TPS. Ensure that there is a path to the DOS directory of your system or copy MODE.COM on to the disk or directory where you intend to run the software.

See the DOS manual for details of the PATH command if you are unsure of this procedure.

Failure to follow these steps may result in an error message displayed briefly during the Power Up command. The program will continue and RUN but will fail to clear the communication buffers which may cause an communication port error.

File Information

The following files are supplied on the distribution disk.

1. 90LOG.BAS The logger program stored in protected format to prevent tampering.
2. 90LOG.ASC The logger program stored as an ASCII format file. This file may be listed and altered.

If you wish to modify the logger program to suit special requirements, please rename file 90LOG.BAS to 90LOG.OLD and rename file 90LOG.ASC to 90LOG.BAS. The file 90LOG.BAS can now be modified using BASIC.

3. BASIC.EXE The version of basic to use with 90LOG.BAS.
4. 90.BAT The batch file that runs 90LOG.
5. POWERUP.DAT A data file that is transmitted during the Power Up command.
6. POWERUP.BAT The batch file that is run by the Power Up command.