
21 Data Storage & Downloading

The PSY1 stores three types of data files to the internal MicroSD memory card.

21.1.1 Main Data File

Main data files have a *.csv file extension and are a true Comma Separated Values (CSV) data file that can be easily opened in Excel or SFT software. They are used for logging water potential measurements and associated raw data. These files are typically small, in the size range of 10 to 1000 KB.

21.1.2 Raw Measurement Data

Raw Measurement Data files have the file extension is *.rdf and are used for logging the high temporal frequency (10Hz) for the Peltier Cooling Curve data. The file format is actually Comma Separated Values (CSV) file and can be easily opened in Excel or SFT software. These files have the potential to be very large, in the range of 1 to 100s of MB depending upon the logging interval and longevity of installation.

21.1.3 Live Data

Live data files have the file extension *.lve and are used for logging internal temperature dynamics to assist in the development of chamber heating protocols. The file format is actually Comma Separated Values (CSV) file and can be easily opened in Excel or SFT software. These files are typically small, in the size range of 10 to 1000 KB.

21.2 SD Card Logging Options

The measurement parameters to be logged can be set on the SD Card Logging Options Window. This is accessed via the PSY Menu. Simply check the box against the data required to be logged.

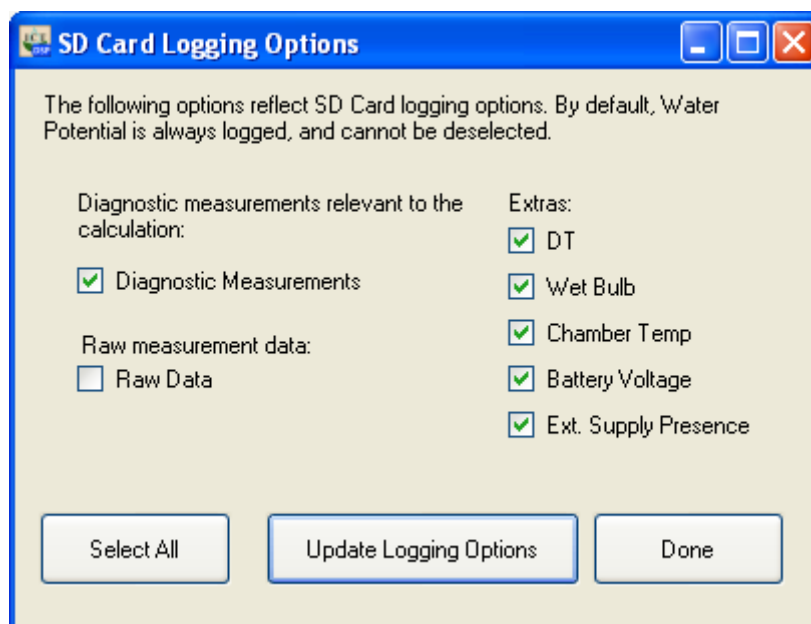


Figure 102: SD Card Logging Options.

21.3 Downloading Data

Data is easily downloaded from the Instrument information panel by clicking on the Download Data icon

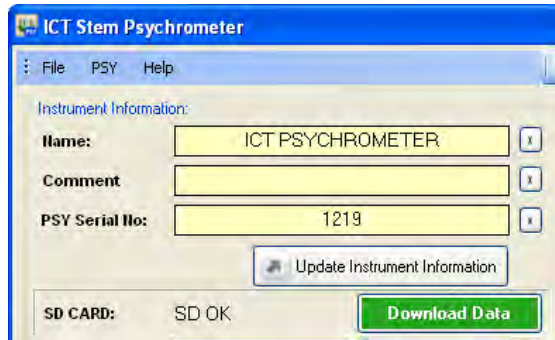


Figure 103: Download Data icon.

Clicking this icon immediately brings up the Save As Window to select a directory to save the data to. Once the data is downloaded you are prompted to rename or delete the data file.

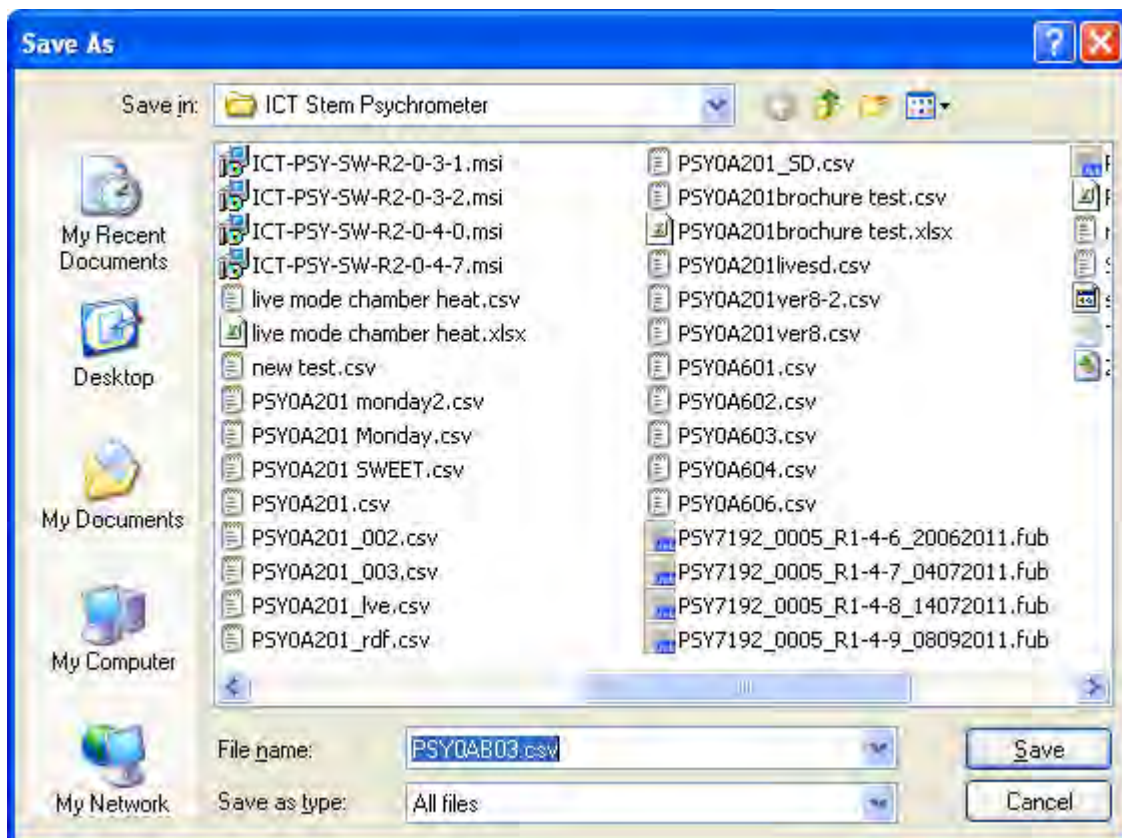


Figure 104: Microsoft Windows Save As window.

21.3.1 Via USB Cable

A Mini USB cable is supplied for downloading and configuring the instrument. It is a "Standard" cable in most computer stores. The physical USB connection is the simplest method to download data from the PSY1 instrument.

21.4 Via MicroSD card USB Adapter

Alternatively, the PSY1's data can be downloaded by removing the MicroSD card and putting it in a USB cradle (supplied by ICT) and inserting to a USB port of a PC. ICT use Microsoft FAT32 formatting so the card is immediately recognizable as a mass storage device when inserted to a PC with Windows OS and files can be dragged and dropped as normal.

The MicroSD card shuttle is a USB port adaptor or card reader. The MicroSD card fits inside the reader so you can plug the MicroSD card directly into a USB port on the PC. The full data transfer speed (~7MB/s) is then possible when downloading data. If USB cable is used between the device and the PC then the speed is much slower.



Photo 41: MicroSD Card Adapter inserted into the USB port of a computer.

21.5 Windows FAT-32 compatible.

Data is written to and stored on the MicroSD card in fully compliant Windows File Allocation Table (FAT) format. What this means is that any MicroSD card can be used in the Instrument. There is no limitation that all memory cards must be supplied by ICT. This means any MicroSD card purchased anywhere in the world, or any MicroSD card pulled out of a Digital Camera or mobile phone can be inserted directly into the Instrument for immediate compatibility and use. Similarly any MicroSD card used in the PSY1 can be removed and placed into a Camera, or phone and MOST importantly any Windows PC and is automatically recognised and the data can be copied across through Windows Explorer to any file location on the PC. This means data can be manually downloaded from the instrument by an unskilled or semi-skilled person who removes the MicroSD card from the Instrument and inserts another MicroSD card. The PSY1 automatically generates a new data file and continues logging uninterrupted while the data is returned to the office for download from the MicroSD card.

21.6 Micro SD Card Memory Capacity

The memory capacity of the MicroSD card is 4GB. In practical terms the PSY1 can log all diagnostic measurements relevant to the calculation of water potential and all Extras or fundamental measurement parameters such as dT, Wet Bulb, Chamber temperature, battery voltage and charging current at a 10 minute logging interval for, in theory, in excess of 500 years.

21.7 Renaming data files

When data is downloaded the data file can be renamed (by adding an incremental number to the file extension such as filename.001 instead of filename.csv) and the data can then be left on the MicroSD card as an “off-site” back up of the master data set stored in the office. This is an inherent data backup and redundancy function.

21.8 Data File Format

The data file is automatically generated using the following format: instrument_serial_number.csv e.g., PSY1A1B2.csv. The serial number not only uniquely identifies each instrument it contains specific information about the date of manufacture and production run. Please provide the serial number to ICT International for all support inquiries.

The PSY1 firmware is Windows FAT-32 compatible. This means that the data storage of the MicroSD card is written in fully complaint Windows File Allocation Table (FAT) format. So any MicroSD card can be used in the Instrument.

As a result the MicroSD cards are “Hot Swappable” meaning it can be removed from the instrument and inserted into a USB port of a Windows PC using a USB card reader or shuttle and then reinserted to the instrument. No closing down, Ejecting or formatting is required.

NOTE 59: MicroSD cards can be purchased from any retailer. There is no limitation that memory cards must be supplied by ICT.