

How to Run the PMI recorder and work with the ProVision program

There are four push buttons on the front of the PMI recorder (two red and two blue). One blue push button is blank and the other is the “SET”. The red push buttons have arrows to select options that appear on the read-out screen.

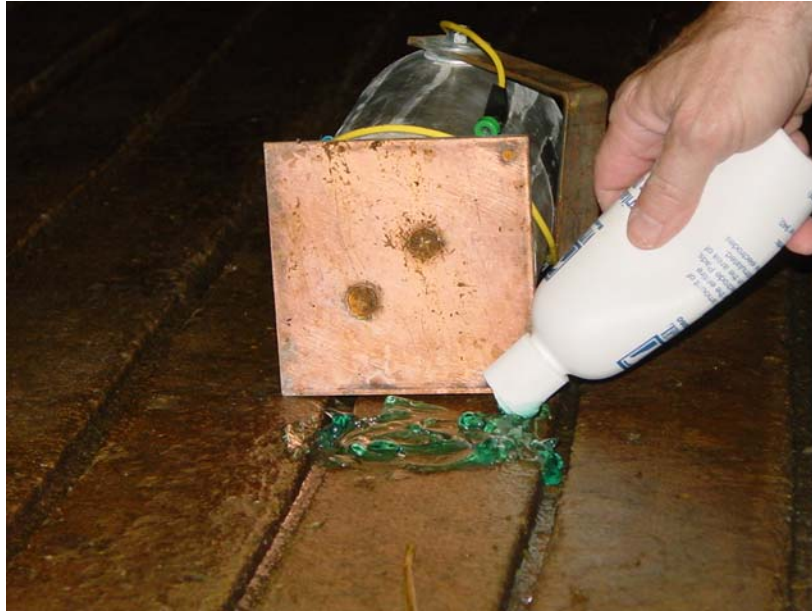


Suggested set up of the channels: The MPSC protocol calls for neutral-to-earth voltage measurements to be made from the primary neutral to a reference ground and from the barn panel neutral to a reference ground. The other required measurement is at an animal contact location.



Reference Ground: Find a location away from buildings and underground metal or near a power line. Drive a ground rod of ½ in. diameter at least 1 ft into the earth. A damp location is preferred. It is important to have a low resistance reference ground. Driving the rod deeper into the ground is recommended.

Animal Contact: Make a connection to the floor or earth at the selected location. Put electrode gel on the bottom of the copper plate before placing at the contact location. The MPSC Rule states 12 to 16 in². (Square 3.5" x 3.5" up to 4" x 4" or circle with diameter of 4" to 4.5")



Connect wires to PMI recorder: Run wires from the selected locations to the PMI recorder. It is suggested that the wires be connected as follows:

- Channel 1 NpEV primary neutral to reference ground
- Channel 2 short terminals together if not used (NsEV secondary)
- Channel 3 NbEV barn panel neutral to reference ground
- Channel 4 Vac animal contact (500 Ω resistor build into recorder)

Making sure PMI is receiving voltages: Plug the PMI recorder into a power source (120 vac). The read-out will show "Charging Battery" across the top. Follow these steps:

1. Press the blank blue button.
The screen will show "RMS STRT INIT PARM"
2. Use the right red arrow and move to "STRT"
3. Press the blue "SET" button
4. Press the blank blue button
Screen will show "Power Monitors Inc" for a few seconds.
Screen will then show the channels with the voltage being received.

The PMI is now receiving and displaying voltages, but it is NOT recording.

Stop displaying voltages on the PMI recorder: Before beginning to record voltages first stop displaying voltages by following these step:

1. Push the blank blue button
The screen will show "RMS STOP INIT PARM"
2. Use the right red arrow and move to "STOP"
3. Press the blue "SET" button
4. Press the blank blue button
Screen will show "Power Monitors Inc" for a few seconds.
Screen will then show "Charging Battery".

Connect Computer: Next install the serial cable from the PMI recorder to the computer. Then bring up the ProVision program. The screen will be blank except there will be a menu bar across the top of the screen:

"File Edit View Report Graph Tools Options Recorder Scheduler Help"

Select "Recorder" and then select "Connect" and "RS-232 COM1". There is a status bar on the screen and if the connection to the PMI recorder is successful the program will state that connection to the recorder was complete.



Initialize PMI Recorder: Before the PMI recorder will accept and store data it must be given instructions from the computer. This is the initialization process. The channels will be labeled and the recorder will be given the correct time and date. There are several ways this process can be done, but here is one that works.

1. Click on "View" on the top menu and scroll down to "Devices".
Click on "Devices" and below you will see a Devices menu
In the Devices menu there will be the word "Local"
Find SVM [serial #] on the list and click on it.
This tells the computer which device will be initialized.
2. Now go back to the top menu and click on "Recorder"
Scroll down to "Initialize" and click.
The initializing screen will appear.
First look at the Time Interval box and make sure it is set to 1 min.
Next you can type in labels for each channel if you choose.
When finished click "Finish" on the bottom menu.

A question box will appear asking if you want to initialize.
Click on "Yes".
If successful the computer and recorder will say "Initialized".
Go back to the menu at the top of the screen and click "Recorder".
Then go down the menu and click "disconnect".
Now disconnect the serial cable from the recorder.
The computer will no longer list the SVM recorder as a device.
Recorder screen will now say "Charging Battery".

3. Now it is time to tell the recorder to start saving voltages.
Press the blank blue button to get "RMS STRT INIT PARM"
Use red arrow to select "STRT".
Press "SET" button and a question appears.
Press the blank blue button and a countdown (1 min) will begin.
Below the countdown clock the voltages will be shown.
When countdown reaches "0" recording begins.
The four channels with voltages will appear in a vertical list.
4. Close up the recorder and leave. It will run for 3 days.
If power is lost it will continue to record on internal battery.

Initialize the recorder at the office: The recorder will hold a charge for a limited period of time. It is possible to initialize the recorder in the office and send it to the field for hook-up. If this option is used it is recommended the recorder be plugged into power until departing for the farm. Once arriving at the farm again plug in the recorder to make sure it holds the initialization. When all of the wires are connected and it is ready to start recording simply go through the following start recording procedure.

When removing the recorder stop it from recording, but leave it plugged into power. Remove all wires and pack up all equipment. Unplug the recorder just before leaving the farm and plug it in again when you get back to the office. The recorded file will be maintained and can be downloaded to a computer later.

Stop Recording Voltages: The PMI recorder can be stopped at any time and data downloaded to the computer or it can simply be stopped and restarted. For example assume you are going to do something to the electrical system and you do not want that data on the recorder. Simply stop the recorder and restart it when you are ready to record again. To start-up again follow the previous procedures. To stop recording do the following:

1. Press the blank blue button to get "RMS STOP INIT PARM"
2. Use red arrow to select "STOP"
3. Press the blue "SET" button and a question appears.
4. Press the blank blue button and "Charging Battery" appears.
Data is no longer being recorded.

Download data from PMI recorder: First stop the PMI recorder from saving data with the previous procedure. Next connect the serial cable from the PMI recorder to the computer. If the computer was not running then bring up the ProVision program.

1. Select "Recorder" on the top menu.

Select "Connect" and then select "RS-232 COM1"
If successful the computer will indicate "Completed".
2. Select "View" on the top menu.
Then select "Devices".
Under Local select "SMV [serial #]"
3. Now select "Recorder" on the top menu.
Then select "Download Recorder".
Downloading will occur automatically at this point.
Computer screen will indicate when downloading is complete.
The file will be given a name. If that name is ok then click "OK"
Change file name if you wish then click "OK"
Question to initialize will appear.
If you want to go back to recording click "NO"
Then go through start recording procedure.
If you want to wipe the old file and begin new then click "YES"

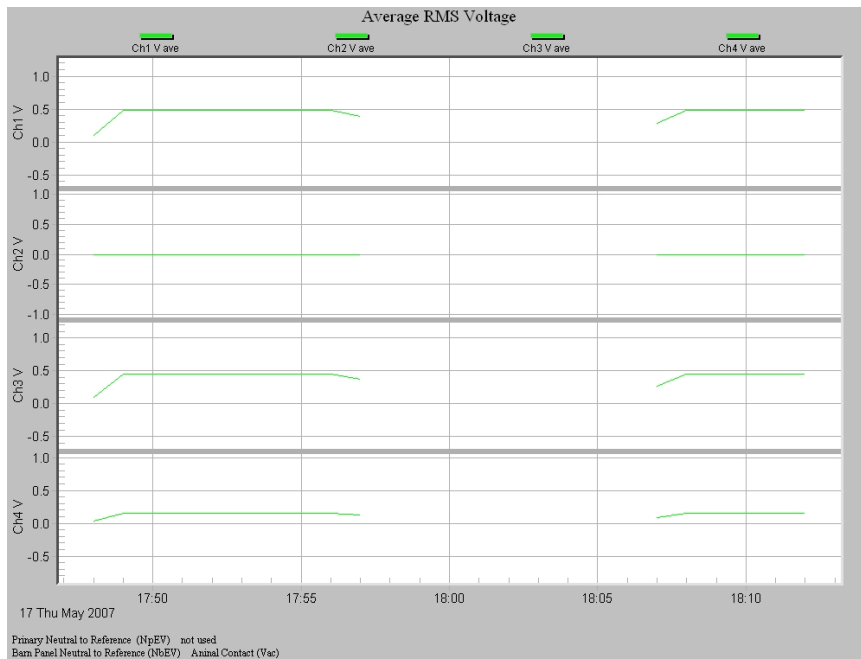
If you want to continue recording data be sure to select "NO" when asked if you want to initialize.

Where did the data file get stored? To find it you will first need to go to the computer "start" menu "settings", "control panel", "folder options", "view" and click on show hidden folders. Now bring up "my computer" and on the C: drive go to "Documents and Settings" and click on "All Users" or your name. Then click on the following: "Application Data", "Power Monitors Inc", "ProVision", "Common", "Recent Downloads" and there they are the "mother load" of data files. Copy any file and transfer it to the same location on another computer that has ProVision.

View the Data: To view and print the data first you must open the file then you can prepare a graph.

1. On the top menu click "Files", then "Open".
List of recent downloads will appear.
Select and open the file desired
A "Header Report" for the file will appear.
2. On the top menu click on "Graph"
To get a set of all plots type in the following:
"RMS Interval", "Overview", "Average", "Ave Voltage"
The graphs will appear on the screen.

Sample of PMI Recorder Data: The following is a sample of all four channels printed for the PMI recorder. Channel 1 was connected to the primary neutral at the transformer. Channel 2 was not used so it was shorted out with a banana wire to make sure both input terminals were at the same voltage. Channel 3 was connected to the barn electrical panel neutral, and channel four was connected to an animal contact point in the barn with the other terminal connected to the copper plate on the floor. Note that there is a section of missing data. The missing portion is a period of time where activities were undertaken that were not to be recorded. The clock will continue even though the recorder is told to stop recording. When recording resumes, it will resume at real time leaving a blank space for the period the recorder was turned off.



Refer to the next PMI/ProVision instruction guide for methods of displaying and analyzing data.