

PHILLIPS MOTORSPORTS
RACING PROGRAM MANAGEMENT- “RPM SOFTWARE”
GETTING STARTED:

1. Weather Station can be run on batteries or AC adapter supplied.
 - a. Console batteries should be left in unit and running as they will last ~ six months (remove during winter months).
 - b. Transmitter runs on solar power when day light is available and battery (remove during winter months) when dark.
 - c. If batteries not installed, install small battery in transmitter and the three C cell batteries in the console.
 - d. AC adapter can be used for console if desired.
 - e. Install wind cups & vane using supplied allen wrench
2. Should you need to change console batteries use the following procedure;
 - a. After placing batteries (or ac adapter) in the console it will make a beeping sound.
 - b. LCD screen scrolls at bottom.
 - c. When finished- “**Enter Time** “ at bottom of screen.
 - d. Press and hold for 3 sec the **done** button then release.
 - e. The console should now read Temp & Pressure (after a few moments Humidity will be displayed).
 - f. A small tower will appear in the lower part of screen each time transmission is received.
3. Now turn on your computer.
4. When it has finished its startup, place the RPM software in a USB port.
 - a. Go to c:/ and locate the **USB** jump drive with RPM software.
 - b. Now double click the file setup.bat on the **USB** jump drive.
 - c. Follow the instructions on the screen.
5. Locate the communication cable and install between the USB port on your laptop computer and the Weather Station Console.
6. A **RPM icon** was placed on the desktop during installation. You are now ready to get started by double clicking this icon.

RUN LOG OPERATION

1. When you double click the RPM icon it will take you to the run log.
2. Next step is to click on the Vehicle Database tab.
 - a. Now click on the new tab & fill in name, description, race index and T/S ratio (if ratio is not known use example below).
 - b. Next go to the settings tab and fill in any additional data needed (default settings will be used in most cases until further data is available for this vehicle).
 - c. If you wish to modify or delete a vehicle, use cursor to highlight it and then click modify or delete button below.
3. Next click on the run log tab above. You are now ready to add runs.
4. Click new log tab on right side of log. Enter name of new folder or select an existing one and then enter name of new file then click ok. Example: "Houston" as folder and "bracket race" as file. Each file is date stamped.
5. Click add run and fill in the blanks.
 - a. Weather data is automatic or can be manually entered.
 - b. Click the T/S box if it was a throttle stop race.
 - c. Fill in time slip data.
 - d. Click finish when done.

PREDICTIONS

1. Once a single run is entered predictions will be displayed.
 - a. If multiple runs are entered you can predict off any run by a single click on that run.
 - b. For the first run of the day you can bring up a previous race to predict off. There after a new log should be started.
2. If you desire to predict from multiple runs or use manual weather data, click on the ET or T/S prediction tabs.
3. Next click on the run or runs you want to predict from and then click the appropriate tab below.

T/S RATIO EXAMPLE

1. Make two passes in as short of time period as possible (this assumes that you have already preset your stop stall speed RPM).
 - a. Set delay timer to 2.5 sec first run and 3.5 sec for second run.
 - b. Log the 1320 ET times (ex. 8.92, 9.45).

- c. ET change $9.45-8.92 = .53$
- d. *T/S Ratio*: delay timer change/ ET change ($1/.53=1.89$)
*****This should only be done during a test session*****

Notifications (Texting) Update Notes

- When you are ready to start receiving texts click on the enable auto notifications box in the center of the run log screen. **Be sure to unclick when you do not want texts.**
- You can text previous runs by highlighting a run then clicking text run on the run log screen

Notes to remember:

- If for some reason your communication between the computer and the weather station quits working, you can manually enter in temp, humidity and pressure
- If your weather station stops working, get temp, humidity and pressure from your friends weather station and manually enter it to your computer
- For all other scenarios – get out your pencil & paper
- Orient the weather sensor down track for Vantage Vue systems (this allows the software to determine wind direction- ie. Head wind...)

WEATHER ANALYSIS

You can also look at the temperature, but temp is heavily taken into consideration in the density altitude number, therefore there is little reason to look at both temp and density altitude. Gasoline vehicles tend to be mostly affected by density altitude change and less affected by moisture (humidity and water gains) where as if you run an alcohol burning vehicle, you would want to keep a very close eye on humidity and water grains and put less weight on the density change. ***After studying your logbook, you will soon learn how much weight to put on each weather variable.***

General Correction Factors;

Gas vehicle (1/4 mile) a change of 100 feet in density altitude will change your vehicle .0066. A change of 18-20% of humidity will change your vehicle .01. A .10 (ex 29.90 to 29.80) change in barometer will change your vehicle .01

Alcohol vehicle (1/4 mile) a change of 100 feet of density altitude will change your vehicle .0033. A change of 10-13% in humidity will change your vehicle .01. A .10 (ex 29.90 to 29.80) change in barometer will change your vehicle .01.

Water Gains - If you see water gains go up at the same time humidity goes up, you are generally going to see a significant slowdown more so than if humidity goes up and water gains stay the same. The same is true when humidity and water gains go down.

Track Conditions - Track temperature and track prep will also affect your vehicles performance. The ideal track temperature is in the 70 to 90-degree range. Here the rubber on the track is the tightest. The further the track temperature gets from this ideal temperature, the more negative (slowdown) effect on your ET. Too cold of a track and there may not be enough adhesion. Too hot of a track and the surface tends to be greasy and susceptible to bald spots. As with any other variable, pay attention to what is changing. Have 500 cars been down each lane since the track was prepped last? Is the sun beating down on the track on a hot day? How far is the track temp from the ideal temp? Which direction is it heading? What were the characteristics of the track the last time I ran on it at this time of the day? On very hot surfaces it has also been thought (but not proven) that the actual heat from the track surface will slow down your vehicle's performance (the entire length of the 1/4 mile) not because of traction, but because the heat off the track actually heats up the temperature of the air a few feet above the track, which is the air the carburetor sees.

Wind - Wind is often an underplayed factor especially when predicting 1/4-mile performance. It is also the hardest variable to pinpoint because it's always changing and swirling. The best thing to do is pick a reference point for how and where you will determine the wind at each track and come up with an average wind reading over a period of 20 seconds. It could be a flag or your hand-held wind meter at the 1000 mark, your stationary wind meter on top of your trailer, burnout smoke, or a combination of these.

It is not only important to pay attention to the level of the track, but to the obstacles surrounding the track. A general correction factor for wind would be a 4mph tail wind = .01. Door cars and dragsters have a different coefficient of drag, therefore the correction factor could be slightly different. Study your log book to determine the affect wind has on your vehicle.

PHILLIPS MOTORSPORTS WEATHER STATION WITH TEXTING



Laptop Computer

WS Console (wireless receiver)



Cell Phone

Texting Runs, Weather and Predictions

****must have internet access****



WS Transmitter (wireless)