

PowerMaster Basic II User Guide

Version 2.0.0.2



1 Overview

PowerMaster Basic II is a Windows-based companion application for the Array Solutions PowerMaster II wattmeter. PowerMaster Basic II provides power, VSWR and alarm status monitoring from a computer in real-time. PowerMaster Basic II also provides the capability to configure the operational parameters of the PowerMaster II wattmeter from the convenience of your computer.

2 Program Installation

To install PowerMaster Basic II, download the PowerMaster Basic II zip file from the ArraySolutions web site to. Unpack the zip file, and double-click on setup.exe. (note: setup.exe and Setup3.msi must be in the same folder). PowerMaster Basic II will create an icon in your Programs menu, and a short-cut on your desktop. PowerMaster Basic II can be launched from either icon.

3 Hardware Setup

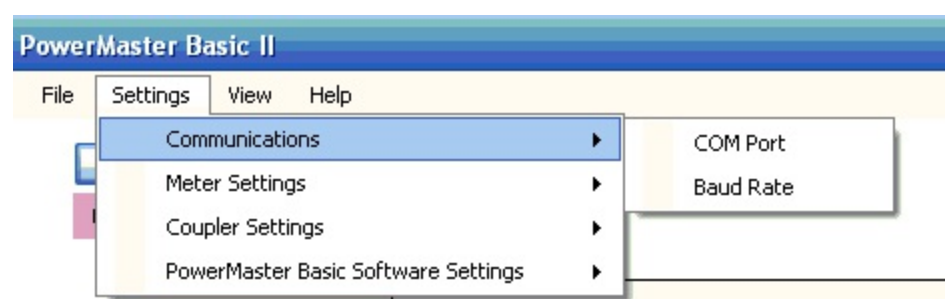
To attach your computer to the PowerMaster II meter, you can use either a serial port, or a USB port. For using a serial port, either a dedicated serial port, or a USB-to-serial port adapter can be used. A straight-through 9-pin cable must be used between your computer's serial port and the PowerMaster II meter. If you use the PowerMaster II USB port, a virtual serial port will be automatically created on your computer. Use Windows Device Manager to determine the serial port number assigned to the PowerMaster II USB port.

Program Startup

The first time you start PowerMaster Basic II, the program will remind you to set the communications parameters. Hit OK, and proceed to the PowerMaster Basic full display. The upper left corner will look like this:



This indicates the current COM port (COM2), and baud rate (38400 bps). The red background indicates that PowerMaster Basic II is not currently connected to the PowerMaster II meter. Use the Settings->Communications menu to select the correct COM port and Baud Rate:



There are 3 possible baud rate settings: 9600, 19200 and 38400 bps. The PowerMaster meter default is 38400.

Click the “Connect” button. When you have chosen the correct communications parameters and a connection has been established, the background will turn green and the Connect button will be removed.

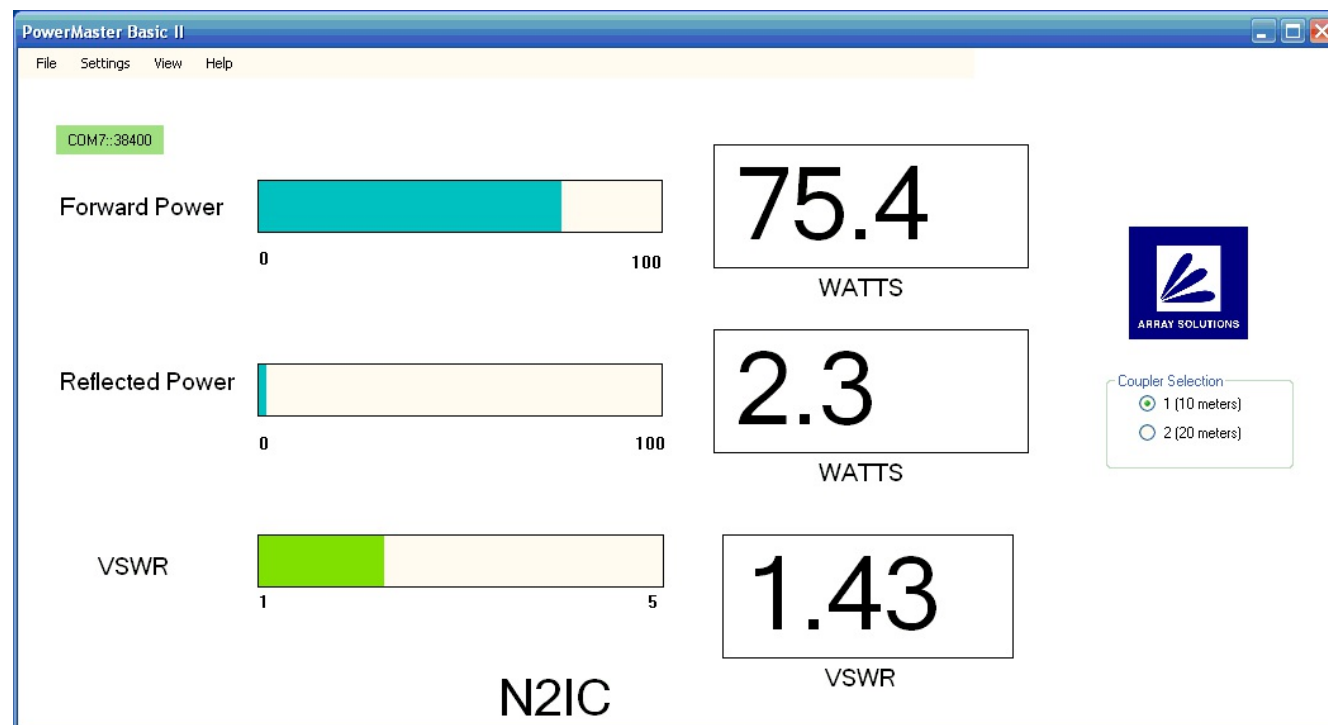
Configuration information for PowerMaster II is stored in the user's My Documents (or Documents) folder, in the PowerMasterII sub-folder. The default configuration file is named pmii.ini.

Multiple instances of PowerMaster II can be used simultaneously on the same computer by specifying a different configuration file in the PowerMasterII command line arguments, using “ini=name_of_ini_file”. For example, a Windows shortcut to PowerMasterII can be created, with the Target parameter set to: "C:\Program Files (x86)\Array Solutions\PowerMaster Basic II\PowerMaster Basic II.exe" ini=pmii2.ini" .

1 Display Modes

PowerMaster Basic II has four possible display modes that can be chosen by the user. The display modes are selected from the View menu item.

1.1 Full Display

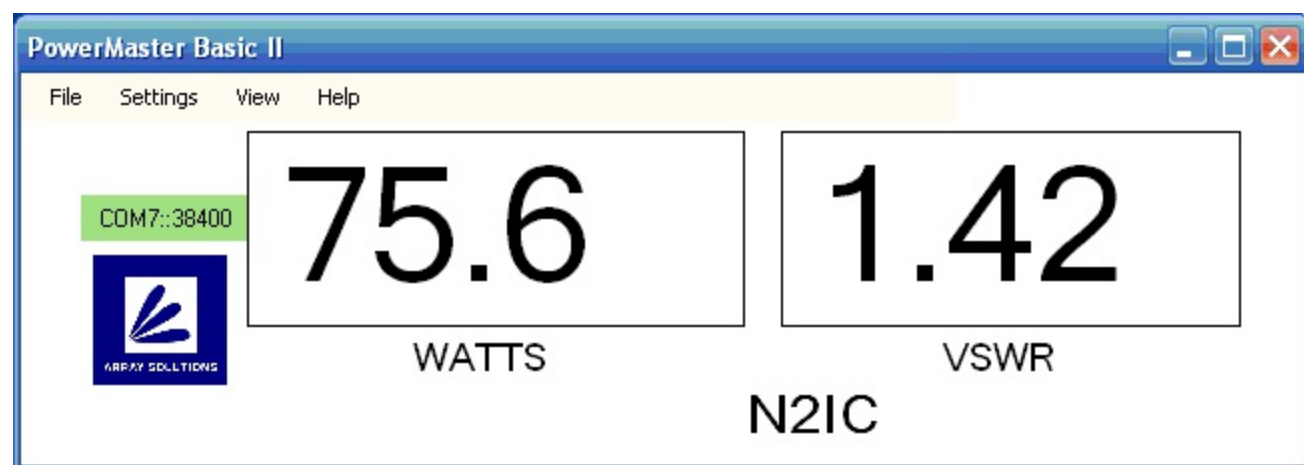


The full display shows the current forward power, reflected power, and VSWR, both in graphical and text forms. Above the forward power bar are three alarm indicators that appear only when there is an active alarm condition. The three indicators are: VSWR Alarm, High Power Alarm, and Low Power Alarm. The alarm thresholds can be set from the Settings->Coupler Settings menu items.

A red “overrange” indicator (not shown) will appear to the right of the forward power and reflected power bars if the power exceeds the configured power range. The power range can be set from the Settings->Power Master Basic Settings->Bar Graph Range menu item. Note that changing the bar graph range only effects the PowerMaster Basic II display, and has no effect on the PowerMaster II meter.

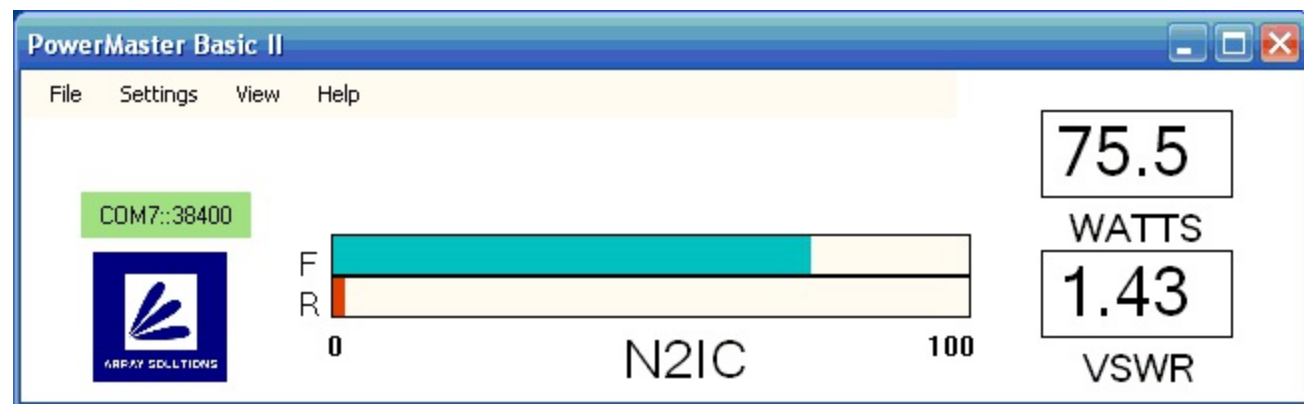
When your PowerMaster II is configured with 2 couplers, the active coupler is selected using the “pushbuttons” on the right side of the display.

1.2 Power and VSWR Only



The “power and VSWR only” display shows these quantities in text form, only.

1.3 Compressed Display



The compressed display shows a stacked bar graph of forward and reflected power, text display of forward power and VSWR, and alarm indicators.

1.4 Small Display

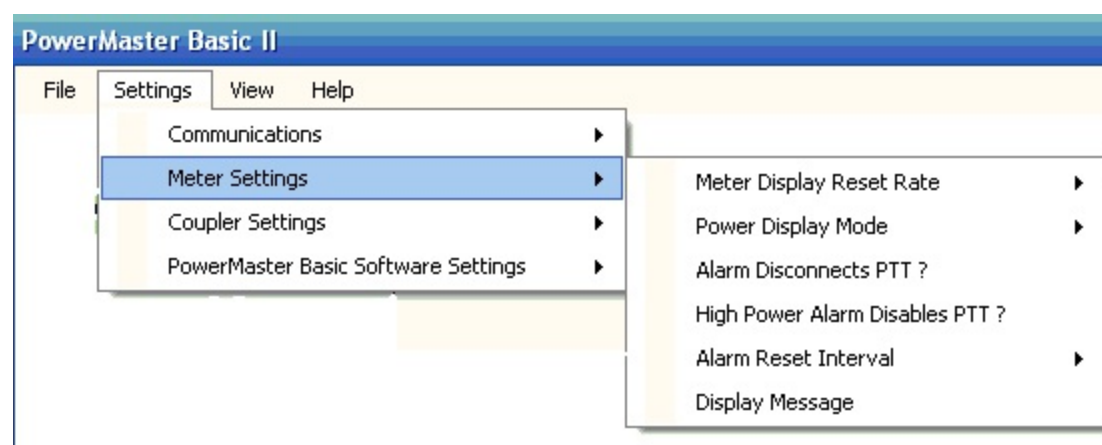


The small display shows the power, in watts on the left side, and the VSWR on the right side. The caption shows the name of the power coupler. If two power couplers are being used, then the names of both couplers are shown in the caption.

The small display must be used at the same time as one of the other three displays. The other displays can be minimized to reduce their space usage on the monitor.

1 Meter Settings

The PowerMaster Basic II Settings->Meter Settings menu provides the capability to configure parameters on the PowerMaster II meter. Any changes made using these menu items will remain set on the meter, even if the PowerMaster II meter is operated independently, in a “stand alone” mode.



1.1 Meter Display Reset Rate

The Meter Display Reset Rate menu item configures the peak power hold rate displayed on the PowerMaster II meter. The “Fast” setting displays the peak power in 0.2 second intervals. The “Medium” setting displays the peak power for the previous 1 second interval. The “Slow” setting displays the peak power for the previous 2 second interval, and the “Long” setting displays the peak power for the previous 5 seconds. The “VSWR Dip Mode” allows easy transmitter and tuner adjustments for low VSWR.

1.2 Power Display Mode

The Power Display Mode allows the user to display either forward power, net (forward-reflected), or simultaneous display of forward and reflected power.

1.3 Alarm Disconnects PTT?

When Alarm Disconnects PTT is checked, the connection between PTT In and PTT Out is disconnected when an alarm condition exists. When Alarm Disconnects PTT is not checked, an alarm condition will result in the connection between PTT In and PTT Out being connected.

	Alarm Disconnects PTT ?	
	Checked (✓)	Not Checked
Alarm Active (Tripped)	PTT In/PTT Out Disconnected	PTT In/PTT Out Connected
Alarm Not Active	PTT In/PTT Out Connected	PTT In/PTT Out Disconnected

1.4 High Power Alarm Disables PTT ?

When High Power Alarm Disables PTT is checked, the connection between PTT In and PTT Out on the PowerMaster II meter will change when there is a high power alarm condition (see “Alarm Disconnects PTT ?”).

1.5 Alarm Reset Interval

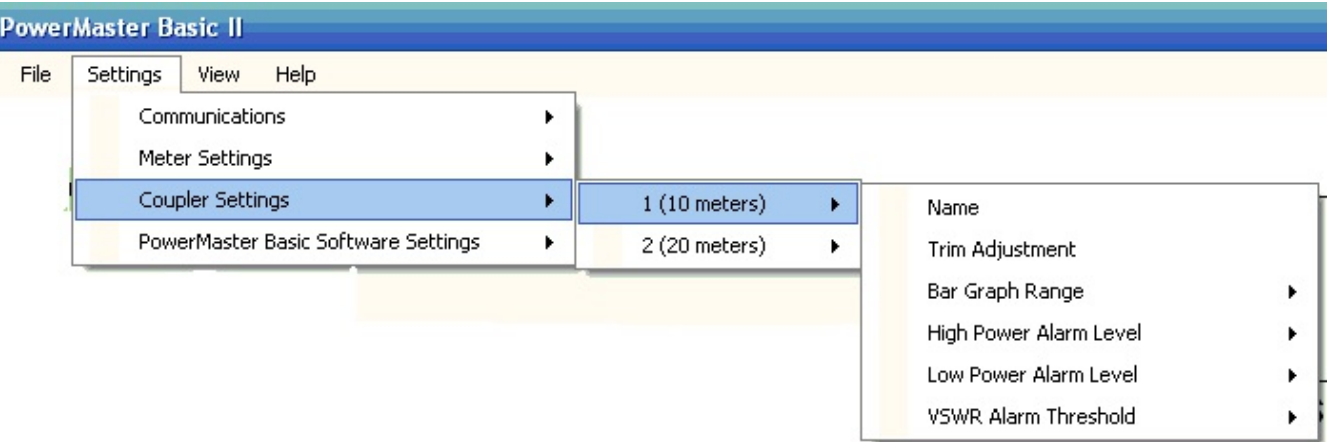
Alarm Reset Interval sets the time duration that the PowerMaster II meter automatically clears the alarm, if the alarm condition no longer exists.

1.6 *Display Message*

The Display Message allows the user to set or change the message displayed on the PowerMaster II meter.

1 Coupler Settings

The Coupler Settings menu item allows you to choose settings that are specific to each coupler.



1.1 Name

Each of the two couplers can be assigned a user-selected name, such as “10 meters”.

1.2 Trim Adjustment

PowerMaster II meter couplers can have different calibration adjustments. These calibration adjustments are printed on each coupler. Each coupler can be configured with its own forward and reflected power trim adjustments.

1.3 Bar Graph Range

The Bar Graph Range menu item configures the auto-ranging capability of the PowerMaster II meter bar graph. For example, if “100 500 1200” is chosen, the PowerMaster II meter bar graph will be full scale when the forward power is less than 100 watts, and will automatically change to 500 watts full scale at forward power levels between 100 and 500 watts. When the forward power exceeds 500 watts, the full scale bar graph will be 1200 watts. Note: This setting has no effect on the bar graphs displayed by PowerMaster Basic II.

1.4 High Power Alarm Level

The High Power Alarm Level configures the high power “trip point” for each coupler. If the peak power exceeds this setting, the power monitor LED will light on the meter, and the Low Power Alarm indicator on PowerMaster Basic II will be displayed. In addition, the power monitor alarm relay in the PowerMaster meter II will cycle on and off.

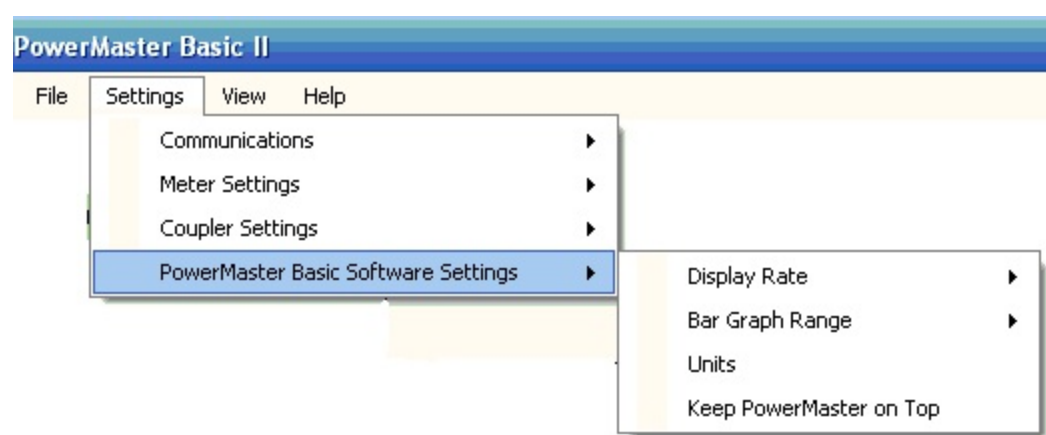
1.5 Low Power Alarm Level

The Low Power Alarm Level configures the low power “trip point” for each coupler. If the peak power remains below this setting for a few seconds or more, the power monitor LED will light on the meter, and the Low Power Alarm indicator on PowerMaster Basic II will be displayed. In addition, the power monitor alarm relay in the PowerMaster meter II will activate.

1.6 VSWR Alarm Threshold

The VSWR Alarm Threshold configures the VSWR “trip point” for each coupler. If the VSWR exceeds this threshold, the connection between PTT In and PTT Out on the PowerMaster II meter will change (see “Alarm Disconnects PTT ?”). In addition, the VSWR alarm will indicate on the PowerMaster II meter and on the PowerMaster Basic II display.

1 PowerMaster Basic Software Settings



The Settings->PowerMaster Basic Software Settings menu provides the capability to configure parameters specific to the operation of the PowerMaster Basic II software. Any changes made using these menu items applies only to the operation of PowerMaster Basic II, and do not change settings on the PowerMaster II meter.

1.1 Display Rate

The Display Rate menu item configures the rate at which power and VSWR updates are sent from the PowerMaster II meter to PowerMaster Basic II. Choosing a rapid display rate (i.e. 48 msec), will result in a near-instantaneous update. Choosing a slow display rate (i.e. 384 msec) will provide a more of a peak-reading display.

1.2 Bar Graph Range

The Bar Graph Range menu item configures the maximum power shown in the forward and reflected power bar graphs. A red overrange indicator will appear to the right of the bar graph if the power exceeds the maximum power configured by this menu item.

1.3 Units

The Units menu item configures the power and standing wave ratio units shown in the text boxes. For power, you can choose watts, dBm, or dBw. For standing wave ratio, you can choose VSWR or return loss.

1.4 Keep PowerMaster on Top

The “Keep PowerMaster on Top” menu item selects whether the PowerMaster window always “floats” on top of other applications running on your computer.

2 Firmware Update

A firmware update can be done from the File menu. After performing a firmware update, it is strongly recommended that the PowerMasterII be rebooted by unplugging the power supply for 15 seconds.

1 Troubleshooting

1.1 *PowerMaster Basic Does not Detect Meter*

1. Make sure the meter is plugged in.
2. Make sure a straight RS-232 cable is used – not a null modem or crossover cable.
3. Make sure that no other applications are using the COM port. Check for hidden ports – See <http://support.microsoft.com/kb/315539>
4. If you are using the PowerMaster II serial port, make sure that the PowerMaster II USB port is **not** connected to a computer.
5. Make sure that the PowerMaster II meter is not in menu mode. The PowerMaster II meter does not respond to commands sent from PowerMaster Basic II while it is in menu mode. Press the menu button on the PowerMaster II meter repeatedly until the power/VSWR display is visible.

2 Support

Contact Array Solutions for assistance with PowerMaster Basic II.