

Most *WinVerter* software products communicate with external power conversion hardware using RS-232 serial ports. But today, Windows PCs seldom come equipped with built-in RS-232 serial ports.

**How do you add a serial port to a PC?**

One option is to add one **internally**. If you are using a desktop PC that has internal card slots, you can usually find serial port daughter cards compatible with your PC's motherboard card slots. Be sure to check the PC's manual or manufacturer web site to find out what type of card slots your PC has (e.g. PCI, PCI-express, etc.). If you are using a laptop/notebook PC, check to see if it supports PCMCIA card slots (newer laptops generally do not support PCMCIA cards) as the PCMCIA format is the only one in which internal serial ports can be obtained for laptops. One good source of such internal serial port cards is Perle ([www.perle.com](http://www.perle.com)).

Another option is to add a serial port **externally**, using media conversion devices compatible with other types of ports available on your PC. All newer PCs come equipped with USB ports, and most come equipped with an Ethernet port and/or wireless 802.11 capabilities. Thus external devices that convert USB-to-Serial, or Ethernet-to-Serial (aka Ethernet Serial Server) can be used. USB-to-Serial converters can generally be obtained from computer stores. Both USB and Ethernet converters can be found from internet sources such as B & B Electronics ([www.bb-elec.com](http://www.bb-elec.com)). An advantage to using USB-to-Serial converters instead of Ethernet Serial Servers is that the USB converters are self-powered and are the least expensive (about \$40 USD), whereas you will need to find a source of power for Ethernet Serial Servers and Ethernet converters are more costly (about \$100-\$200 USD). However, Ethernet Serial Servers place the serial data on your network, which allows that data to be accessible anywhere on your network, even through a wireless 802.11 connection to a laptop.

**NOTE: for battery-based or off-grid power systems**, you will want to communicate with your power conversion equipment even when AC power is off. Thus you must make sure that your PC remains powered (e.g. battery powered laptop) and that the media conversion equipment also remains powered. Thus if you are using an Ethernet Serial Server it is best to power it from the system battery voltage. We recommend using the B & B Electronics model VESR901 Ethernet Serial Server because it can run from 10 to 48 Vdc.

Regardless of the add-on port that you use (internal, external, USB or Ethernet), the hardware must come with software drivers for your PC. Sometimes the drivers are included with the device on a CDROM, other times you are expected to visit the manufacturer's web site to download the drivers. In any case, **before you purchase any device, make sure its software drivers are compatible with your PC's version of Windows**. Incompatible software drivers can cause intermittent operation if it works at all.

**Are you adding a serial port to communicate with an OutBack Mate?** If so, any external media converter (USB or Ethernet) will very likely require the addition of our Mate Adapter because the OutBack Mate's serial port requires full strength RS-232 signals and only internal serial ports can provide full strength signals. The Mate Adapter is used to supply an external power source (such as the OutBack equipment Auxiliary Outputs) to provide the extra power needed by the OutBack Mate. This then allows you to use low signal-strength external media converters between your PC and the Mate. If you are handy at soldering, RHE can provide you with a schematic and parts list to build your own Mate Adapter. Or you can purchase one pre-made from RHE for \$50 USD plus shipping.