Digitally configured power supplies
Emerson Network Power has increased the flexibility of its iMP and iVS Series of digitally configurable AC-DC switching power supplies by introducing three new simple yet innovative adapter modules that enable both USB and Controller Area Network (CAN)/RS-485 bus connectivity. These adapter modules now provide a complete interface between the host device and the I2C bus with a simple command set, enabling the highest levels of configuration flexibility. They also enable Emerson's intelligent standard power supplies to be used in a host of new ruggedized applications, including automotive networks, industrial networks, medical equipment, and building automation systems, many of which interface exclusively via CANbus architectures.

The microcontrollers integrated into the case and modules are paired with Emerson's innovative and highly intuitive I2C Graphical User Interface (GUI)-based control software. Power supply customization is now at the designer's fingertips; voltages, current limits, and inhibit/enable settings can be easily configured or reconfigured, making power easy.

Controlling power supplies
Many types of power supplies are digitally controllable and able to be monitored over an I2C bus using the PMBus protocol. If you've got an I2C port handy and know how to use it, great, but let's say you've got something higher level like a USB port, RS-485 port, or CANbus connection.

Emerson Network Power has designed three new simple extension cards to enable USB, CANbus, and RS-485 connectivity for the iMP and iVS AC-DC power supply families. These extension adapters provide the interface between the power supply control port (CaseRx/CaseTx) and the selected connectivity port, and program with a simple command set. This allows the energy-efficient iMP and iVS power supplies to be used in many industrial-type applications that rely solely on CANbus or newer installations that can use USB.

Observing USB 3.0 protocol and more
Higher speeds and aggressive power management in USB 3.0 create more complicated signals that require more sophisticated analysis tools.

The LeCroy Voyager is a full-function protocol analyzer capable of recording and analyzing traffic between USB 2.0 and 3.0 devices. An integrated exerciser option is capable of emulating USB 2.0 and 3.0 device behaviors to allow functional, performance, and error-recovery testing. Now available with a turnkey Compliance Suite for validating conformance to the USB 2.0 and 3.0 specifications, the LeCroy Voyager has emerged as the de facto standard analysis tool for teams designing Certified USB 3.0 products.

“The availability of USB 3.0 compliance tools like LeCroy’s USB Compliance Suite is another important building block that will help accelerate the introduction and adoption of SuperSpeed technology.” – NEC Electronics

Measuring USB power
One of the major benefits of USB is its ability to power a connected device from the host port. USB 3.0 has done a couple of things to improve this capability by increasing the device unit load from 100 mA to 150 mA using a nominal 5 V and offering mandatory power management mechanisms such as inactivity timers and device-initiated power requests. A single USB 3.0 port now drives six unit loads. The question is: How can designers get the most, or more accurately, the least, out of this new power capability?

To answer that, what would be useful is a USB protocol analyzer that could also measure power consumption, and that's exactly what LeCroy has created. While the Voyager analyzer looks at USB 2.0 or 3.0 data traffic, its optional integrated Power Tracker feature simultaneously measures and plots voltage and current draw. Measurements are correlated so that designers can see power draw during different states of the protocol and make the right choices to save power.