# Remote Management of Tripp Lite UPS Systems

Tripp Lite offers a diverse range of UPS Systems to accommodate different power needs. A key feature of most models is their ability to be managed remotely.

There are two categories of remote management technology. Availability varies by model:

1. Network Management Card

The WEBCARDLX network management card allows a compatible UPS system to be managed over the network. It provides a web-based graphical user interface (GUI) as well as access via Telnet, SSH and SNMP.

WEBCARDLX is available for the SmartPro® and SmartOnline® UPS series. Some models have it pre-installed.

SMART1000RM1U with WEBCARDLX slot
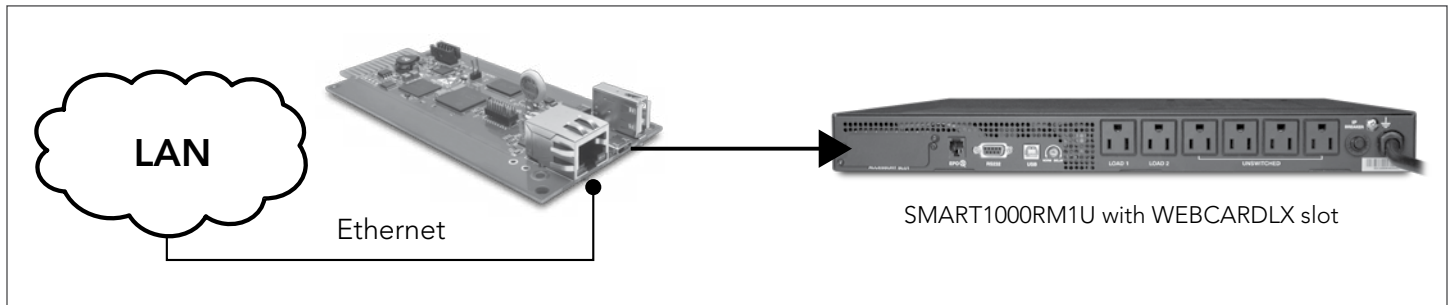
2. Remote Connection with PAL

A computer with Tripp Lite's free PowerAlert® Local (PAL) software can manage a UPS over a serial or USB connection. Remote devices connected to the computer on a network can be configured to manage the UPS as well.

PAL software can manage UPS models with USB and/or serial ports.

OMNI1500LCDT
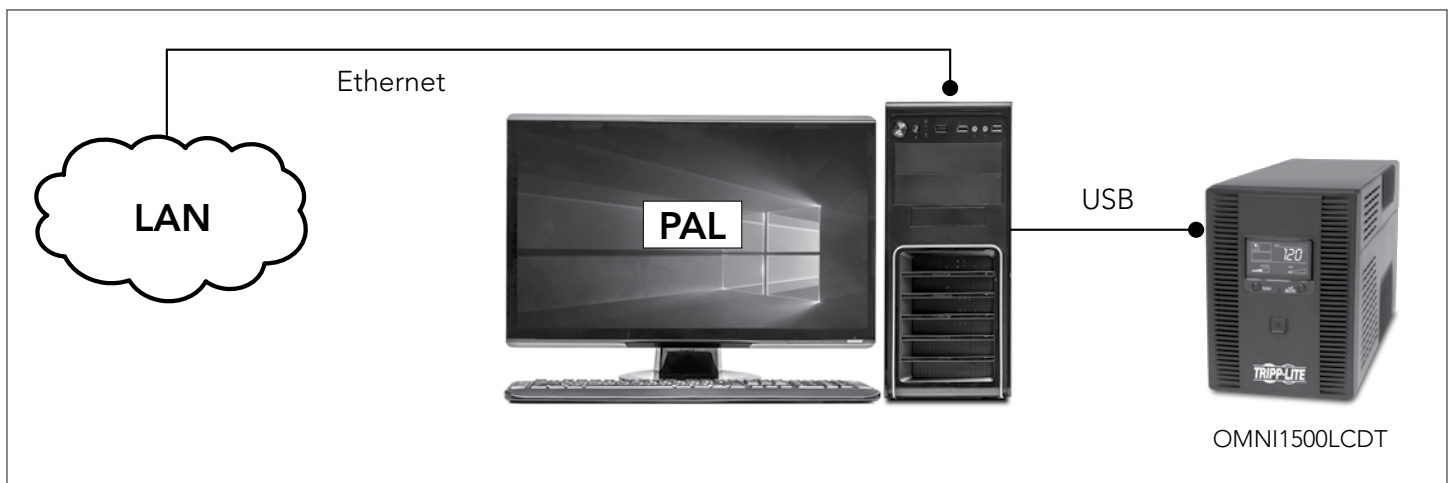
Configuring Remote Connection with PAL

PAL software contains an SNMP agent that allows it to communicate with other agents over the network. There are two primary methods by which PAL's SNMP agent can be remotely leveraged to monitor and manage USB-connected or serially connected UPS systems:

1. **PAL-to-PAL.** A computer with PAL installed locally can access an instance of PAL on a second computer on the same network. If the second computer has a serial or USB connection to a UPS, the local computer can use PAL to manage that UPS.

    Using the local computer, enter the following line in a command prompt:

    C:\Program Files (x86)\TrippLite\PowerAlert\console\java –jar –paconsole.jar –ax.x.x.x

    (Note that x.x.x.x is the IP address of the remote computer running PAL.)

2. **Using SNMP Commands.** A computer on which PAL is not installed can also manage a UPS remotely by issuing SNMP read and write commands. These commands must be issued via SNMP to another network computer on which PAL is installed. PAL will translate the source commands in communications with the UPS. The source must have knowledge of where in the computer to find specific information (such as metrics or status) or where to send instructions. This knowledge is provided in the form of Object Identifiers (OIDs).

    For issuing SNMP commands, there are three main types of sources:

    A. **Network Management Software.** Applications such as Tripp Lite's free PowerAlert Network Management System (PANMS), Solar Winds, PRTG and Zabbix provide GUIs to facilitate user interaction, but use SNMP commands in the background to discover, monitor and control devices, including PAL instances. Some initial effort may be required to instruct the application about the device's OIDs. See the application documentation for more information.

    B. **SNMP Utilities.** Tools such as iReasoning provide a user-friendly way of issuing individual SNMP commands. They can be used to discover and display a device's OIDs, making it simpler to issue commands.

    C. **Command Line Interface.** Programs such as Net-SNMP allow users to access a computer's command line interface (CLI) for issuing SNMP commands, such as SNMP "GETs" and "SETs." This option requires knowledge of the command structure, the target device's IP address and its required OID. Below is an example of such a command:

    C:>snmpset –v 2c –c tripplite 192.168.1.1:3664 .1.3.6.1.4.1.850.10.2.3.3.1.3.1.30 i 1

The table below shows a number of commonly used OIDs associated with Tripp Lite UPS systems. All OIDs are available through the Tripp Lite MIB package, which can be downloaded from the Tripp Lite website.

Name	OID	Data	Description
upsSecondsOnBattery.0	.1.3.6.1.2.1.33.1.2.2.0	0	The elapsed time since the UPS last switched to battery power (while on battery), or the time since the network management subsystem was last restarted, whichever is less.
upsEstimatedMinutesRemaining.0	.1.3.6.1.2.1.33.1.2.3.0	397	An estimate of the time to battery charge depletion under present load conditions if the utility power is off and remains off, or if it were to be lost and remain off.
upsEstimatedChargeRemaining.0	.1.3.6.1.2.1.33.1.2.4.0	100	An estimate of the battery charge remaining expressed as a percent of full charge.
upsBatteryVoltage.0	.1.3.6.1.2.1.33.1.2.5.0	2180	The magnitude of the present battery voltage.
upsBatteryTemperature.0	.1.3.6.1.2.1.33.1.2.7.0	25	The ambient temperature at or near the UPS battery casing.
upsOutputVoltage.1	.1.3.6.1.2.1.33.1.4.4.1.2.1	208	The present output voltage.
upsOutputCurrent.1	.1.3.6.1.2.1.33.1.4.4.1.3.1	4	The present output current.
upsOutputPower.1	.1.3.6.1.2.1.33.1.4.4.1.4.1	285	The present output true power (measured in watts).
tlUpsControlSelfTest.0	.1.3.6.1.4.1.850.100.1.8.3.1.0	true (1)	Set to TRUE to initiate Self Test.
tlUpsControlUpsOn.0	.1.3.6.1.4.1.850.100.1.8.3.4.0	true (1)	Set to TRUE to turn UPS on.
tlUpsControlUpsOff.0	.1.3.6.1.4.1.850.100.1.8.3.5.0	true (1)	Set to TRUE to turn UPS off.
tlUpsOutletState.1	.1.3.6.1.4.1.850.100.1.10.2.1.2.1	on (2)	The current state of the Outlet.
tlUpsOutletControl.1	.1.3.6.1.4.1.850.100.1.10.2.1.4.1	0	Controls the state of the Outlet.

For more information or support on performing remote UPS management, please contact Tripp Lite Tech Support at 773.869.1234 (7am – 6pm CST).