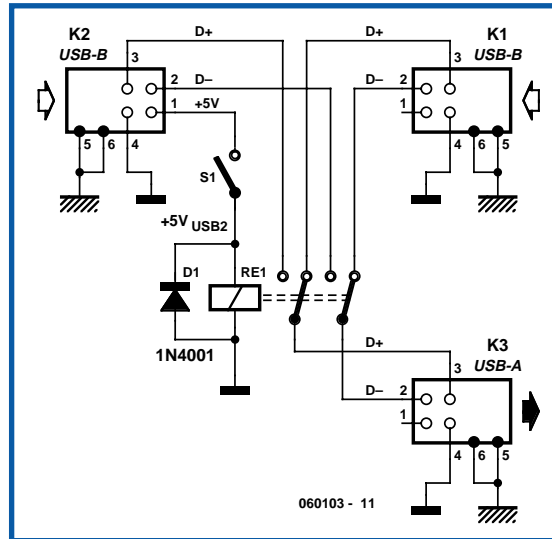


USB Switch for Printers

009

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This circuit switches a printer's USB connection from a PC to a laptop. What was needed was a method of allowing a laptop to use the printer occasionally while at all other times the printer would be connected to the PC. Instead of unplugging the printer from the PC and then into the laptop, the circuit switches the USB connection automatically. K1 and K2 are standard type-B USB sockets, while K3 is a USB type-A socket. The USB lead from the laptop plugs into K2 while the PC's USB lead plugs into K1. A USB cable from K3 connects the printer to this circuit. The cable from the PC is always plugged in while the cable from the laptop is only connected whenever this device needs to print. In normal operation the laptop is not con-



nected to K2, so the USB signal to the printer comes from the PC via K1, the normally closed contacts of relay Re1, through to K3 and from there to the printer. Whenever the laptop is con-

nected up, the presence of the 5-volt power signal on its USB port causes Re1 to switch over to the printer's connection to K2 and the laptop. Unplugging the laptop returns control of the printer back to there PC.

The circuit was tested on a USB-1.1 compliant printer and a PC and laptop that had USB-2.0 high-speed ports. The PCB traces for D+ and D- should be kept as short as possible and ideally should be the same length. The relay should be a low-power type (5 V at <100 mA coil current) with two changeover (c/o) contacts. Switch S1 is only required in situations where the two computers

you want to select between are permanently present and connected up to the circuit. The switch then selects the computer having access to the printer.

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