

## Miscellaneous Notes on Construction and Use of the SWR/Power/Return Loss Monitor

- The Propeller USB Development Board is the most convenient hardware platform for building this project. It has all of the basic chips already installed, including a USB interface, and enough prototyping space to hold all the other necessary components. However, the Parallax Corp. has available a number of other, more compact, embodiments of the Propeller chip and support devices. The Propeller is also available in a stand-alone 40-pin DIP package if you want to build everything from scratch.
- The RC filter on the A-to-D converter input on pin 7 has two capacitors – one connected to ground and the other to the Vdd bus. This configuration is recommended by the manufacturer, and forms a half bridge circuit helping to cancel out any noise on the power supply bus. It's important that the connections to this pin be kept fairly short to prevent ringing and consequent A-D conversion errors.
- The PWM output (P5) which drives the analog panel meter is smoothed by a low-pass RC filter. The filter constants shown in the schematic are adequate for typical analog meters. But for meters with low damping characteristics the filter capacitor, C8, may need to be increased in value to eliminate visible jitter on the needle.
- The pull-up resistor on pin P5 is required to keep the USB interface chip on the Propeller USB Development board in an active state when the USB cable is disconnected. Without this resistor in place, the free-floating USB chip will endlessly reset the Propeller.
- A DIP switch array for configuring the SWR/Power/Return Loss Monitor is used as a matter of convenience. A dual-row header with individual jumper plugs could be used just as well.
- Note that the schematic diagram shows a reset switch, S1, a power switch, S3, and a d-c power jack. These components are provided on the development board by the manufacturer, but are not used in this design.
- The USB port serves as both a programming port and a serial data I/O port when communicating with a data terminal. Most users will be using a terminal program such as HyperTerminal for data display. Because the same pins are used for both functions, it is necessary to disable the terminal program when programming the Propeller chip. If the terminal program is running, the programming software can't find the port.