

## NOTES & ERRATA FOR PROJECTS PUBLISHED IN SILICON CHIP (2003)

*Please note: errata apply primarily to the print edition of SILICON CHIP as online issues are normally changed when an error is identified. However some errata may still apply to the online edition; check carefully before making any changes to a project.*

**Reader/Programmer for Smart Cards, January 2003:** (1) This project can only be used to read and program the EEPROM in a card where the PIC microprocessor has already been programmed. However the PIC in a blank card can be programmed quite easily using a standard PC-driven PIC programmer, such as the one published in the March 2001 issue of *SILICON CHIP*. All that is needed for this is to make up an adaptor so that the card can be connected to the programmer's 18-pin PIC socket. To make up an adaptor, mount a card socket identical to the one used in the January 2003 programmer (ICA-7000, Jaycar Cat No. PS-0012) on a small piece of matrix board, so you can make connections to its card contact pins. Then using the diagram shown here as a guide, connect the pins to an 18-pin DIL plug using a short length of rainbow ribbon cable. The DIL plug can then be plugged into your PIC programmer's ZIF socket. Note that if you can't obtain an 18-pin DIL plug, you can use a 16-pin wirewrap DIL socket, and change the pin connections as shown. Then the "tails" of the socket can be plugged into the programmer's ZIF socket. Just make sure you plug it in at the pin1/18 end, so that the correct connections are made. (02/03)

(2) The clock connection from the card socket should go to pin 12 of the 18-pin socket, not pin 16 as shown in the February 2003 notes. (03/03)

(3) The following links may be used to download software for programming the Smart Card Programmer: [www.angelfire.com/space/aussiemulate/mosc/fmcard400.zip](http://www.angelfire.com/space/aussiemulate/mosc/fmcard400.zip) [www.adteknik.com/software/mp617.zip](http://www.adteknik.com/software/mp617.zip) [www.maxking.co.uk](http://www.maxking.co.uk) then click on Software, PIC, IDcard.zip

**Tiptronic-Style Gear Indicator, January 2003:** (1) The parts list should include 2 x 4.7k $\Omega$  resistors. Also the 400mm of 0.8mm tinned copper wire can be 100mm in length. The 2.2k $\Omega$  resistor shown on the overlay diagram to the right of VR1 should be 4.7k $\Omega$ . (02/03)

(2) The pin 2 & 3 connections for the Hall effect sensor (UGN3503) are shown transposed on the circuit diagram (Fig.7). Pin 2 should be GND and pin 3 the signal output. The overlay diagram is correct. (12/03)

**3-Way Active Crossover, January 2003:** The equation for the crossover frequency shown in Fig.4 is incorrect. It shows the whole bottom line within the square root symbol whereas only the 2 should be within the square root. (05/04)

**SC480 50W Amplifier, January/February 2003:** A number of readers have asked how to add a volume control to the SC480 amplifier, so that it can be used directly with a line-level music source. This can be achieved very simply, using just a 50k $\Omega$  dual-gang log potentiometer, some shielded audio cable and the appropriate connectors, as shown on page 108 of the December 2005 issue.

The same technique can be used on other amplifier modules too, although you'll need to verify that the signal source is sufficient to generate the volume levels you expect. If not, a preamplifier might be part of the solution. (12/05)

**PortaPAL Portable PA Amplifier, February/March 2003:** (1) There is a circuit error concerning both the microphone MIC1 and MIC2 inputs. The circuit shows two 10k $\Omega$  resistors in parallel connecting from pin 2 to ground whereas one of these resistors should connect to pin 3 instead. The PC board is correct. (03/03)

(2) The Main PC board (code 01103031) has an error which needs to be corrected. The link near pin 1 of IC5 connects on one side to ground but the other side is disconnected. It should go to emitter of Q1 via the adjacent track. The end of the 18k $\Omega$  resistor adjacent to the open circuit link should be connected instead to the adjacent track which goes to pin 7 of IC5. A revised PC board pattern is on our website: [www.siliconchip.com.au](http://www.siliconchip.com.au) (05/03)

(3) The bass pot (VR5) is shown on the circuit as 10k $\Omega$ . This should be 100k $\Omega$  as per the parts list. Second, the 100 $\mu$ F capacitor at pin 14 of IC9 should be shown as 100 $\mu$ F on the overlay, not 10 $\mu$ F. Finally, the overlay shows a 100nF capacitor in parallel with the 2200 $\mu$ F capacitor that's used to decouple the supply rail. This capacitor has been omitted from the circuit (the overlay is correct). (12/04)

**12V SLA Battery Float Charger, March 2003:** When this charger is used with the PortaPAL (February and March 2003), the 10 $\mu$ F capacitor connecting to the adjust terminal of REG1 should be omitted. (04/03)

**Printer Port Simulator, May 2003:** The PC board code should be 07105031, not 04105031. (06/03)

**Sunset Switch, June 2003:** The 10 $\mu$ F capacitor connected from the +12V rail to the emitter of Q1 has been omitted from the circuit diagram on page 36. The wiring diagram (Fig.3) is correct. Also, four 10 $\mu$ F capacitors have been omitted from the Parts List. (07/03)

**Adding A 100V Line Transformer To The SC480 Amplifier, Circuit Notebook, July 2003:** The circuit is incorrect. It shows a 1N5404 diode connected from -40V to 0V. It should have connected to the amplifier output instead. The circuit is presented correctly on page 59 of the August 2003 issue. (08/03)

**Smart Card Reader/Programmer, July 2003:** The plastic 3.5-inch to 5.25-inch disk drive adapter shown in the photos is available from PC Case Gear, on the web at [www.pccasegear.com.au](http://www.pccasegear.com.au) (look in the "Accessories" section) or phone (03) 9584 7266. (09/06)

**Programmable Continuity Tester, July 2003:** To protect the tester in the case of accidental use on live circuitry, a 4.7V 1W zener diode and 330 $\Omega$  resistor can be added to the probe positive input circuit. These additional components limit the voltage applied to the non-inverting input (pin 10) of the LM324, to protect it from reverse and over-voltages.

A fragment of the circuit showing the additional two components is shown on page 108 of the December 2005 issue. These components can be added to existing PC boards by first breaking the track leading to pin 10 of IC1. The 330 $\Omega$  resistor is then soldered between pin 10 and the positive probe input. The cathode (banded) end of the zener also goes to pin 10, while its anode end goes to the negative (GND) probe input.

A revised PC board design (marked "Rev B") that includes these two parts has been provided to the usual suppliers. An overlay diagram for the revised design appears on page 108 of the December 2005 issue. (12/05)

**PC Infrared Remote Receiver, August 2003:** (1) On the parts list the PC board size is shown as 100.5mm x 117mm. It should be 47mm x 59mm. (09/03)

(2) Some constructors have reported that the remote power-up function stops working after switching power on and off a number of times. The problem was traced to EEPROM corruption during brownout of the +5V supply to the microcontroller (IC1). To fix the problem, mount an MC34064P-5 undervoltage sensing IC on the bottom (copper) side of the PC board as shown on page 98 of the November 2003 issue. If you've yet to assemble your board, then this should be done after all other components have been installed. Slip a short length of heatshrink tubing over the GND lead of the IC before soldering it. This ensures that the GND and +5V leads can't short together. The MC34064P-5 is available from Altronics (cat. Z-7252) and Farnell (cat. 703-709). Note that you only need to do this modification if you're using the remote power-up function. (11/03)

**Current Clamp Adaptor For DMMs, September 2003:** As presented, the clamp adaptor is not suitable for use with 240VAC mains when the wiring is uninsulated. To make it safe, both the metal clip and the toroid must have insulated coatings. (05/04)

**Portable PIC Programmer, September 2003:** A few constructors have been unable to adjust VR1 to get the required 5.0V output from REG1, as described in the article. If you encounter this problem, replace the 22k $\Omega$  resistor in the collector circuit of Q1 with a 10k $\Omega$  value and redo the calibration.

Although we don't recommend the use of the kit to program PIC12C508/9 devices, we've found that it's more likely to program these devices successfully if the 1 $\mu$ F capacitor connected to the cathode of D4 is replaced with a 10 $\mu$ F 35V tantalum unit. (07/05)

(2) A few constructors have reported problems programming newer devices such as the PIC16F88. This problem can be resolved by using an alternative programming package called "WinPIC", available for free download from <http://people.freenet.de/dl4yh/winpicpr.html> (includes comprehensive documentation). Choose an interface type of "COM84 programmer for serial port" for compatibility with the Portable PIC Programmer. This setting can be found on the "Interface" tab.

Although experienced users may be able to get the original programming software (IC-Prog) and WinPIC to co-exist on the same PC, this is not recommended. To uninstall IC-Prog, go to Settings -> Options and choose the "Misc" tab. Remove the tick in the "Enable NT/2000/XP" and click OK. A dialog box will then appear asking "Do you also want to remove this driver?" Click on the "Yes" button, then click OK at the bottom of the window. You can then close IC-Prog and delete all of the associated files from your IC-Prog folder. (02/06)

**50MHz Frequency Meter, October 2003:** (1) VR2 on both the circuit and overlay should be 10k $\Omega$ . The parts list is correct. (11/03)

(2) The 470pF capacitor between pin 6 of the LCD and ground may need to be larger in value for the display to operate. A value up to 2.2nF may be required if the display does not show any characters. This value of capacitance may cause the character preceding the word "HIGH" when the Resolution switch is pressed to have a couple of bars instead of a blank space. The normal frequency display when the switch is released will not show any abnormalities. (01/04)

**1W Star 2-Cell LED Torch, November 2003:** Some constructors have had difficulty obtaining the ZXT13N20DE6 transistor (Q1) for this project. A suitable alternative is the ZXT13N50DE6, which has a higher V<sub>ceo</sub> rating but is otherwise identical. The ZXT13N50DE6 is currently available from Farnell, Cat. 334-6882. (01/04)

**12AX7 Valve Audio Preamplifier, November 2003:** In the power supply circuit diagram (Fig.8) on page 30, VR1 and its series 220k $\Omega$  resistor are shown swapped compared to the PCB layout. VR1's wiper and the top end of the track connect to the junction of the 47k $\Omega$  and 680k $\Omega$  1W resistors. (02/19)

**Weather Satellite Receiver, December 2003:** (1) A 100Ω decoupling resistor in the 6V supply line was omitted from the circuit diagram. It should be shown in series with the +6V supply to VR2, VR4 and VR5. The resistor is shown correctly in the PCB overlay diagram but note that the parts list should show two 100Ω resistors rather than one. Also, RF choke RFC1, wound on an F29 bead and located just behind the RF input socket, should be wound from two turns of 0.25mm ECW, not three turns of 0.5mm ECW. The 2.2nF ceramic bypass capacitor just to the right of RFC1 on the board should also be omitted. Both these changes improve performance when an RF preamp is being used. (01/04)

(2) The circuit diagram should show the 1kΩ isolating resistor for the audio line output coming from the speaker side of the 330μF output coupling capacitor, not from the output of IC2a. The PC board overlay diagram is correct. (02/04)

(3) The S and G2 legends for the BF998 RF amplifier MOSFET were transposed on the underside wiring diagram (Fig.4) on page 22. Also, to make sure the RF stage remains stable when the RF gain is advanced, two 2.2nF SMD capacitors should be added under the board (as shown on page 91 of the April 2004 issue), to provide additional bypassing for the source and G2 of the BF998 respectively. (04/04)

(4) A small number of these receivers have needed a small earthed shield plate over the top of the IF chip, to keep it from taking off. Similarly, one or two have needed additional 47nF SMD bypass capacitors from the source of the RF amplifier to ground, to keep it stable. (10/04)

**MiniCal 5V Meter Calibration Standard, December 2003:** The overlay diagram for the copper side of the PC board (Fig.3) was inadvertently shown in mirror image. The correct board orientation and position of IC1 and the R1/R2 divider is shown on page 91 of the April 2004 issue. (04/04)