

NOTES & ERRATA FOR PROJECTS PUBLISHED IN SILICON CHIP (2013)

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.

2.5GHz 12-Digit Frequency Counter, December 2012 – January 2013: Excessive “bobble” on the least significant digit of the counter's display when measuring low frequencies has been discovered. This is due to the first counting decade counter, IC14, not being properly reset prior to making each count. The cure is to insert a few lines of code into the firmware. A revised “Version 1.2” firmware (both source code and hex code) is available for free download on the SILICON CHIP website. (11/13)

CLASSiC DAC, February – May 2013: (1) The element14 part number listed for the AP5002S IC was wrong (page 41, April 2013). It should be 1825351. (08/13)

(2) Two capacitors were left off the DAC output filter diagram (February 2013, p25) and the circuit diagram (March 2013, p22). These 6.8nF capacitors connect between the junction of the two 1.5k Ω resistors and ground. They were included on the PCB layout diagram (April 2013, p39) and in the parts list (the PCB is correct). (09/13)

(3) On the PCB layout diagram (Fig.11, p39, April 2013), the 1.5k Ω resistor just to the left of CON12 (near centre) should be 470 Ω . There are also two parts list errors: (1) two 220 μ F 10V electrolytic capacitors should be included in the list; and (2) instead of 14 x 100 μ F 16V electrolytic capacitors, the list should show 12 x 100 μ F 16V and 2 x 100 μ F 25V capacitors. (01/14)

(4) Fig.11 on page 39 of the April 2013 issue showed a 10 Ω resistor to the left of Q11 which should be 2.2 Ω . Also, the capacitors immediately below Q11 should be 220 μ F and 1 μ F. These are all shown correctly on the circuit diagram. The overlay diagram in the online edition is also correct. (05/15)

(5) Revised firmware for the DAC (0110213B.HEX) is available for download from our website. This fixes pushbutton debouncing problems and includes changes to the IR reception code to better reject noise. Also, some people have complained that one or more TOSLINK input LEDs light up when there is no signal present. This is usually fixed by adding 30pF ceramic capacitors across the empty pairs of pads near the TOSLINK receivers. (10/21)

1W LED Driver With Protection, Circuit Notebook, May 2013: The second and third paragraphs in the third column should say “With an open circuit, the voltage across the 220 μ F capacitor can become as high as the supply, damaging the LEDs should they be reconnected with this higher voltage present. With the protection circuit, a higher than normal voltage allows ZD1 to conduct, pulling pin 5 of IC2b higher than its inverting input. This occurs with about 1mA through ZD1 and 1V across each 1k Ω resistor. So there is about 10.2V across the 220 μ F capacitor”. (06/13)

IR-To-UHF Converter, July 2013: The 100 Ω resistor at pin 1 of OPTO1 will need to be reduced if the opto-coupler doesn't work. A value between 22 Ω and 47 Ω should suffice. (11/13)

Demonstration Circuits For Human Colour Vision, July 2013: The RGB LED specified for the circuit of Fig.3 is a common cathode type and its Jaycar catalog number is ZD-0012. Do not use the ZD-0010 which is a common anode type. (08/13)

1.5kW Induction Motor Speed Controller, April-May 2012, December 2012 & August 2013: (1) The PCB overlay diagram (May, p69) shows two 270 Ω resistors below IC3 which should have been labelled 100 Ω (their value is wrong in the parts list too). Also, the circuit diagram (April, p22) shows the three pull-up resistors for the pins of CON5 (two 4.7k and one 1.5k) all connected to pin 1 of CON4. They are actually connected to the +3.3V rail. Finally, the Altronics catalog number for the 470 μ F 400V capacitors in the parts list is incorrect. It should be R5448. (06/12)

(2) A number of changes must be made to the original PCB to ensure reliable operation. These changes are described in the December 2012 issue. In addition, one of the holes is incorrectly positioned on the heatsink drilling diagram. A corrected drilling diagram is shown on page 83 of December 2012. (12/12)

(3) The thermostat mounting hole position shown on the drilling diagram (Fig.9) on page 70 of the May 2012 issue should be moved so that it is 170mm from the left hand edge of the heatsink (not 130mm). Be sure to orientate TH2 correctly and keep its leads short so that they cannot possibly contact any high-voltage circuitry. In addition, the mounting hole for BR1 is incorrectly positioned. It should be 45mm from the bottom edge of the heatsink (as indicated) but is actually incorrectly positioned 40mm up from the heatsink edge.

In August 2013, the article in this issue recommended changing the current-limiting resistor in series with zener diode ZD1 to 470 Ω (previously 1k Ω). This 470 Ω resistor should be rated at 0.5W (not 0.25W).

Completely updated articles for the 1.5kW Induction Motor Speed Controller have been produced and substituted for the original articles on our website: www.siliconchip.com.au These articles incorporate all modifications (including the above errata) to the unit which now uses a modified PCB (10105122) and revised software for the microcontroller (1010512B.hex). (09/13) Continued overleaf...

1.5kW Induction Motor Speed Controller, April-May 2012, December 2012 & August 2013 (continued): (4) There is now a more rugged IGBT bridge with higher current ratings available as a drop-in replacement for the originally specified STGIPS20K60. The new device is the STGIP30C60 and it has a rating of 30A (up from 20A). The total power dissipation ratings are unchanged. We recommend that all new speed controllers now be constructed with the new device, as the upgrade will provide increased reliability. However, we do not recommend that readers use it with a motor or pump rated in excess of 1.5kW. In those cases where the speed controller will not reliably start a pool pump with the new IGBT bridge fitted, it will be possible to reduce the value of the specified shunt resistor from 15 milliohms to 12 milliohms to provide for more starting current. (05/14)

(5) Contrary to the instructions on page 74 of the May 2012 issue, do not feed 3.3V into CON4 to test the unit without using the mains supply. Instead, feed 3.3V into pin 2 of the ICSP header while making the ground connection to pin 3 of that same connector. This supply can be provided by a PICkit 3 programmer set up to supply power to the chip being programmed. Also, in the circuit diagram (Fig.5 on pages 22 and 23 of the April 2012 issue), the connections to the EXT and O/S DIP switches are shown reversed; EXT should go to pin 18 (RB8) and O/S to pin 17 (RB9). (09/17)

Speedo Corrector Mk.3, September 2013: (1) There should be four 1 μ F capacitors in the parts list (not three) and the circuit should show a 1 μ F capacitor between pins 5 & 14 of IC1. The overlay diagram is correct. (06/14)

(2) The BC857 is incorrectly listed for Q3 & Q6 in the parts list, it should be for Q4 & Q6. The circuit and overlay diagram are correct. (09/21)

LifeSaver For Lithium & SLA Batteries, September 2013: In some cases, reverse leakage through the dual diode can affect the voltage at pin 3 of IC1, causing the voltage thresholds to be lower than expected and possibly preventing their adjustment via VR1. As this connection to the diode is not necessary for operation, constructors should cut the top-side track between VR1 and the diode (between VR1 and ZD1) or use a BAT54 diode rather than a BAT54C. (08/19)

Automatic Car Headlight Controller, October 2013: There should be seven 1 μ F multilayer capacitors in the parts list, not six. Also, the three 2-pin headers are for jumpers JP1-JP3; there is no JP4. (11/13)

Repacking A Cordless Drill With A Lithium Battery Pack, October 2013: The wiring diagram of Fig.1 on page 14 shows the Battery Lifesaver incorrectly wired, with the terminations to B- and L- swapped. The L- terminal should go to the negative side of the drill motor and the B- terminal should have the negative battery and charger wires connected to it. This will not cause any immediate damage but the drill current will pass via the substrate diode of the Mosfet and therefore the Battery LifeSaver will offer no protection to the Lithium battery itself. (01/14)

Dual Channel Audio Delay, November 2013 (& Stereo Echo & Reverberation Unit, February 2014): IC2 must be a WM8731. Do not use the specified alternative part (TLV320A-IC23BIPW) as this has the function of two pins swapped (21 & 22). (05/14)