

NOTES & ERRATA FOR PROJECTS PUBLISHED IN SILICON CHIP (2007)

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.

3-Digit LED Stopwatch (Circuit Notebook), January 2007: The PICAXE program has been updated to eliminate a bug that occurs at each minute interval. The update (version 1.1) can be downloaded from our website in the file "Stopwatch.bas". (02/07)

Simple Variable Boost Control, February 2007: The text describing the wire colours on page 37 & 38 is wrong. The wire from the ECU should be green and the wire to the boost solenoid should be blue, to agree with the diagram of Fig.3. (03/07)

Fuel Cut Defeater For Cars, February 2007: On page 39, the text states "Check that the voltage at pin 8 of IC1 is +5.6V". In fact, the voltage is +12V, with respect to pin 4. (03/07)

Programmable Ignition System For Cars, March-May 2007: (1) There are several corrections to the parts overlays and parts list in the April 2007 issue, as follows: the 4.7k Ω resistor shown to the right of REG1 in Figs 8-13 should be 47k Ω ; the 10k Ω resistor shown immediately to the right of VR1 in Fig 10 should be 47k Ω ; the resistor immediately to the right of Q4 in Figs 8-13 is 47k Ω ; the parts list should show 3 x 100nF MKT polyester capacitors (not 1). A 10 μ F 16V PC electrolytic capacitor should also be added to the list. (05/07)

(2) For some motorcycles, go-carts and other engines, the ignition can be operated without using a MAP sensor. In this case, the MAP sensor input on the PC board would be connected to the 0V (ground) supply pin provided for the external MAP sensor. This will set the programmable ignition at a single fixed load setting. In the settings, set the minimum load to about 20 and the maximum load to around 200. The ignition will then be programmed for RPM load sites only and at the fixed load setting. RPM mapping would be over 11 RPM sites (or 15 RPM sites if the single 15 x 15 map is selected.) (09/07)

(3) The link <http://www.pgmfi.org/twiki/bin/view/Library/MapSensor> giving pinout information on the MAP sensors is now unavailable. The information can now be found at:
<http://web.archive.org/web/20050906201309/www.pgmfi.org/twiki/bin/view/Library/MapSensor> (11/07)

GPS-based Frequency Reference, March-May 2007: A newer version of the software (v4) is now available on the online shop. This newer version accepts an NMEA data stream at 9600 baud, to suit most recent GPS receiver modules. (01/18)

Jacobs Ladder, April 2007: Production versions of this kit have revealed a tendency for the specified BU941P TO-218 transistor to overheat. The solution is to fit the transistor with a TO-220 heatsink such as Jaycar Cat HH-8504 and to change the 0.47 Ω 5W resistor to 1 Ω 5W. This resistor should be spaced off the PC board by about 4-5mm to improve its heat dissipation. (06/07)

Digital Stereo VU/Peak Meter, May 2007: Transistors Q1 & Q2 on the overlay diagram of Fig.5 are incorrectly labelled. The transistor closest to IC4 should be Q2 (BC327) while the lower transistor should be Q1 (BC337). The circuit diagram on pages 66-67 (Fig.3) is correct. Also, on page 72, third column, second paragraph, the text should read "to the left of transistor Q1" (ie, Q2 should be Q1). (06/07)

20W Class-A Amplifier Module, May-July 2007: (1) The parts list on page 37 of the May issue specifies a transformer with both 16V+16V and 15V+15V secondary windings. The latter are no longer required and the transformer will be supplied with 16V+16V windings only. (09/07)

(2) The left and right channel speaker inputs on the Speaker Protection module in the July 2007 issue are each shown shorted at the relay pads in Fig.2 (p72). These pads should NOT be joined. (08/07)

(3) On page 75 of the July issue, the testing procedure is wrong, as 1.5V is not enough to bias on transistors Q5 or Q7. Use a 6V or 9V battery or two 1.5V cells in series for the test. (09/07)

Versatile 4-Input Mixer, June 2007: The PC board pattern as published (01106071.PCB) has the connections reversed for input connectors CON1-CON4 and the reversed connections were also present in the board overlay diagram on page 66. A corrected version of the board pattern has been sent to manufacturers. Operation can be achieved with boards etched from the original pattern by removing the contact clips from CON1-CON4 and fitting them on the opposite sides of the connectors. (11/07)

Tank Water Level Indicator, July 2007: Unfortunately, testing in an actual tank has shown that the 10 resistor values shown in the sensor string on page 34 are seriously in error. The corrected values are shown in the diagram on page 99 of the August 2007 issue, which shows the relevant portion of the circuit. The resistor values are shown for R1 to R10, together with effective sensor resistance which is brought into play as each sensor is successively covered by water. (08/07)

Nixie Clock, July 2007: The circuit diagram (Fig.1) shows pin 14 of IC1 connected to pin 12 of IC2. The connection should in fact go to pin 11 of IC2. The PCB layout diagram on page 73 of the August 2007 issue is correct. (10/13)

Subwoofer Controller, August 2007: A 47k Ω resistor in the input circuit to the Speaker position of the Source Select switch (S1) was not included on the PC board and is not necessary. (12/07)

A short copper track is missing on the final version of the PC board file. The missing track should be running directly under the centre of diode D5, connecting pin 1 of IC4 to the wide earth track running transversely just behind D5. To fix this problem in existing boards, solder a short length of tinned copper wire in place of the missing track. A corrected version of the PC board file will be sent to board manufacturers. (12/08)

NiMH Battery Charger, September 2007: The 100 μ F capacitor shown on the overlay diagram of Fig.3 adjacent to VR6 should be 10 μ F, to be consistent with the parts list and circuit. (12/07)

Simple Data Logging Weather Station, September & October 2007: The diagram giving details of the tipping bucket assembly was omitted from the second article. The missing diagram is published on page 99 of the November 2007 issue. (11/07)

Infrared Rolling Code Receiver, October 2007: The A & K labelling on diodes D1-D4, shown at the top right hand corner of the circuit, is incorrect. It should be as shown for diode D5 at the top left corner of the circuit. (09/08)

UV Light Box & Timer, November 2007: (1) CON5, the plug and socket shown for 240VAC mains connection to the PCB, is not mains-rated and should be replaced by a 3-way mains terminal block (eg, Altronics P2037A). The published PCB pattern has been amended to reflect the wider pin spacing required. Also the circuit description on p73, paragraph 4, right hand column, is wrong. It should read, "When the timer has completed countdown, RB5 goes low, which turns off Q7 & Q5 and turns on Q6". (12/07)

(2) Transistors Q5 & Q6 are shown incorrectly on the overlay diagram of Fig.3. Q5, a BC547, should be placed in the Q6 position and Q6, a BC557, placed in the Q5 position. Additionally, RA4, pin 3 of IC1 for the select switch (S1) should be pulled high to the 5V supply via a 10k resistor. While the start switch (S2) and set switch (S3) connections at the RB6 and RB7 pins of IC1 are pulled high via internal high value pull-up resistors, these two inputs should have 10k pull-up resistors to prevent false triggering due to transients especially when the UV lamps are starting. 100nF capacitors across S1, S2 and S3 can also reduce false triggering. (03/12)

(3) The errata in the August 2008 issue regarding this project is wrong. There is no 47k Ω resistor (it's 4.7k Ω) and it should not be installed. The three 10k Ω pull-up resistors mentioned in the March 2012 errata should be fitted instead. These can be soldered between the following pairs of IC pins on the underside of the board: pins 3 & 4, pins 12 & 14, pins 13 & 14. (02/18)

Electricity Saving Box, November 2007: the formula published in Fig.6 (page 26) should read:

$$\theta' = \tan^{-1} (\omega (L - \omega^2 CL^2 - CR^2))/R = 59.98^\circ \text{ which leads to } \cos(\theta') = 0.5. \text{ (03/08)}$$

Playback Adapter For CD-ROM Drives, November 2007: (1) We inadvertently left the contrast trimpot (VR1) off the circuit (Fig.3, p42) and off our prototype PC board. A diagram of the amended circuit section is shown in part two, on p95 of the December 2007 issue. Note also that there should be two 47 μ F capacitors across the output of REG1, not one as shown on the circuit (the PC board is correct). (12/07) P.T.O.

Playback Adapter For CD-ROM Drives, November 2007 (cont.):

(2) Some readers who have built the CDROM playback adaptor from the Jaycar kit have had some problems with the setup of the remote control codes. The remote control is programmed (and must be programmed at least once before use) by holding down the tactile switch S3 while booting up. However, some readers are having problems programming their remotes. This is most likely because they are using remotes that don't conform to the RC5 protocol that the adaptor recognises.

We have tested the Jaycar kit using the Digitech universal remote (Jaycar Cat. AR1725). Program that remote for the VCR 115 code. Incidentally, most universal remote controls should work with the adaptor. Usually, choosing a Philips appliance will work (as Philips are the original inventors of the RC5 protocol).

Note that some keys on some universal remote controls will only work when in the proper mode. For example, usually the PLAY button on the remote will not work when in TV mode (as this makes no sense for a TV). The Digitech AR1725 remote shows when a signal is being transmitted by the remote on its small LCD screen.

The Jaycar kit uses version 2.9 of the firmware (shown on boot up on the LCD screen) in which the remote control setup occurs in the following sequence:

LCD SETUP PROMPT BUTTON TO PRESS ON REMOTE

Press UNUSED:	press AV
Press CLSOPN:	press Power
Press Vol Up:	press Volume Up
Press Vol Dn:	press Volume Down
Press Chn Up:	press Channel Up
Press Chn Dn:	press Channel Down
Press Mute:	press Mute
Press Play:	press Play
Press Fast F:	press Fast Forward
Press Rewind:	press Rewind
Press Stop:	press Stop
Press Pause:	press Pause
Press Record:	press record
Press MA/SL:	press the line button (to the right of button 0)
Press Power:	press AV (this is not actually used by the firmware)
Press 0-9:	press the corresponding number buttons

Note that the UNUSED and Power button definitions are actually not used in the current version of the firmware. Therefore, you can use any key on the remote that will not control the adaptor to define these. In this example we have used the AV button on the AR1725 remote control. We have built the kit and tested it with the above remote and can confirm that it works. (07/08)

PIC-Based Water Tank Level Meter, November & December 2007: (1) We no longer recommend mounting the pressure sensor on the PC board and using the "tube in tank" method for water level sensing. Instead the sensor should be mounted inside the tank as described on page 86 of the December 2007 issue. Alternatively, the sensor can be located in a separate box outside the tank and its input connected directly to the outlet at the base of the tank. The addendum on p89-91 of the January 2008 issue has the details for this method. (01/08)

(2) The transmission repeat periods for the telemetry version for positions 4-7 and 8-B of the BCD switch (BCD2) do not run at the designated 33s and 67s respectively. The software has been updated (rev2) to fix this bug and is available for free download from our website. (09/08)

45-Second Voice Recorder, December 2007: The resistor from pin 7 of the HK828 should be a 47k Ω and the parts list should show nine 47k Ω resistors and only one 10k Ω . (02/08)