



GATEWAY

**The Official Magazine of the Gippsland
Gate Radio & Electronics Club Inc.**

August 2016



**Arduino – Here we go
Cheap Chinese Oscilloscope
Driving LED Displays
And More**

**President's report
- page 3**

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Event Queue

August:

- 19th August General Meeting
- 20th, 21st 19th International Lighthouse and Lightship Weekend
- 21st Club Net 8.00 pm - on VK3RLP
- 22nd Arduino night, Monday 7:30
- 27th, 28th 36th ALARA Contest
- 29th Club Net 8.00 pm - on VK3RLP

September:

- 2nd Prac night
- 4th Club Net 8.00 pm - on VK3RLP
- 5th Arduino night, Monday 7:30
- 11th Club Net 8.00 pm - on VK3RLP
- 16th August General Meeting
- 18th Club Net 8.00 pm - on VK3RLP
- 19th Arduino night, Monday 7:30
- 23rd-25th D-STAR (Digital Amateur Radio) QSO party
- 25th Club Net 8.00 pm - on VK3RLP

October:

- 14th, 16th 59th Jamboree on the Air (Jota)

November:

- 26th Rosebud RadioFest 9:30 am till 2pm

PRESIDENTS REPORT (sort of)

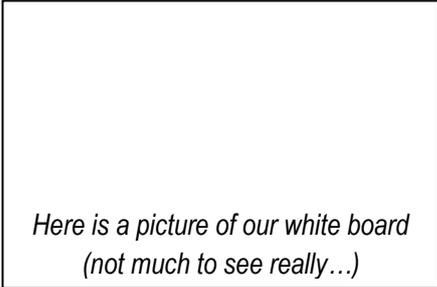
Spikes can be more than pointy things for storing receipts, or peak fluctuations in exchange rates, they can also manifest as catastrophic voltage transients that stop appliances from working, vaporise fuses and turn circuit board parts and copper tracks into radiating black marks.

My personal favourite is the exploding MOV (metal-oxide varistor) that is supposed to absorb transient energy, but when they cannot cope, they split open and make a sound like a starting pistol at a track & field event. It only takes a few such episodes to make one become hypersensitive to the stench of dead semiconductor, whereby you walk into a room, sniff the air and say to one's self: *"burning epoxy... metallic taint... there is an object near here which is no longer working."*

In a recent case I had a customer's 48 volt, 50 amp battery charger that was blowing mains fuses when plugged in. I reckoned there had to be a dead diode in there somewhere, but it was in hiding. Rather than disrupting the other guys in the workshop with circuit breaker trips, (they don't like it when soldering irons go cold) I shifted the suspect equipment to the office and used an outlet there, on an alternate circuit. However, when I tripped the breaker a second time, I observed the aforementioned odour, but oddly, it was coming from a different part of the room. The spike from the crook charger had just killed the power supply in the office PC, which although it hadn't even been running at the time, its supply was still across the mains. I was beginning to feel like Mickey Mouse in the *Sorcerers Apprentice*, where every broken object I touched was going to exponentially break more objects.

Fortunately I dug out an old pc supply from a junk box which was mostly compatible and the pc lives on once more. I did go on to find a partially blown bridge rectifier within the faulty charger and got it going as well. The problem is that transients are such a dark art that even Harry Potter would have struggled for good marks on the topic. You can load up a circuit board with expensive varistors, capacitors, ferrites and chokes, adding size and expense to a circuit, without really knowing if any of it is actually helping. But like domestic house insurance, it's *probably* a waste of money, but you wouldn't not-have it. The most common culprit is aging electrolytic capacitors in switch mode power supplies. After 5-10 years of operation its not uncommon to see the tops of capacitors starting to bulge. At that point, they are not filtering anything at all and those nasty spikes will go straight through to the sensitive semiconductor junctions and make them collapse like a Lady Havisham wedding cake. If you are building up a power supply of your own, consider adding these extra junk spike suppression parts, *just in case*. If you are servicing an existing power supply, budget on changing the filter capacitors too.

A couple of weeks ago the Club kicked off its Arduino interest group. Albert, VK3BQO started proceedings with a discussion on the ingredients and terms that make up such systems. This activity will be migrating to Monday nights at roughly fortnightly intervals. It is not intended to be a course, but rather a gathering of kindred souls who have a project or two that they wish to turn into reality. Undoubtedly, there will be more about this elsewhere in Gateway magazines. To assist in this process the Club has recently invested in a 1.8 x 1.2 metre porcelain surface white board for the Shack. The small acrylic one we had had degraded and was pretty hard to use.



*Here is a picture of our white board
(not much to see really...)*

A month ago a survey was sent out to members to discover how many would be interested in a November Melbourne Cup camping weekend somewhere and what sort of a trip it would be.

Of the responses we received, there was little interest in caravan park venues and an overwhelming preference to camp in the bush where some 4WD access may be necessary.

The committee examined these results and have decided to go with the Huggetts Crossing site on the Avon river. This was chosen because it is a pretty site that does not require too much drive time to get there. The path to this place is mostly easy roads and tracks, but the final two kilometres would be a challenge for town cars with low ground clearance. There will be more to be published about this event over the next couple of months.

Cheers, Ian, VK3BUF

Notices

GGREC Sunday night Net

Want to know the latest GGREC Club news and details of upcoming events?

If you want to be kept up to date then you need to call into the **GGREC Sunday Night NET**.

The NET is held every **Sunday** at **8:00 PM** sharp on **VK3RLP 439.475 MHz, 91.5Hz** tone access.

Don't miss out!

Arduino Interest Group

Hello again Guys,

Al and I have received no objections to the days and dates put forward so they have been set in stone.

The first Arduino night will be on the **22nd of August**, see you there at the clubrooms **7:30 PM**

Cheers Everyone,
Rob VK3BRS

From The Editor

This month, I was kind of reminded of the 'fun' I have preparing this magazine for you all to 'hopefully' enjoy. It is prepared using Microsoft Office Word, Microsoft has a more upmarket product called Publisher, however it is only included in their upmarket version of office, and not in the home user version that I have. This has proven to be a pain on several occasions. People who have it in their office see it every day and assume we all have it when they send out documents. My computer kind of recognises it as a Publisher document, but that's as far as it goes. I have no options when it comes to opening and reading the file.

Now if I prepare you an Office PowerPoint slide show, and you don't have a copy – No problems, there is a free viewer available from Microsoft. Publisher on the other hand, Nothing, you're on your own mate. (Yes, they do point you to their store, to pay up big time)

So for now I'm stuck with Word, that is, unless someone has a disused upmarket license they would like to donate! Anyway, as prompted by one of our contributors 'Please leave it intact', unfortunately, with Word, that's almost impossible. If I take a page from one Microsoft Word Doc, and paste it into another – Does it look like the original NO WAY. Yes there is an option to 'Keep Original Formatting', however it does a very poor job of it. Even the Presidents report, which is usually just plain text, needs an edit after insertion. If there are several pictures to go on one page (Like the lavender Tea Rooms article, last month) well then let the fun begin. – It's usually 'all over the shop' - literally.

So if you have slaved over the look and feel, then the published result is different, Sorry.

This brings me back to some experiments I did last month, I tried importing the magazine into Google's free online word processor, wow, did the magazine get a reformat. Mr Google had heaps of issues understanding the Word doc. Did it complain, or give me error messages, No, it just went ahead and did what it felt like. I tried cleaning it up, but it was going to take a lot of work, plus the cover layout I had prepared, (nothing special) Now looked very stark (i.e. crap)

The reason for me doing this, is Google Docs has an option to export the resultant doc as an electronic book, or eBook. I have an Amazon Kindle eBook reader, and thought having the magazine in that format could be of interest to members.

eBook readers usually have the ability to change the size of the font's etc., to make reading on a small screen a lot more inviting. I had earlier sent the normal pdf to the kindle, but as you would expect, it looked nice but was not very usable. (You need a magnifying glass) Unfortunately, the google docs result was worse!

I then tried 'Calibre - E-book management' software, originally to just convert epub to kindle, but then I found it would also do Word, but no, it only inspired me to uninstall and 'get a life'

So why all this trouble, well everyone is moving to mobile phones, where an A4 page does not fit very well. So is this all worth it, should I persist – Let us know.

Paul VK3TGX

A cheap EBay Chinese Oscilloscope

Are they worth it?

I asked myself as I was looking for a simple device to display an audio waveform across a dummy load at audio frequencies.

Not having been out to the shack in recent months I have been collecting components to put together a high power audio dummy load to test of course, high power audio amplifiers. Having the majority of bits ready to go I was thinking about the testing regime and just how I would go about it.

To check things like bias, basic performance and also for any faults you need to run it up at full power for short periods of time, and I was thinking on how to do this without connecting the amplifier to the test gear beforehand, just in case something was wrong with the amplifier and it could “spike” the audio analyser.

Enter stage left the Chinese Oscilloscope from EBay. If I fitted one (or 2) of these to the dummy load this would allow me to “watch” the output of the amplifier without connecting it to the audio analyser. I would then be able to see any large abnormalities in the output of the amplifier and allow me to make any adjustments and check for any D.C. present etc. before the final testing on the test gear. Nice !

Display: Listing summary Seller's description Listing images Print

ebay
Industrial > Electrical & Test Equipment > Test, Measurement & Inspection > Analysers & Data Acquisition
> Oscilloscopes & Vectorscopes Item: 171925691862



**DSO138 2.4\" TFT Digital Oscilloscope Kit DIY
Parts Learning Set 1Mps YC NY1H**
tomtop.wholesaler (492147

Item condition: **Brand New**
Sale date: 24 Jul, 2016

Quantity: 1
Price: **AU \$25.01**

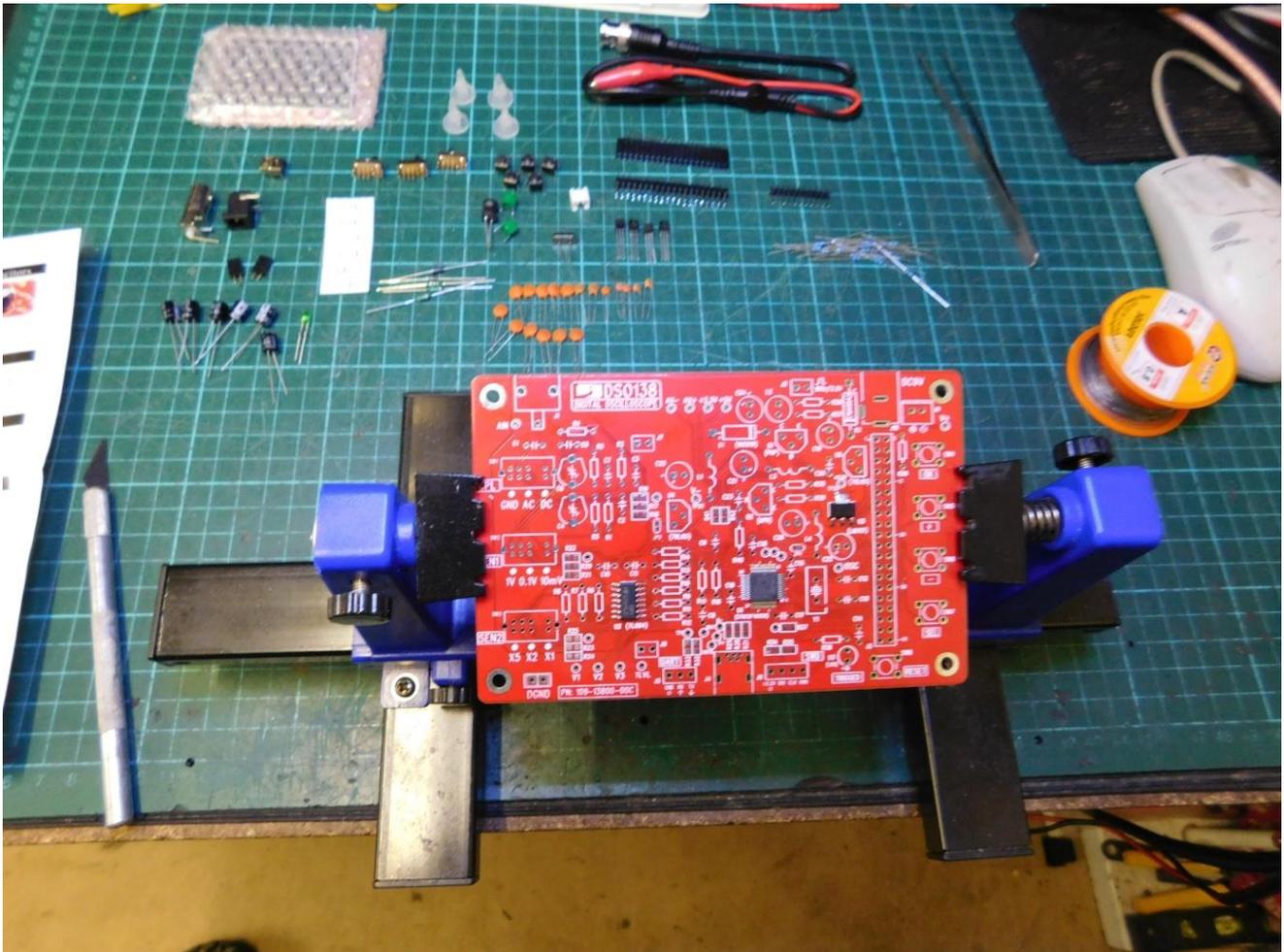
MONEY BACK GUARANTEE
eBay will cover your purchase price plus original postage.

Have one to sell? Sell it yourself

I duly ordered the kit and when it arrived I put it in the shack for a rainy day.

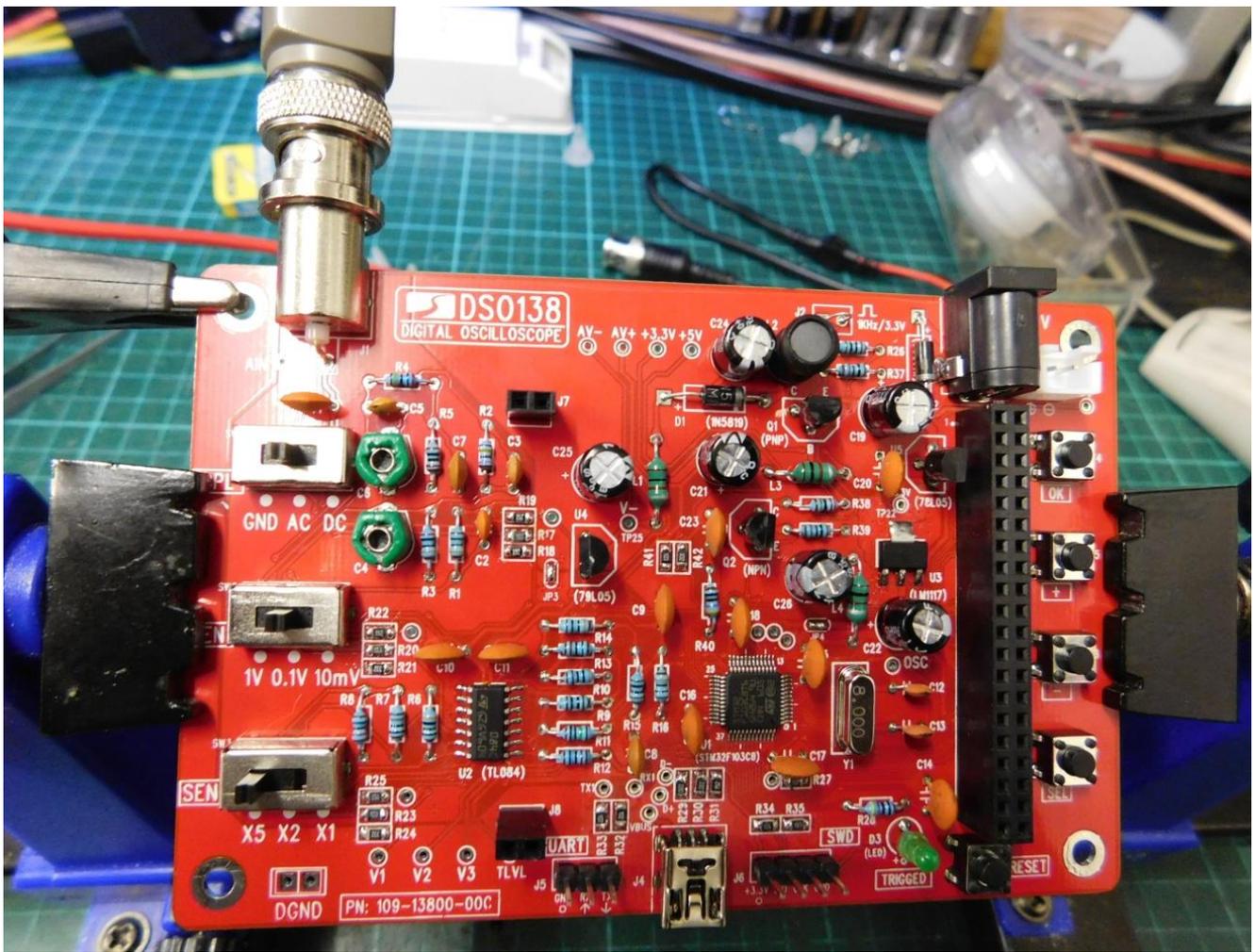
I found myself at a loose end the other night, Carol was over looking after some sick kids and grandkids and I was left up to my own devices... sooo how about we build that oscilloscope kit I pondered... shouldn't take too long ?

I unpacked the kit and had a look what I was up against, didn't look too bad, about 25 SMD components and about 50 through hole parts.

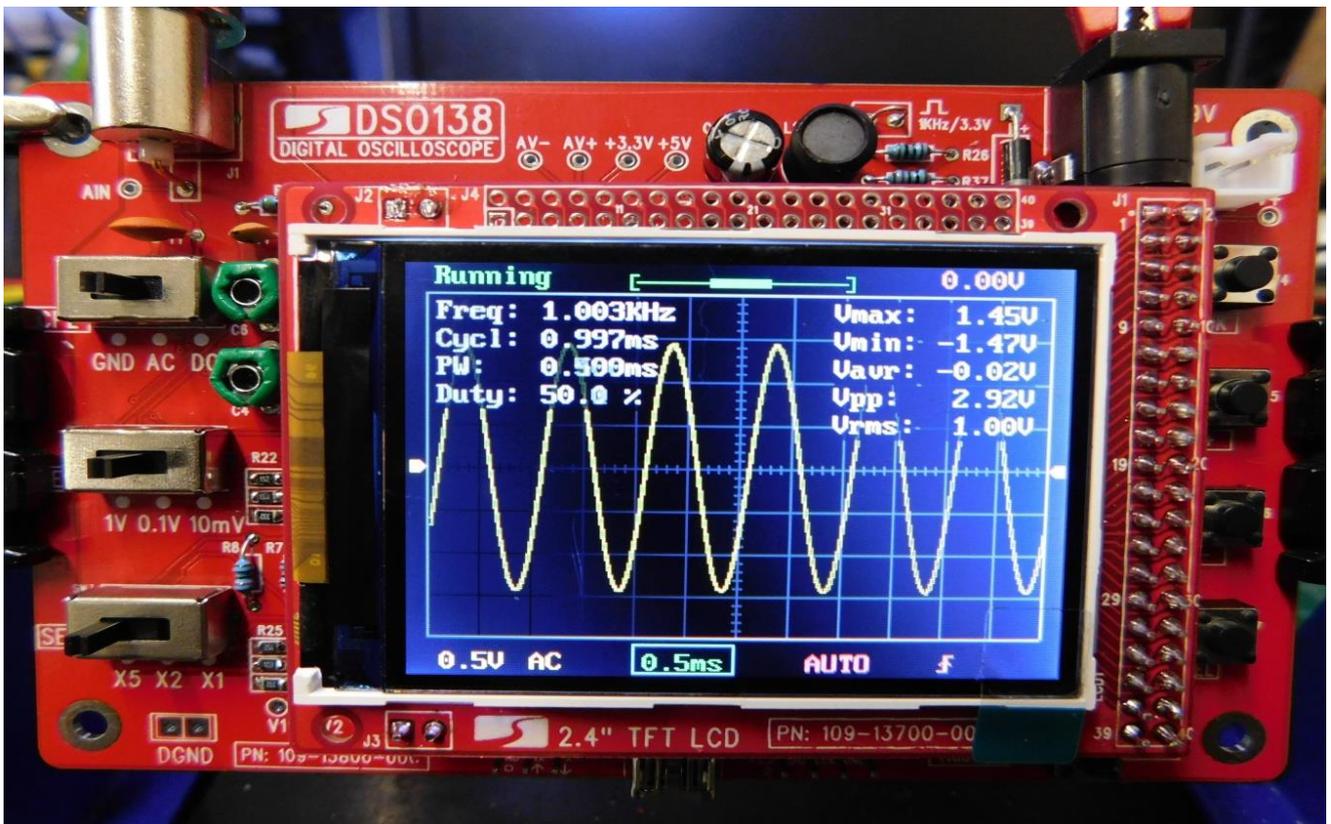


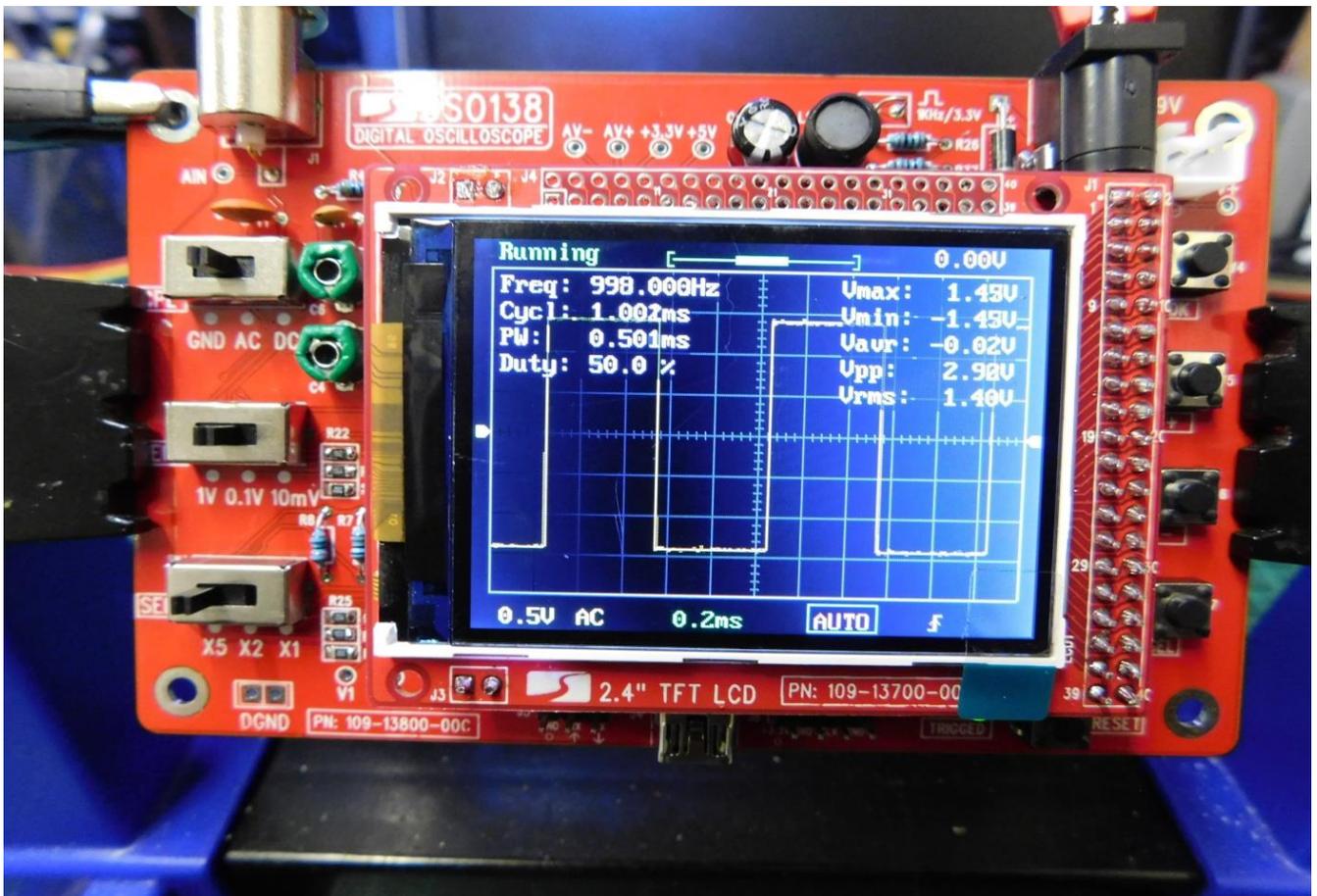
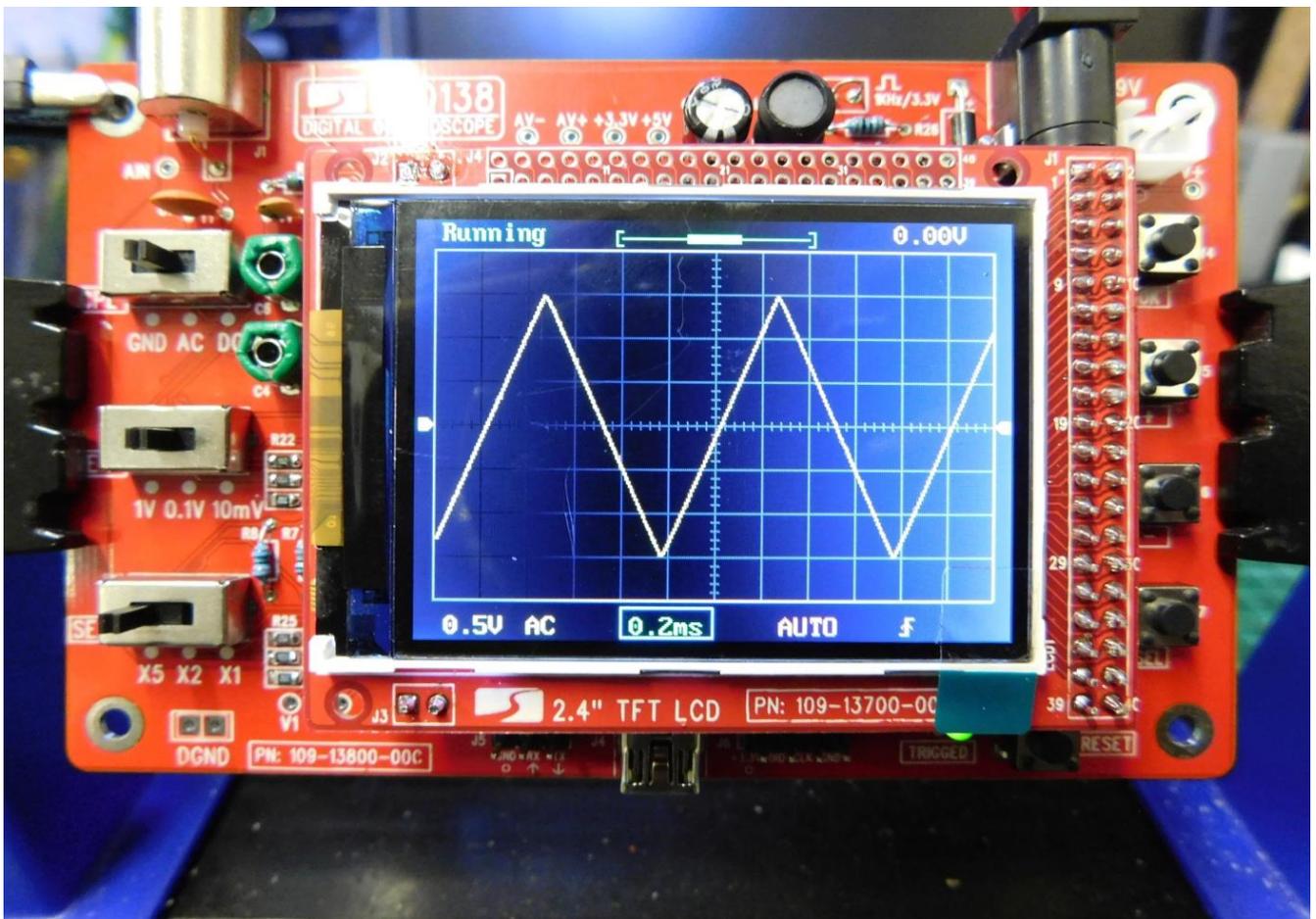
Starting with the SMD chip and resistors they were soldered in and I then moved onto the capacitors, inductors, crystal, switches, headers and other parts. Build time from start to the first turn on was just under 2 hours... The instructions although minimal were enough to make sense of what the kit manufacturers were trying to get across to you.

There are a few steps before it's ready to use after the first power on, basically checking a few voltages without the display board connected and when all voltages are correct, solder 2 pads which I'm figuring are the supply rails to the Microcontroller and the display board.



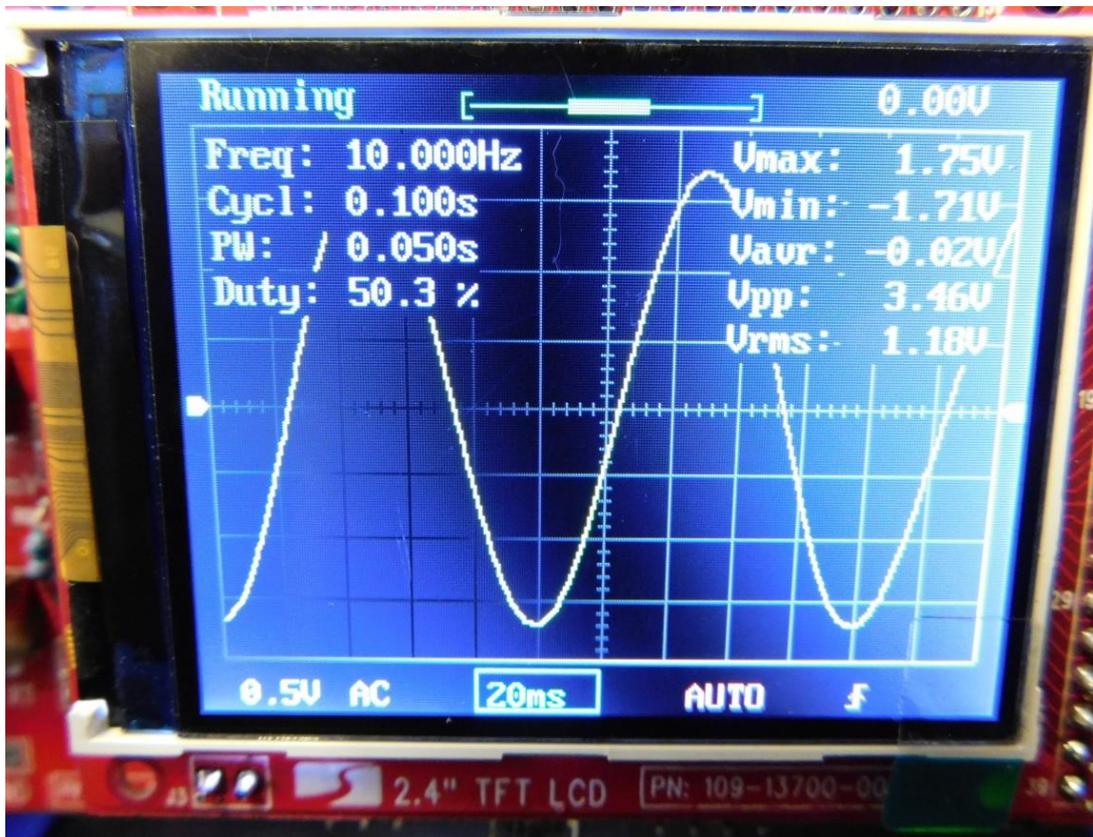
The Cro worked first time after turn on and I was surprised with the operation and the reasonable accuracy of it. It's also simple to drive as well. A few shots below show the scope doing some measurements. Note the data on the screen as well giving additional information...



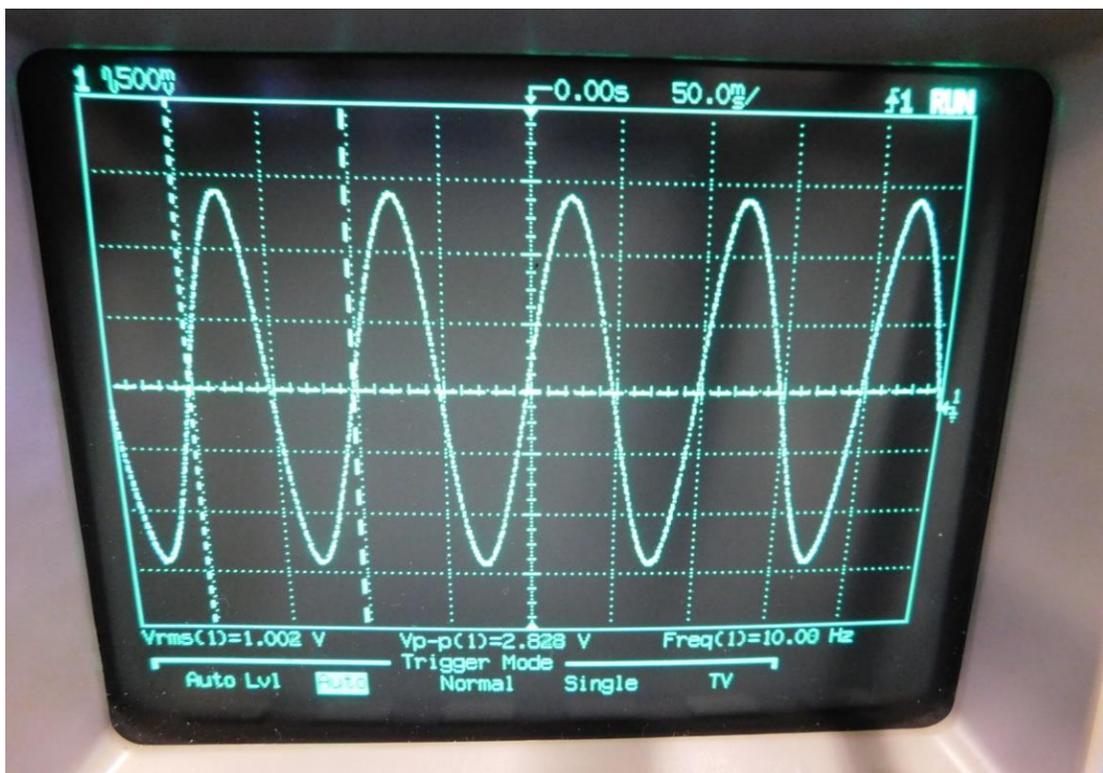


So, now to the chase, was it accurate? I stoked up the trusty HP and did some comparisons and I was surprised, the little Cro was pretty good, good enough for what I wanted anyway... Here are some screen shots of where the Function generator was set up on the HP and then the output was swapped over to the Chinese Cro to see any difference in the readings...

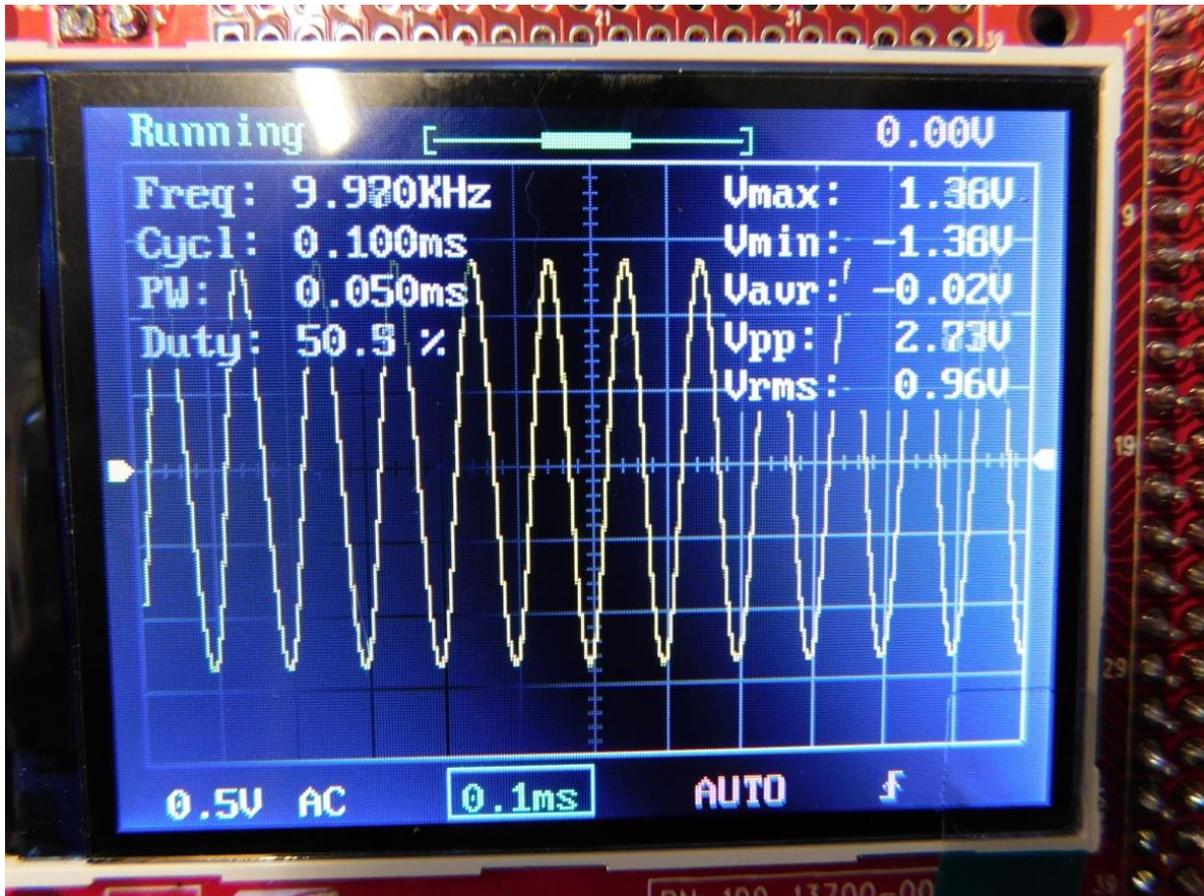
This was 10 Hz at 1 V RMS



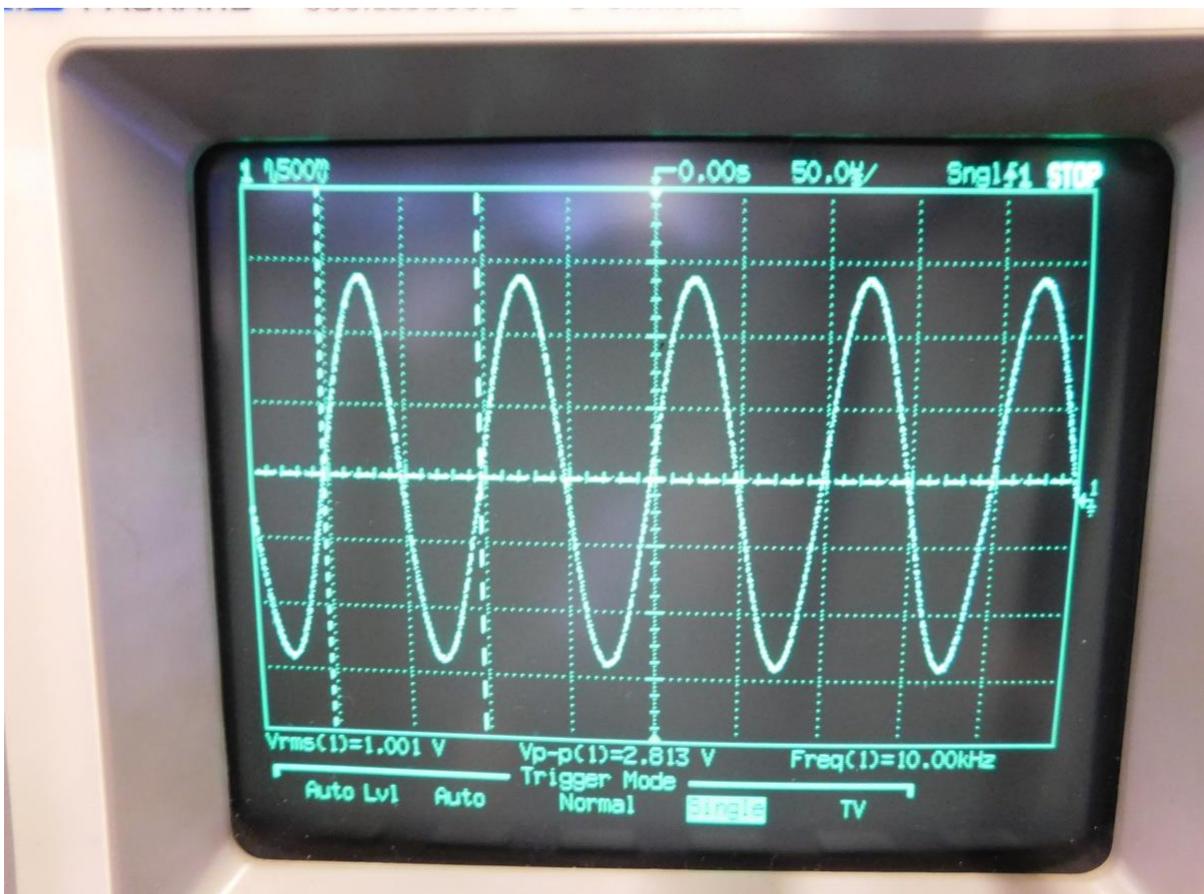
And the HP displayed



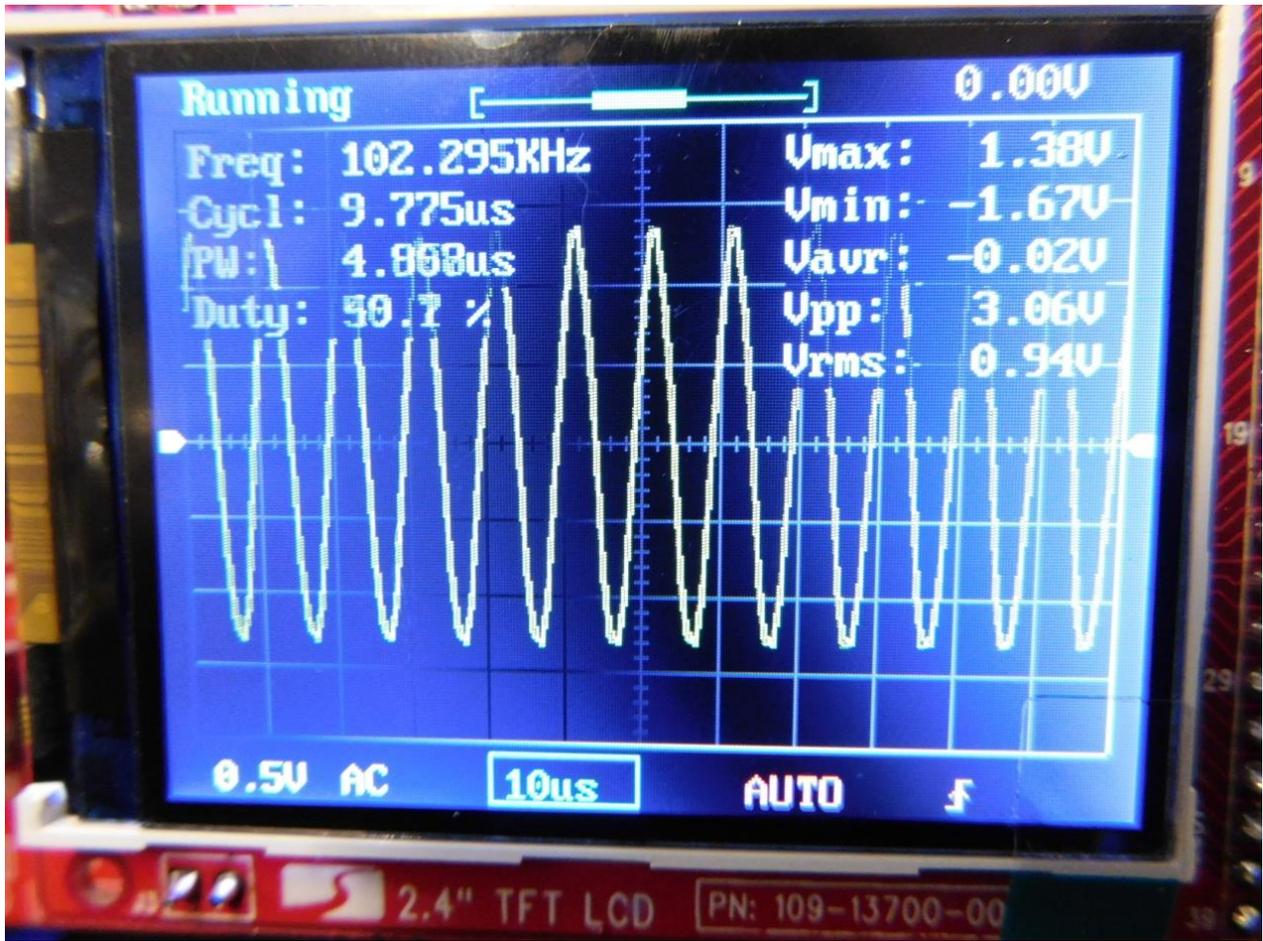
This was 10 KHz at 1 V RMS



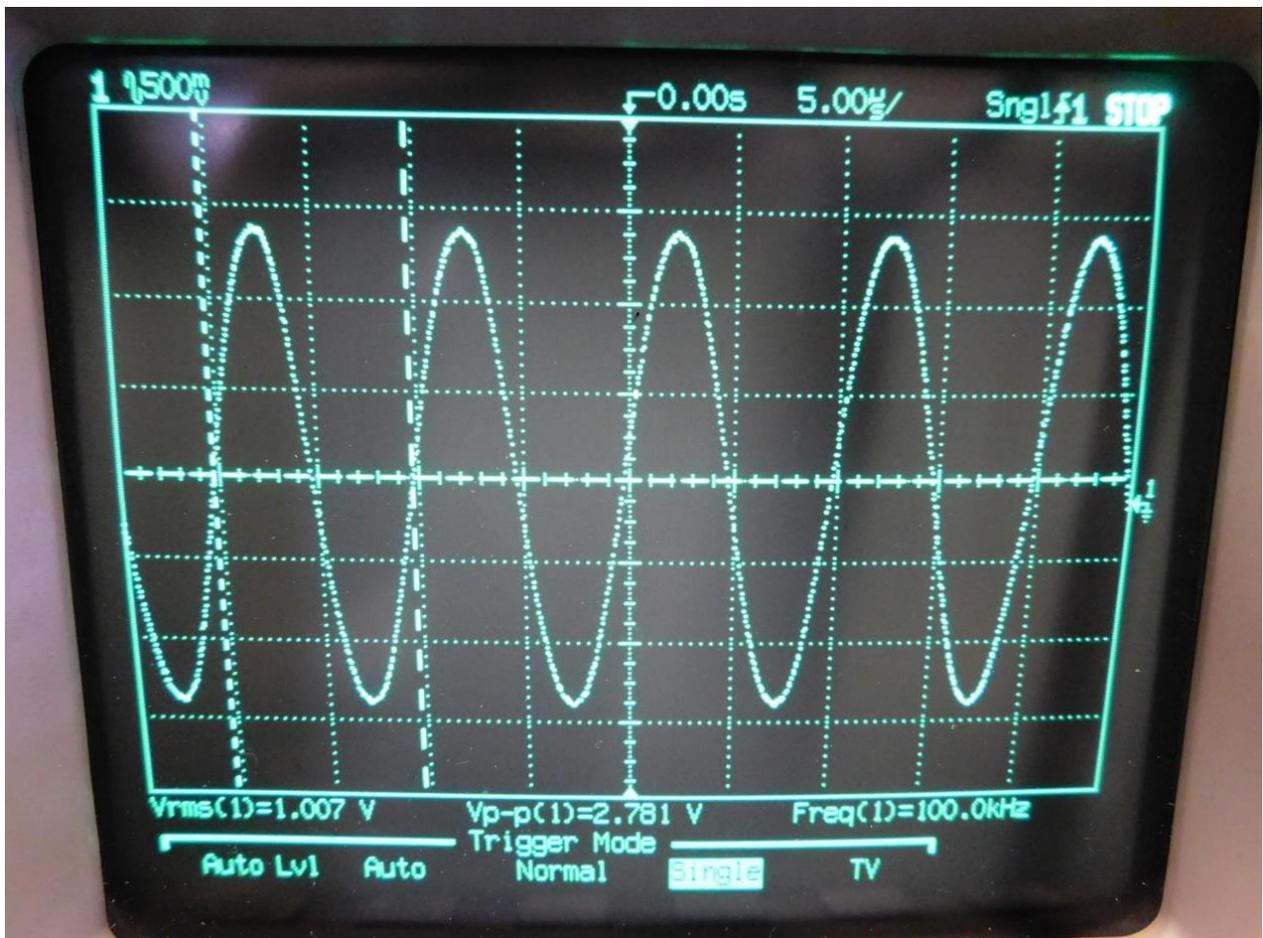
And the HP displayed



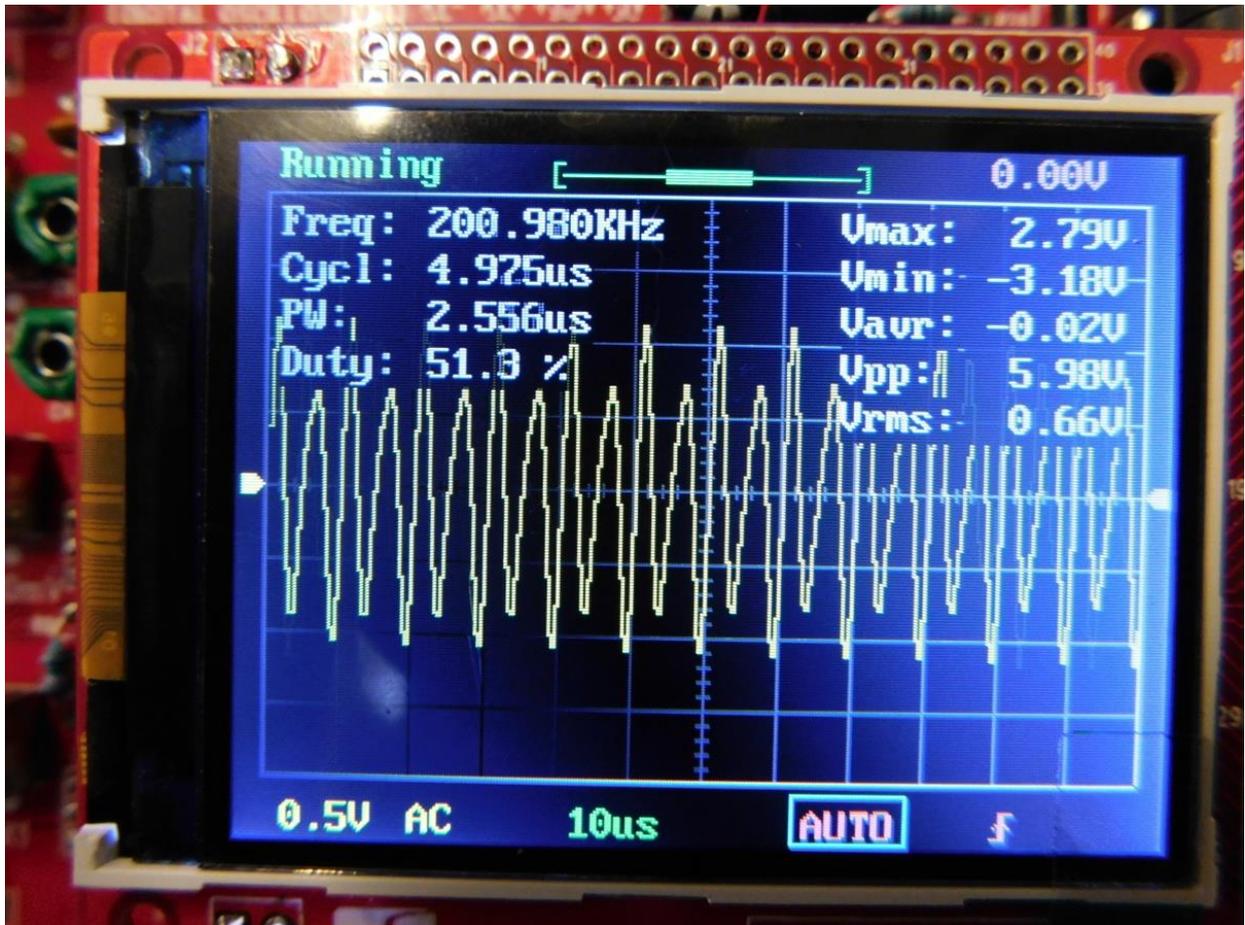
100 KHz @ 1 V RMS (the readings were starting to wander a bit by this stage)



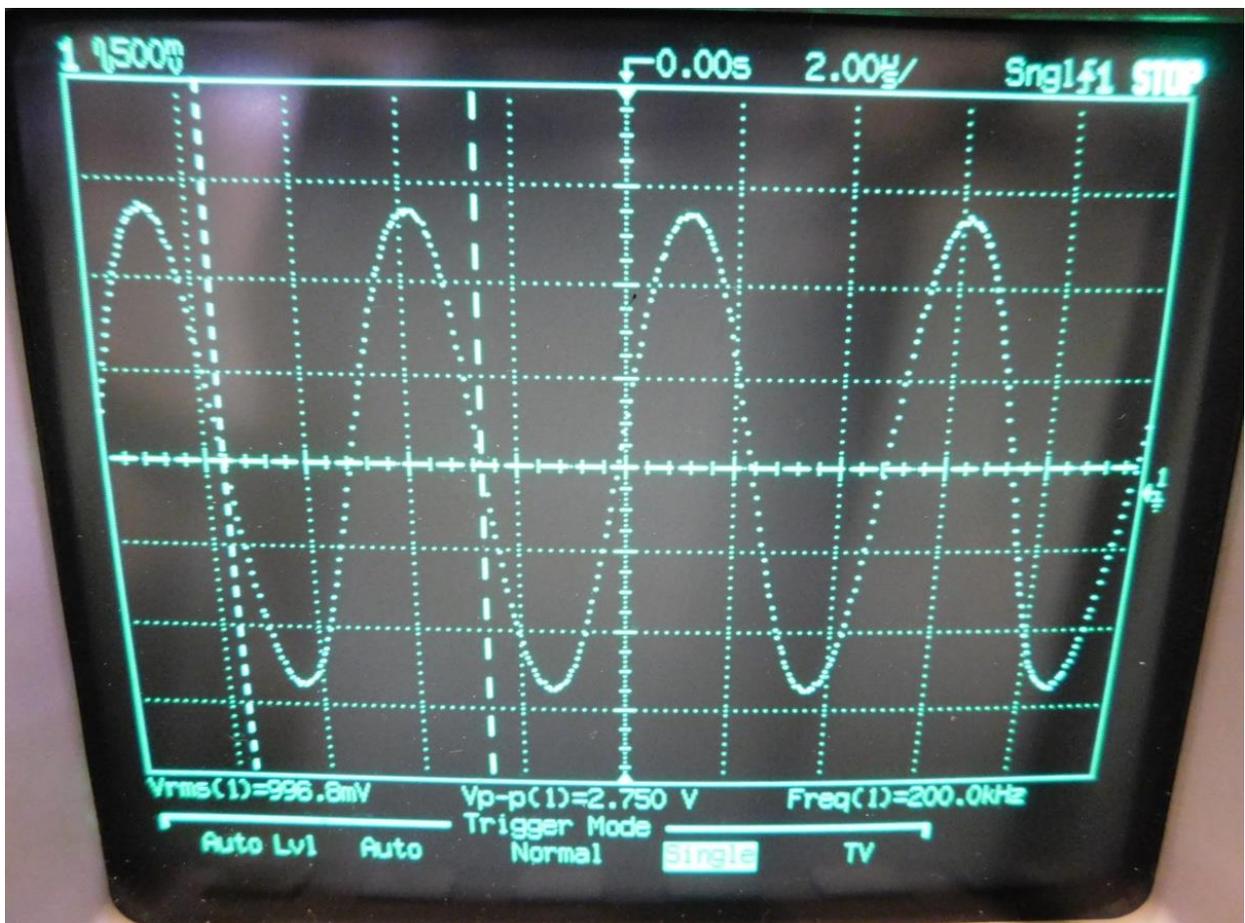
And the HP showed



And 200 KHz at 1 V RMS



And the HP displayed



You can see that at the Higher frequencies the Chinese Cro's bandwidth was starting to roll off and have some issues displaying the correct waveform as well as the correct data. These irregularities disappeared around 120 KHz and below so for audio work (20 Hz to 20 KHz) it would be fine. At the lower frequencies the voltage and frequency data on the screen were reasonably accurate as well.

All in all not a bad little kit, \$25 for something that will display reasonably accurate information at audio frequencies and slightly above. A HP or Tektronics it aint, but for chasing down any issues in an audio chain a very useful little tool. And a bit of fun to put together as well.

Some basic specs,

This kit uses ARM Cortex-M3 processor (STM32F103C8), and includes a 2.4-inch color TFT display screen
Maximum Real-time Sampling Rate: 1Msps

Accuracy: 12Bit

Sampling Buffer Depth: 1024 bytes

Analog Bandwidth: 0-200KHz

Vertical Sensitivity: 10mV / Div - 5V / Div (1-2-5 progressive manner)

Input Impedance: 1M Ω

Maximum Input Voltage: 50Vpp (1: 1 probe), 400Vpp (10: 1 probe)

Coupling Modes: DC / AC / GND

The Horizontal Time Base Range: 10 μ s / Div - 50s / Div (1-2-5 progressive manner)

Supply Voltage: DC 9V

Who knows, if there is enough interest shown we could make this into a Prac night project...

Cheers and 73,

Rob VK3BRS

P.S. who see's the funny side of this ? (hint, look for the model number on the photo's)



GGREC Hamfest





The Beginnings of an Arduino Interest Group

At this month's Prac night, a significant contingent of members met at the Clubrooms to discuss forming an Interest Group for Arduino projects. Around a dozen members showed their support for the concept and were eager to move ahead with a more formal agenda and session times. Of interest was the wide range of intended projects described by the participants and I am certain there will be some ambitious gadgets come forth over the next 12 months. I figure the more ambitious the project, the more the designer will learn, so bring it on, I say. Of course the participants will have to get used to my voice a lot, as I intend to pass on as much information in the next few session as they can absorb.

Most participants have requested the organisers order some processor boards and kits of parts to get them started and this will probably have already been done when you read this. Emails directed to the listed participants will be sent to keep you updated but at this stage it is off the ground and the next session will be Monday 22nd August with kickoff at 7.30pm at the Clubrooms. If you feel you have been left out, email either Rob VK3BRS or myself and we will see if that can be changed.

With so many interested people, it will be standing room only at the Clubrooms which is why the sessions will be on a night other than Prac nights. This means that other Prac night activities will continue as usual on the first Friday of each month. Rob VK3BRS will no doubt keep us all informed regarding these and other Prac activities.

Albert VK3BQO



The Magic of Radio

As seems to be the case more often than not these days, there was nothing worth watching on TV the other night, so I searched my bookshelves for something to read, and came across "Most Secret War: British Scientific Intelligence 1939-1945", by R.V. Jones, which I had read many years ago.

By way of setting the scene, Jones, who was involved in the development of offensive and counter-measures technology during the war years, detailed his early schooling, which included the following passage:

"My main hobby in my schooldays was, as with many other boys of my generation, the making of radio receiving sets. There has never been anything comparable in any other period of history to the impact of radio on the ordinary individual in the 1920's. It was the product of some of the most imaginative developments that have ever occurred in physics, and it was as near magic as anyone could conceive, in that with a few mainly home-made components simply connected together one could conjure speech and music out of the air. The construction of radio receivers was just within the competence of the average man, who could thus write himself a passport to countries he could never hope to visit. And he could always make modifications that might improve his aerial or his receiver and give him something to boast about to his friends. I acquired much of my manipulative skill through building and handling receivers: when at last I could afford a thermionic valve in 1928, I built a receiver that picked up transmissions from Melbourne, which that station acknowledged by sending me a postcard carrying the signatures of the English Test Team."

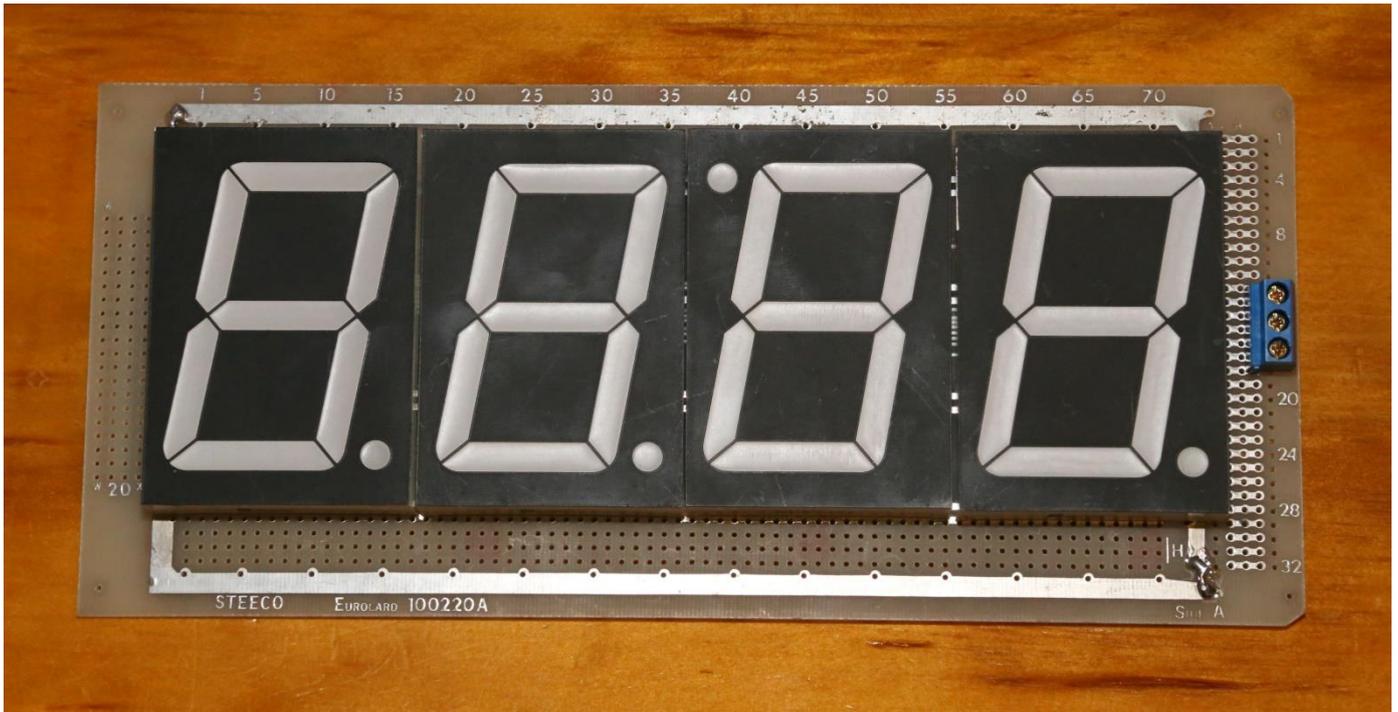
"My interest in radio, coupled with an instinct that physics was the most basic of the sciences, permanently biased me in that direction. I had originally intended to be a chemist, but by the time I went to Oxford, my choice had finally settled on physics."

My guess is that many people, both before and since, have had similar experiences to Prof. Jones when it comes to the magic of radio. Hopefully, through amateur radio, and the current push for STEM teaching in schools, many more of today's young people can experience that same magic.

Bryan VK3FOAB

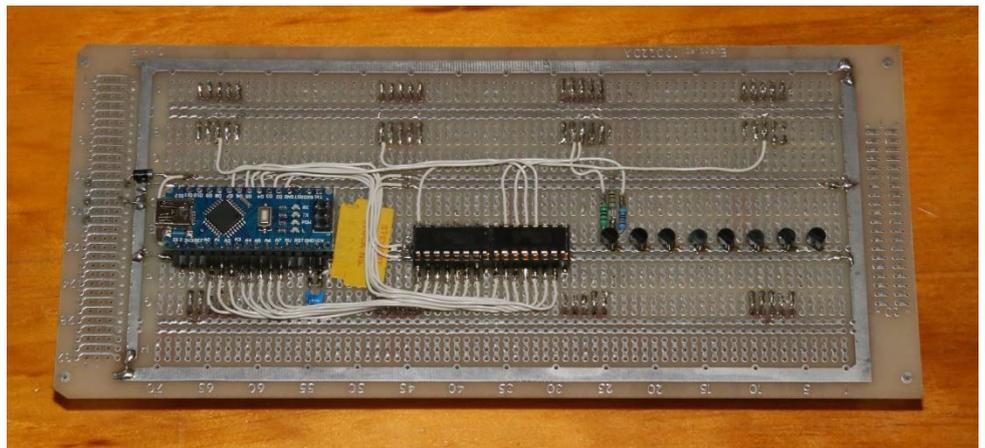


Arduino – Driving LED Displays



This is my latest Arduino project, a large display clock – just what I need for my kitchen, no more squinting at small digits.

These displays were obtained from Altronics quite a while ago during a sale, they have been sitting around for a few years!



This article is not about building a clock so much, (That will come later after it is completed and I have written the code to make it all happen). No, this is about connecting LED's to an Arduino, or any micro for that matter. Now if all you want to do is light a few LED's, then all that's needed is a limit resistor and a spare port. Assuming your Arduino is running from a 5V supply, then you are going to get about 4.5 V under load. The Atmel ATmega328 commonly used for Arduino boards can output up to 40mA from most pins, either sinking, or sourcing. (Max 200mA for the whole IC)

Sourcing means the Arduino pin is set high, providing near full supply volts, The load then goes from ground to that output pin, ie the micro is supplying (sourcing) the current to run the LED.

Sinking means the pin is set low, near zero volts. The load (LED) is connected to the 5V supply, which is the source of current to it, the negative side then goes (via a limit resistor) to the Arduino's output. The Arduino is now pulling (sinking) current through that LED.

As mentioned before, the Arduino is outputting about 4.5V, but the LED only wants about 2.2V (red LED), If you connect the LED to the Arduino directly, something has got to give, both the Arduino and the LED are now well outside of their design specs, and failure is sure to follow.

So how do you calculate the resistors, well the difference between the Arduino and the LED is about 2V, and the desired current is, say 5mA, so ohms law gives us 400 ohms, not quite a preferred value, so 390 ohms, should do – then fiddle as required for the desired brightness.

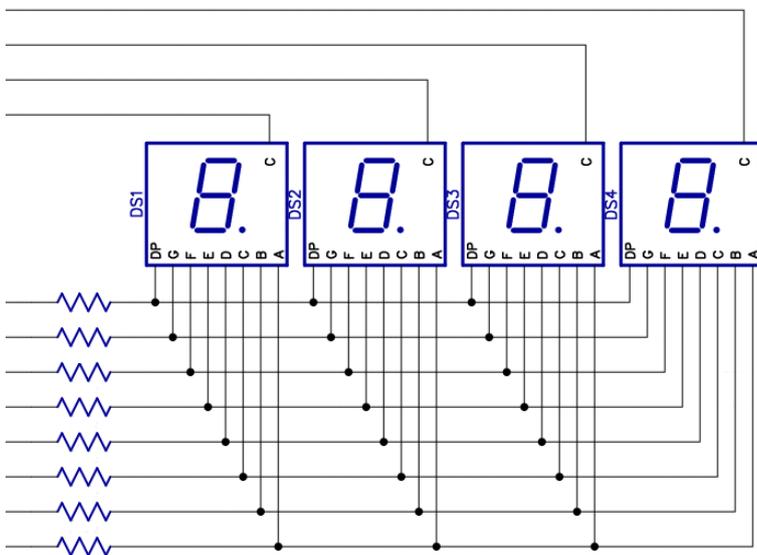
So what do you do if you want to run, say 4, 7 segment digit's for say a clock. Each digit has 7 segment LED's, plus a decimal point, so 8, multiplied by 4 = 32. Most micro's have run out of output's before now. As you add digits, it only gets worse.

You could do as Ian did for his giant clock on the magazine cover and use a BCD to 7 segment decoder/drivers for each digit, this takes you back to 4 bits per display (forgetting the decimal point for now) this means 2, 8 bit i/o ports will run the 4 digits. (If we are talking about a clock, the first digit's driver only really needs 2 bits, as the display will never go past '2', so tie the other 2 inputs to ground). Now, if you want to add another digit, you need another 4 pins – maybe oops!

Another downside of this approach with most single digit BCD to 7 segment drivers, you are limited to the segment patterns built into the decoders, however, there are some quite elaborate chips out there, just look up 'Arduino LED display module' on eBay or Bang-good etc., these modules are cheap as chips and offer up to 8 digits, with any display pattern possible. – The IC's are surely available somewhere, I just have not being able to find them. (yet)

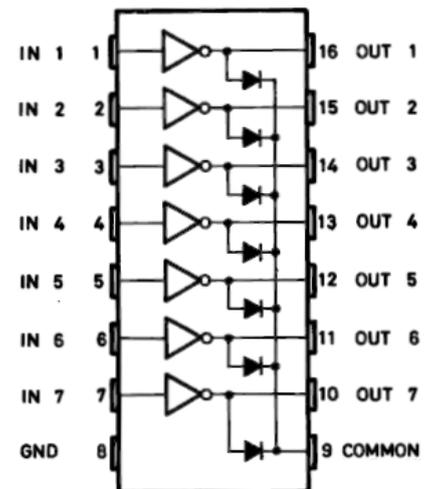
However, this is article is about doing it yourself. – Preferable with common Jaycar parts etc.

The most common way of driving multiple displays is what is referred to as multiplexing. With multiplexing, you only drive one digit at a time, then move onto the next, this is done so fast that the human eye cannot tell, and it appears that all the digits are on at once,



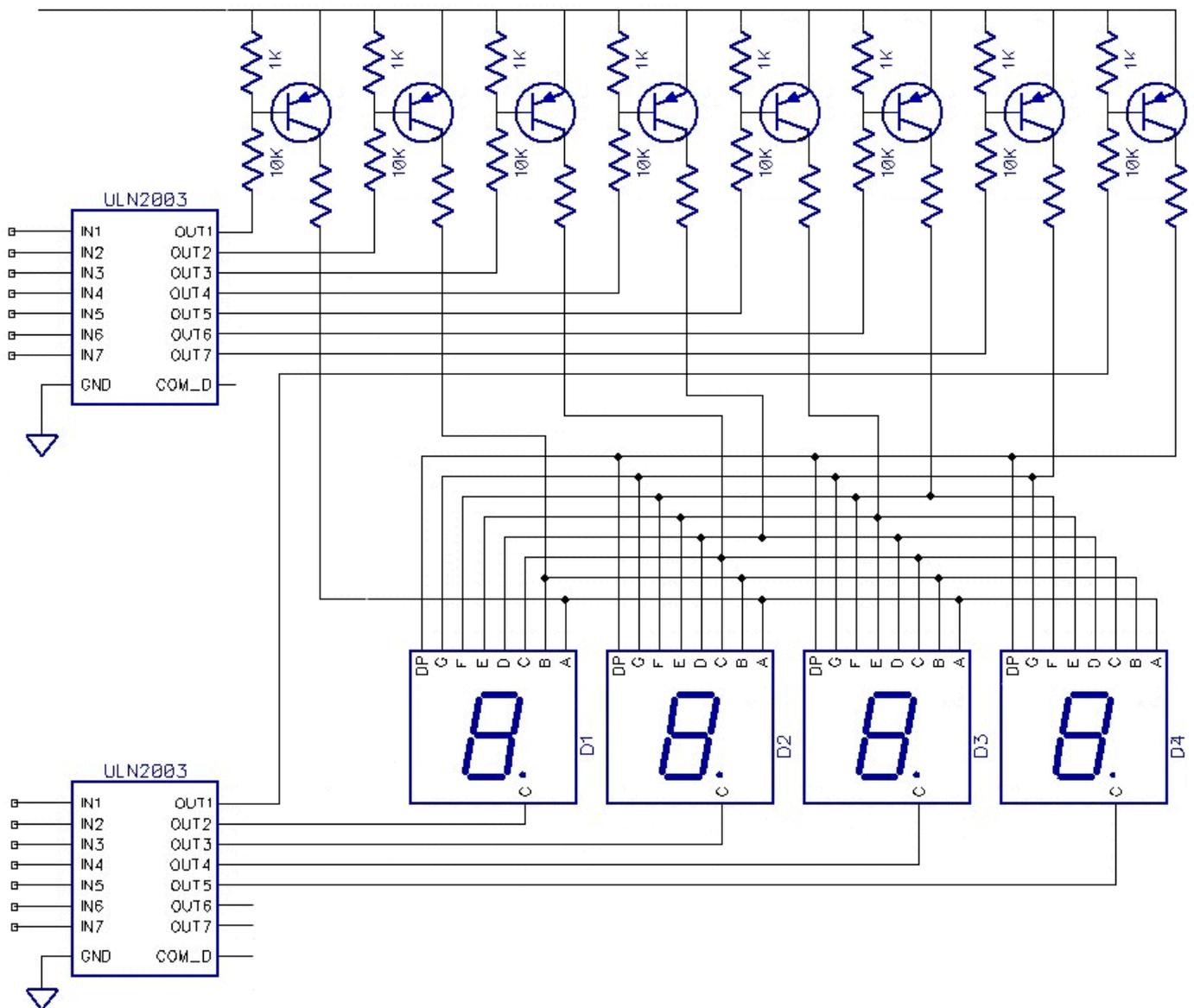
To do this, connect all like segments of each display together, leaving only the common pins separate. You should now have 8 segment wires (7 plus the decimal point), and 4 common leads. If your displays are modern high efficiency types, then direct drive from the Arduino is possible. Bear in mind, when choosing the limit resistors, all the current for a given display is going via the displays common to ONE Arduino pin, meaning 5mA is maximum (8 x 5= 40mA), so 8 470 ohm resistors are needed, one in each segment line from the Arduino.

If you want more current, you could parallel up 2 Arduino i/o pins to give you 80mA, but then we are running out of pins again, or do as I did in my clock and use a driver IC, like the ULN2003, or use discreet transistors. The ULN2003 can sink 500mA per pin (1.5A total). However note, it can only sink, not source, to drive the commons of a 7 segment display, so they have to be common cathode types.



If you want to use giant displays, like my clock, (or Ian's) then they invariably use multiple LED's per segment, meaning you need more than 5V to run them, so you HAVE to use some form of driver IC, or discrete transistors.

Drivers come in two flavours, High side and Low side drivers. Low side drivers, like the ULN2003 are readily available, and can handle up to 50V at 500mA, High side drivers on the other hand are rather scarce these days, they used to be more common when LED displays ruled, but with everyone jumping for OLED display panels these days, they are disappearing. In my clock, I elected to use BC557 PNP transistors, driven from another ULN2003. As the BC557 bases are up at 12V, they cannot be directly connected to the Arduino. There are other ways, using voltage dividers, Zener diodes etc., however I have a supply of ULN2003's so I used two – Bulk overkill as the BC557 load only needs a few mA, not 500!



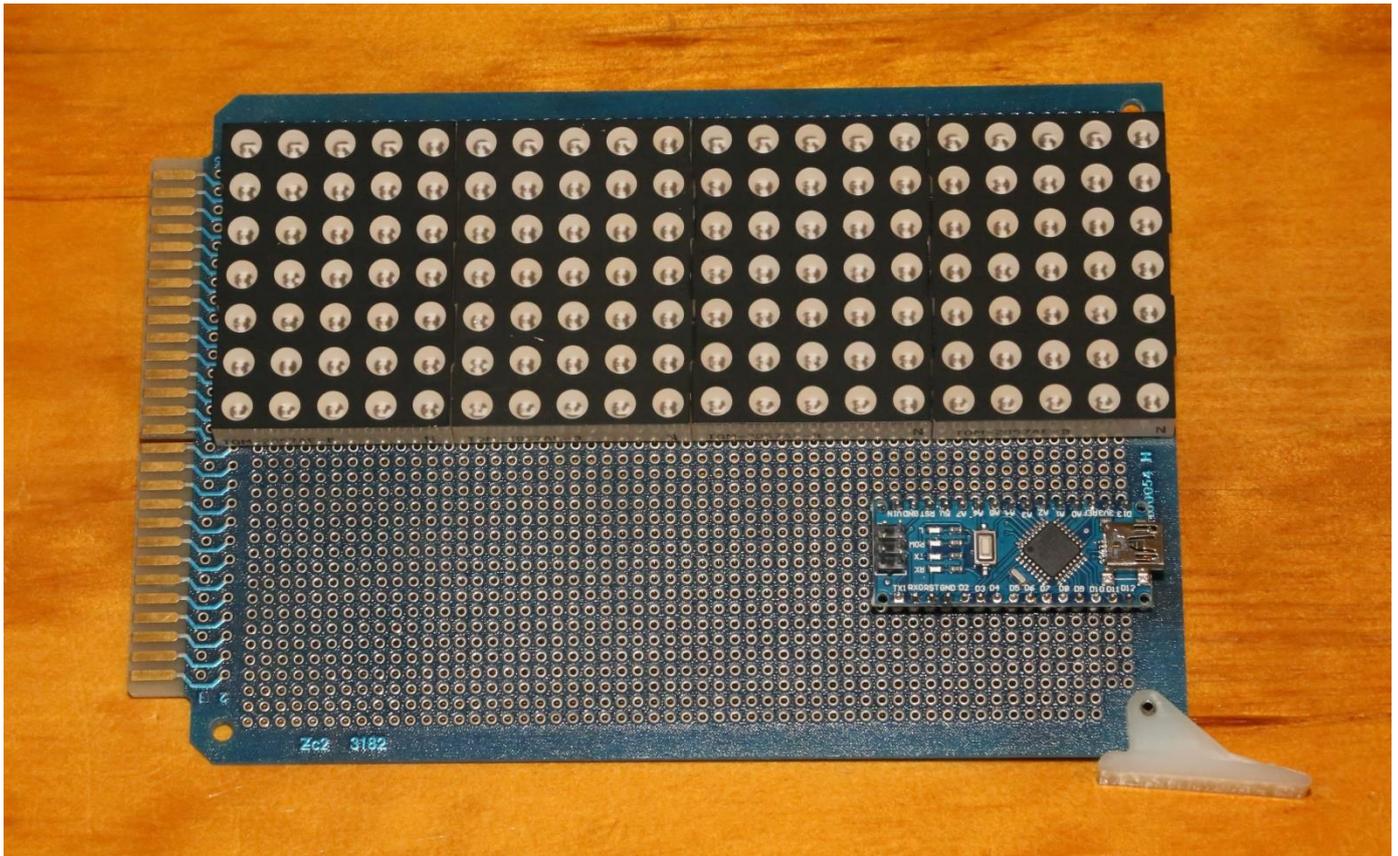
Will it work, hopefully, the resistor values are 'best guess', but should drive the bases with 0.5mA. If you look at the back side photo of my clock board, you'll see I have only installed one resistor set until I can verify it in operation. (Plus I was running low on resistors, so why waste them.)

It is not a good idea to overdrive the transistors too much, the harder you push them into saturation, the harder they are to turn off, leading to segments that are supposed to be off

actually being partially illuminated. I tested one of the BC557, my tester said it had a gain of over 250. So with 0.4mA base current, that equates to 100mA collector current, way more than I plan to hit the segments with, so yes the transistors should be saturated.

On the other hand, if you really underdo it you can end up with varying segment intensity, due to variations in gain between the transistors. (They are now in linear mode, not switching as such)

How is all his calculated, well the 10K resistor will have 11.3V on it, this gives us 1.13mA, however we also have a 1K resistor to plus 12V, with the transistors Emitter/Base junction across it, it has .7V across it, meaning it will shunt 0.7mA away from the base, leaving us a base current of 0.43mA. The 1k resistors are to help turn the transistors off, when the ULN2003 turns off.



After that, then there are these displays to deal with. 20 across by 7 high. The norm for these is to illuminate one horizontal row at a time, starting from the top. If you only want a static display, then it does not matter, however if you would like a nice scrolling message effect, then it works a lot better doing it as above. You scan once top to bottom, move the image 1 pixel, then repeat the process. This gives you a nice animation with the text leaning forward. I'm going to need a few latches to provide the 20 parallel drive lines, the row drive on the other hand should be easier as there is only 7 to deal with. Maybe another batch of PNP transistors,

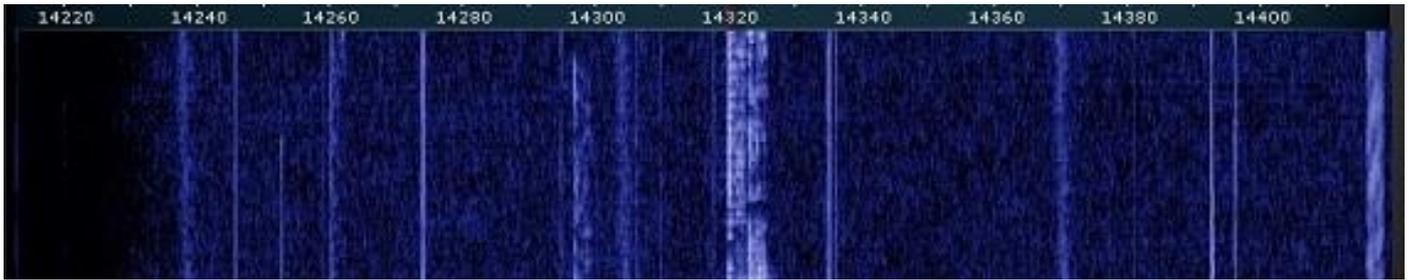
After that, I have some Nixie tubes that need attention, plus a handful of other 'weirdo' displays.

The old CRO tube should prove interesting. Have a look on the web for 'Scope Clock'



Paul VK3TGX.

Where are all the new RF engineers? SDR to the rescue



Interesting article from RS DesignSpark about Amateur radio and SDR.

http://www.rs-online.com/designspark/electronics/eng/blog/where-are-all-the-new-rf-engineers-sdr-to-the-rescue?cm_mmc=AU-EM-DSN_20160718-DM1682-HB_URL&cid=DM1682&bid=22965211

Michael - VK3GHM
GGREC Secretary

Hi all,

I'm in the South of Germany for work and took time out to pursue the hobby.

Well almost, I had intended to carry my Yaesu FT-817D along on my journey into Deutschland given I knew there would one or two high peaks to transmit from but alas my foundation license is not adequate. Only VK Advanced license holders can conduct radio transmissions... Bigger...

More reason to pull my finger out and upgrade.

These photos were taken on top of Gaisberg near Salzburg in Austria but the same rule applies there so I could only look, salivate and dream on.

These guys sure do take their "Amateurfunk" (Amateur Radio) serious.

Check out the ex-army fully portable mast unit.

Helmut.... Das ist gut, ya...

The town I'm staying in is Ainring in Bavaria.

If you haven't been to this region then I recommend you do as it is everything and more than anything tourism brochure could portray.

This was a working recon as I have a number of places to track down and visit and so does my wife who I may add shares the same birthday and love of music as a famous composer. Who you might ask, but of course Mozart.

I'll be coming back here with my wife and a license upgrade... (In that order lol) so stay tuned (no pun intended) for the next article and hopefully a few contacts.

Regards,

Nils

VK3FLYS Portable DL (if only)

Look to the right of this first photo...





AMATEUR-FUNK

Der Gaisbergpfel ist durch seine Lage und leichte Erreichbarkeit ein Anziehungspunkt für Amateurfunker auf dem Gebiet der Ultrakurzwellen. Bereits 1954 nach der Freigabe durch die Alliierten war Josef Göschlberger (Funkerkenntung OE2JG) von der ehemaligen militärischen Luftbeobachterhütte aus auf UKW aktiv. Später folgten Michael Orner (OE2OML) und Walter Zach (OE2CAL) mit spektakulären Erfolgen auf dem Gebiet der UKW Überreichweiten mit bis zu 3200 km. Sie lassen sich nur durch Spiegelung an Temperatur- und / oder Feuchtigkeitsinversionen (vgl. Fata Morgana) oder durch Reflexion an einer speziellen Schicht in der Ionosphäre (100-130 km Höhe) erreichen. Diese Phänomene haben die Verbindung nach Gran Canaria ermöglicht.



Erstverbindung mit den Färöern
(Walter Zach)



Erstverbindung mit den Kanaren
(Walter Zach)

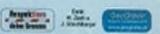


OE2JG (Josef Göschlberger) in der Funkerhütte, 1954
(Archiv Zach)

Die Hütte beherbergt heute 2 UKW Relais und einen Netzknopf für das High Speed Amateurradio Multi Media Network (HAMNET) in modernster Technologie (Amateur- und Katastrophen-Notfunk). Antennen in unterschiedlicher Konfiguration, für Wettbewerb und Überreichweiten Beobachtung, sind am Gaisberg ständig zu sehen.

Das Projekt wurde durch die Europäische Union im Rahmen des INTERREG-Programms finanziert.





The top of Gaisberg is an ideal location for amateur radio operators, using ultra short frequency bands. The success story began in 1954, after the Allies allowed radio operating. First contacts in VHF were made with radio operators, which were situated more than 3200 km far away. The old hut accommodates today a VHF relay and an amateur radio (HAMNET).



General Meeting Minutes

Date : 15th July 2016

Start time : 20:07

Location : Club rooms.

Chairperson : Ian Jackson 3buf

Minute Taker : Michael Van den Acker 3ghm

Present : As per attendance sheet

Visitors: Barry 3abh

Apologies : As per attendance sheet.

Correspondence received : listed and tabled

Correspondence sent : listed and tabled

Treasurer's report : As tabled

Read & Moved : Graeme Brown 3bxg **Seconded :** Leigh 3facb **Carried :** Yes

New Callsigns : Nil

Previous Minutes : As in Gateway magazine

Moved : Leigh 3facb **Seconded :** Brian 3flex **Carried :** Yes

Business arising from the previous minutes :

Mid year lunch. Everyone enjoyed it.

Mention of email which was sent about Melb. Cup weekend.

Update on homebrew award. Congratulations to Paul. The perpetual trophy has been fixed & updated.

Hamfest sale tomorrow. Brian has the keys. All set to go.

Copper pipe stolen from guide hall. Has been repaired with plastic pipe

New business :

Restaurant evening next Sat at the Tulip Thai in Beaconsfield. From 6:30pm

If any one has any suggestions about things to do or events please email Ian.

Lighthouse weekend 3rd weekend in August. 3bq will be mounting an expedition to Wilsons Prom light house. Moorabin club is doing the lighthouse weekend at McCrae Yaht club. Member may join any group if they wish to.

Meeting closed : 8:30 pm

Next Committee Meeting : 1st Tuesday of the month

Next Prac Night : 1st Friday of the month

Next General Meeting : 3rd Friday of the month



Club Information



Meetings 2000hrs on third Friday of the month at the
 Cranbourne Guide Grant Street Cranbourne
 Prac nights first Friday in the Peter Pavey Clubrooms Cranbourne 1930hrs
 Visitors are always welcome to attend

Office bearers

President	Ian Jackson	VK3BUF	Repeater Officer	Albert Hubbard	VK3BQO
Admin Sec	Michael Van DenAcker	VK3GHM	Web Master	Mark Clohesy	VK3PKT
Treasurer	Graeme Brown	VK3BXG	Magazine Editor	Paul Stubbs	VK3TGX
General 1	Rob Streater	VK3BRS	Property Officer	Bruno Tonizzo	VK3BFT
General 2	Max Hill	VK3TMK	Secretary	Ian Jackson	VK3BUF

Call in Frequencies, Beacons and Repeaters

The Club Station VK3BJA operates from the Cranbourne Clubrooms.
 6m Repeater VK3RDD – Currently de-commissioned until further notice - *sorry*
 70cm Repeater Cranbourne VK3RLP In 434.475MHz Out 439.475MHz CTCSS 91.5Hz
 VK3RLP Repeater supports Remote Internet access (IRLP), Node 6794.
 70cm Repeater Drouin VK3RWD In 433.575MHz Out 438.575MHz CTCSS 91.5Hz
 Simplex VHF - 145.450MHz FM • Simplex UHF - 438.850MHz FM
 VK3RLP Beacons 1296.532MHz & 2403.532MHz

Membership Fee Schedule

- Pension Member rate \$25.00 Extra Family Member \$20.00
- Standard Member rate \$40.00 Junior Member rate \$25.00
- Fees can be paid by EFT to BSB 633000 - Account 146016746.
- Always identify your EFT payments.
- Membership Fee's Are Due at each April Annual General Meeting.

Magazine Articles to editor@ggrec.org.au or vk3tgx@gmail.com
 All other Club correspondence to: secretary@ggrec.org.au
 or via Snail Mail : GGREC, C/O Ian Jackson, 408 Old Sale Rd, Drouin West 3818
 GGREC Web Site & Archive may be viewed at: www.ggrec.org.au
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