

DORSET AMATEUR RADIO SOCIAL NETWORK

Technical Supplement

April 2026

www.darsn.co.uk

In this issue:

Introducing the Arduino.

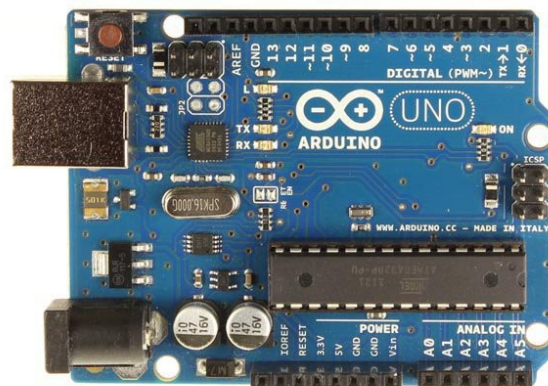
Behind the scenes of a Newsletter Editor

Circuit Protection

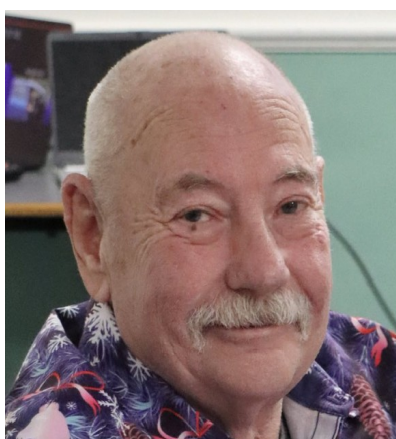
GB30F

Bio of the Month – Mark Savage

Also keep an eye out for a GPS portable receiver project



Lindsay - M9LIN
Secretary / Treasurer



Bill - M9WEG
Chairman



Tim – M9WWA
Editor

Events in April

Yeovil ARC
QRP Convention
11th April 2026

145Alive FM and SSB
Parks on the Air Weekend
18th April 2026

Worlds End Meet up
25th April

See page 5 for more.

Nets

Mondays	No Darsn Net
Tuesdays	145.400 FM
Wednesdays	70.375 FM
Thursdays	Zoom Chat
Fridays	No Net
Saturdays	28.375 USB
Sundays	144.375 USB

All details can be found on our Facebook page



Contact Us:

Lindsay
darsn2025@outlook.com
www.darsn.co.uk

Bill
(Via Lindsay)

Tim
admin@wavewizards.org
www.wavewizards.org

Callsign Changes

Peter G0PDF was G0JJI
Lins M9LIN was 2E0VDD
Tim M9WWA was 2E0TPH
Bill M9WEG was 2E0WEG
Mark M9LEG was 2E0VOV
Jon M9VFR was 2E0WJD
Other Callsigns you may hear
David M0KYN (Club Callsign Holder)
Reece M7DVX
Martin M7HQU
Neale M7NED
Dave G7RSD
Glyn M6OVN
Mike G3SED
Ron 2E0JPD (Happy Birthday Ron)
Roger M0RJL

Your Projects Wanted !

Have you got a project that you would like to share with us?

You can submit articles / projects for inclusion here by sending them to the Editor.

Submissions should be tested and be of your own work. We cannot and will not publish anything we feel is Copyrighted material.

Anything is considered.

DARSN NETS!

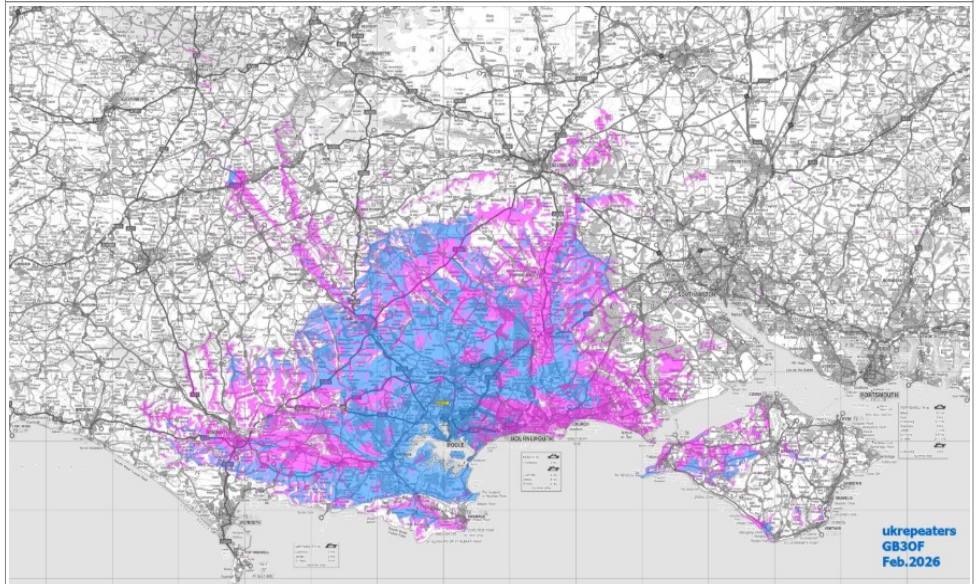
Mondays	No Darsn Net
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Fridays	No Net
Saturdays	28.375 USB
Sundays	144.375 USB

No DARSN Net on a Monday BUT, you are all welcome to Join in the Monday Evening Net on 145.375MHz (FM) hosted by [Poole Radio Society](#).

Check out the [NETS](#) Page for more details on Nets in the area.

DARSN would like to thank all of our volunteers who give up their time and resources to run the Nets. You are very much appreciated.

GB30F – NEW Frequency Allocation



After going operational for the first time, it was found that the receiver filtering needed to be adjusted. We will dive into this fascinating subject in a future issue however, for the meantime, the Repeater is on-air and working just fine on it's new Frequency Allocation.

We would welcome your Signal Reports and comments.

You can do this by filling in this [report form](#).

(((**GB30F**)))
FREQUENCY CHANGE

RX: 438.5625 MHz

TX: 430.9625 MHz

CTCSS: 71.9 Hz

We apologise for any inconvenience caused by the change.
This has been done to improve usability and help make accessing the repeater as successful as possible, going forward.

In the next issue, we will have an article from Reece M7DVX on the commissioning of the Repeater and discuss issues pertaining to ongoing Maintenance and to find out what it takes to put everything in place.

This should prove to be a very interesting read.

Other News

Should you wish to try out Wavelog and it's features then please [click here](#) for more information.

The [Buy and Sale](#) section is ready for use. You will need a "Wavewizards" email address (It's free and we have Anti-Spam measures deployed on the server)

As always, you can always download the Newsletter from:
[Wavewizards](#), [DARSN](#) or [Facebook](#)

Both Reece (M7DVX) and myself (M9WWA) will be participating in the 145Alive event on the 18th April. Please listen out for us. Frequencies will be published as soon as we have them. Reece will be operating FM from Hardys Monument (IO80RQ), I will be operating SSB from Westbury White Horse in Wiltshire (IO81WG)

Bio of the Month – Mark Savage (M0XIC)

My amateur radio journey is a peculiar one (or maybe not ??).

I first became interested in amateur radio in 1976 at the age of 16. I attended my local School where they were running the City and Guilds Radio Examination Course (RAE) on a Tuesday evening. After a few weeks the organiser asked me if I'd like to take home a spare receiver and have a play, which I did, almost! Well, it all went significantly downhill from there. My mother greeted my return from the course that night with, 'well that thing is not coming onto this house', and that was the end of the radio hobby, before it had even started!

The interest however remained dormant for many years, when in early 2021, some 45 years later, I decided to study for my Foundation Exam, which I passed, quickly followed in the same year, by my Intermediate and Full Licences.

Between that night in 1976 and 2021, I worked in Local Government, and for 20 years before I took early retirement, I worked as a Senior Manager in a University responsible for Teaching and Learning and had two lovely girls. Life got in the way!

Shortly after completing my full licence, I took over (with a friend, M0XJA) the organisation of 145 Alive and almost at the same time became one of the founder members of the management team helping to design and launch the United Kingdom Bunkers on the Air Scheme (UKBOTA) and Worldwide Bunkers on the Air (WWBOTA). I remain on the management team as the Award Manager for BOTA Organisations.

I'm pleased to say that 145 Alive has grown exponentially since then, with each event (of which there are 4/5 per year) running up to 60 simultaneous nets across the UK and Ireland, with an average of 800 radio operators taking part in each event. The Facebook site now has some 6000 members from around the world. The basic idea of 145 Alive being, to get people operating on 145 FM and now also on 144 SSB. More information about 145 Alive can be found on the 145 Alive FB Site or by contacting me at 145aliveuk@gmail.com

The BOTA Schemes have also gained huge popularity amongst operators since the first launch event in September 2023 with many activators and chasers from around the world out every day activating and chasing Royal Observation Corp Bunkers. More information about UKBOTA and WWBOTA can easily be found by searching the web.

In 2024, I became the Regional Representative for Region 5 of the RSGB and in early 2025 I was elected to the Board of the RSGB, of which I am very proud, as I like to do all I can to help both promote and develop the Amateur Radio Service/Hobby and most importantly '**Get people on the Air**' !!

My own interests lie in both HF and VHF, and I can be heard regularly on the radio. My own radio set up changes and develops over time, like many peoples I guess, with radios coming and going into the shack, together with a variety of antenna going up and down. Below you can see a picture of the current set up of the Shack, but its probably changed between me writing this and you reading it! as I'm always tinkering with the layout and set up.

I am an active member of two of my local Clubs, Telford and District ARS and Dudley and District ARS, both good Clubs with good active members and I enjoy attending both Clubs.



DX News

The following screen captures comes from the Wavelog server that I host and is open for everyone to use. To get a username and password for Wavelog simply use the [Contact form](#) and I will get you an account setup.

Date from	Date to	DXCC	Call	QSL Info	Source	Info
18/03/26	02/04/26	Vanuatu	YJ0CA	See Info	VK2YUS (Mar 6, 2026)	By VK2YUS; 40-10m; SSB; QSL: 3/19-21 Eastern Rd, Turramurra, NSW, 2074, Australia
19/03/26	22/03/26	Ogasawara	JD1BON	LoTW	TDDX (Feb 26, 2026)	By JA1UII fm Chichijima I (IOTA AS-031); HF; QSL via JA1UII direct w/ SASE
19/03/26	31/03/26	Sable I	CY0S	LoTW	425DXN (Sep 19, 2025)	By WA4DAN W0GJ + ops; HF; QSL via Club Log OQRS or WA4DAN direct
20/03/26	27/03/26	Guadeloupe	FG	LoTW	OPDX (Feb 7, 2026)	By HB9JAB as FG/HB9JAB fm Base-Terre; 20-10m; SSB FT8; 100w; wire antenna; QSL via eQSL
20/03/26	01/04/26	Bangladesh	S21WD	LoTW	TDDX (Jan 20, 2026)	By DJ4MX DK6SP DL3ON M0SDV S21ABO S21TV fm IOTA AS-140; 160-10m, including 60m; CW SSB RTTY FT8; QRV for CQ WPX SSB
22/03/26	01/04/26	St Kitts and Nevis	V4	LoTW	K5ZD (Mar 7, 2026)	By K5ZD as V4/K5ZD; 80-10m; CW SSB; QRV for CQ WPX SSB; using V47T (QSL via W2RQ)
24/03/26	31/03/26	Bahamas	C6AFD	LoTW	OPDX (Jan 31, 2026)	By AD8FD fm Rock Sound, Eleuthera I (IOTA NA-001, FL14wu); 40-10m; SSB FT8; QRV for CQ WPX SSB
25/03/26	02/04/26	Martinique	FM	LoTW	EA1BP (Dec 23, 2025)	By EA1BP as FM/EA1BP; HF; mainly SSB; QRV for WPX SSB using TO7O; QSL via EA1BP Buro and Club Log OQRS
26/03/26	30/03/26	Palau	T88KH	Club Log OQRS	OPDX (Dec 22, 2025)	By JP1RIW fm Koror I (IOTA OC-009, PJ77fi); 80-6m; SSB FT8; QRV for CQ WPX SSB
28/03/26	11/04/26	Easter I	3G0YE	LoTW	OPDX (Feb 28, 2026)	By DJ4EL fm Rapa Nui (IOTA SA-001); 20-6m; mainly SSB; 800w; QSL via DJ4EL (B/d) or Club Log OQRS

Date from	Date to	DXCC	Call	QSL Info	Source	Info
30/03/26	06/04/26	Canary Is	EA8	LoTW	OPDX (Oct 30, 2025)	By DA2DX as EA8/DA2DX fm Fuerteventura I (IOTA AF-004); HF; CW SSB RTTY FT4 FT8; holiday style operation; QSL via Club Log OQRS or DA2DX direct (no EQSL, no Email QSL)
03/04/26	20/05/26	Rodrigues I	3B9N	VU3OPT	OPDX (Feb 21, 2026)	By VU3OPT; 20 15 10m; CW
16/04/26	30/04/26	Bermuda	VP9KF	See Info	TDDX (Feb 6, 2026)	By G4BKI fm Bailey Bay; 160-10m; CW; QSL: c/o Paul Evans, 15 Watch Knob Lane, Swannanoa, NC 28778, USA
17/04/26	22/04/26	Fiji	3D2JK	LoTW	OPDX (Feb 16, 2026)	By SP5APW fm Lakeba I (IOTA OC-095); 20-6m; mainly FT8, SSB; QSL via Club Log OQRS
19/04/26	30/04/26	Marquesas	TX9W	LoTW	K5WE (Oct 1, 2025)	By K5WE W5CCP N5TEA K4VBM WD5COV F6BCW fm Atuona, Hiva Oa I (IOTA OC-027); 160-6m; CW FT8 FT4 SSB RTTY; 6 stns; QSL via K5WE
25/04/26	08/05/26	Gambia	C5	LoTW	OPDX (Feb 7, 2026)	By F4AGG F5RAV as C5C (SSB CW) and C5D (RTTY PSK FT8); HF; QSL C5C via F5RAV direct; QSL C5D via LoTW only
24/05/26	01/06/26	St Kitts and Nevis	V4	LoTW	OPDX (Sep 4, 2025)	By WW6W as V4/WW6W fm St Kitts I; QRV for CQWW WPX CW Contest; QSL via WW6W direct
26/05/26	02/06/26	Martinique	TO3E	LoTW	AB2E (Jan 10, 2026)	By AB2E; @FM5BH; QRV for CQ WPX CW Contest
03/06/26	12/06/26	Tanzania	5H1KB	LoTW	TDDX (Mar 9, 2026)	By DL2SBY fm Zanzibar I; focus on 6m; QSL via DL2SBY direct
10/06/26	18/06/26	Palau	T88AR	LoTW	TDDX (Dec 2, 2025)	By JA6UBY fm Koror; 160-6m; FT8 FT4 SSB FM (on 10m); QSL via JA6UBY

Events Guide

We are planning lots of events for 2026. I will try to dedicate a full page every issue so you can see whats coming up!

Yeovil Amateur Radio Club is proud to announce it's 40th QRP Convention on Saturday 11th April 2026 at:

The Digby Hall, Sherborne, Dorset DT9 3AA

Doors open 09:30 am to 1:30 pm

Admission £3

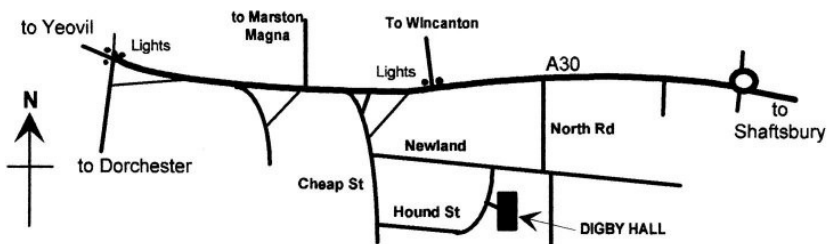
Traders, Bring & Buy, Club Stalls, Café

Supported by RSGB, G-QRP & RAFARS

Programme of talks:

10:30 Lecture on Drake Receivers by
Adrian Dening G4JBH

12:00 Talk by Steve Hartley G0FUW



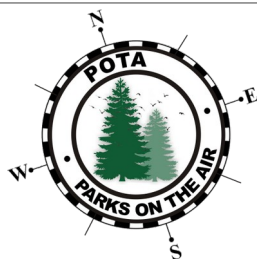
Saturday 18th April 2026
145Alive (FM) Section
More on 144 (SSB) Section

To register as a "Net Controller" simply send an email to: 45aliveuk@gmail.com

Let the organisers know what your Name, Grid Square and callsign is. They will then add you to the list.

If you do not wish to be a "Net Controller" you can simply make your way to some high ground and see how many Nets you can work. You do not have to stay for the entire 3 hours allocated. Net Controllers are quite happy to have a Signal Exchange and move on.

Maybe I should do a behind the scenes video of what it takes or maybe a live stream. Watch this space.



Parks on the Air – "Support Your Parks" Weekend 18th and 19th April

Aside from the 145Alive event, don't forget that it is the Parks on the Air (POTA) Support your Parks Weekend. This event is aimed at those who like to operate /P or /M from a recognised park. You can get a list of Parks in your area by going to <https://pota.app>

You can go to the Parks list to find out what is available near you. I Prefer to use the Ham2k Polo (Portable Logger) for all my POTA contacts. You can achieve awards by Hunting and Working the Activating station or you can mix it up and Activate a Park. A successful Activation is a minimum of 10 Contacts as an Activator.



DARSN is holding a meet up at "The World's End" at Almer on the 25th April

Meet up starts at Midday (12:00) and normally runs for 3 hours or thereabouts.

The Worlds End, Almer
Almer, Blandford Forum DT11 9EW

WHAT 3 WORDS: [///sizing.crockery.pointed](http://sizing.crockery.pointed)

You can find all our Events on our [Facebook Group](#), [Darsn Website](#) or Wavewizards.org

An introduction to Arduino


What is Arduino?

Arduino is an open-source electronics platform with easy-to-use hardware and software. It's perfect for beginners learning electronics and programming.

Hardware Overview

There are many different Arduino Boards available, you would be forgiven if you were in any doubt of what you actually need as opposed to what is being pushed by marketing. For most purposes, the Arduino UNO R3 is the ideal starting point as the hardware is inexpensive and easy to use. One of the fundamental challenges when starting out is having enough memory (RAM) on board the chosen hardware. The Uno R3 does have it's limits but with careful coding and for playing / tinkering with, makes an ideal starting point.

The Arduino also comes in different form factors. The Arduino Nano and Pro versions offer better specifications for a very similar price but might be better suited for those of us with increased skill sets or experience. With that being said why not give it a go and see how you get on. The support community is huge.

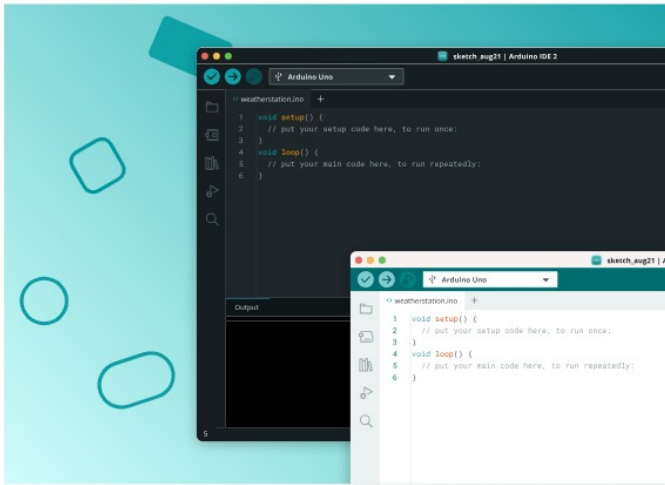
			
Arduino UNO Q	Arduino UNO R4 WiFi	Arduino UNO R4 Minima	Arduino UNO R3
			
Arduino UNO Mini Limited Edition	Arduino UNO WiFi Rev2	Arduino UNO R3 SMD	
			
Arduino Nano 33 IoT	Arduino Nano RP2040 Connect	Arduino Nano ESP32	Arduino Nano 33 BLE Sense
			
Arduino Nano 33 BLE	Arduino Nano Every	Arduino Nano	Arduino Nano Motor Carrier

An introduction to Arduino

Setting up the IDE

Let us assume for a moment that you have made a purchase of the Arduino Uno R3. How do we get it to do things? We need the Arduino IDE (Integrated Development Environment) This is available for Windows, Mac and Linux. Lets head on over to the website and Download / Install the IDE. <https://www.arduino.cc/en/software/#ide>

Bring Your Projects to Life with Arduino Software



Arduino IDE 2.3.8

[Release notes](#)

The new major release of the Arduino IDE is faster and even more powerful! In addition to a more modern editor and a more responsive interface it features autocompletion, code navigation, and even a live debugger. For more details, check the [Arduino IDE 2.0 documentation](#).

Linux AppImage (64-bit X86-64)

DOWNLOAD

Windows Win 10 or newer (64-bit)

Windows MSI Installer

Windows ZIP file

Linux AppImage (64-bit X86-64)

Linux ZIP file (64-bit X86-64)

macOS Intel 10,15 Catalina or newer (64-bit)

macOS Apple Silicon 11 Big Sur or newer (64-bit)



Legacy IDE (1.8.19)

Download a legacy version of the Arduino IDE.

Use the dropdown menu to select your operating system. Ignore my default choice as I use an entirely different Operating system than you may be. The website should choose the correct version for you.

Download and Install the IDE.

The first time you run the IDE software, you may be presented with an upgrade warning. Try to Update / Upgrade your Arduino installation should it ask you to. This will keep your Libraries up to date for bug fixes and potentially new features. You can of course, choose to ignore it. I like to keep mine up to date.

So, you have acquired the hardware, you have a suitable IDE and a USB lead to connect it to your PC or Laptop

What now? Well, we need to look at what “Sketches” are and how we can interact with the IDE

By the time you read this Newsletter, you will also find an additional download that goes along with this Newsletter. Download the additional .zip file. Inside it you will find some .INO files. These are “Sketches” or Programs that you can use within the IDE to program the Hardware. Extract the .INO files to a safe place, the Arduino does have a ”projects” folder that you can extract or copy these files into. This makes life easier to find them quicker and helps to keep your Codebase organised.

An introduction to Arduino

What is a Sketch?

A Sketch is another term for source code that the IDE compiles into code that the Micro-controller can execute.

The amount of code you can utilise is determined by the Micro-Controller hardware.

Different Variants have differing amounts of Ram, some boards even boast WiFi or LAN connectivity.

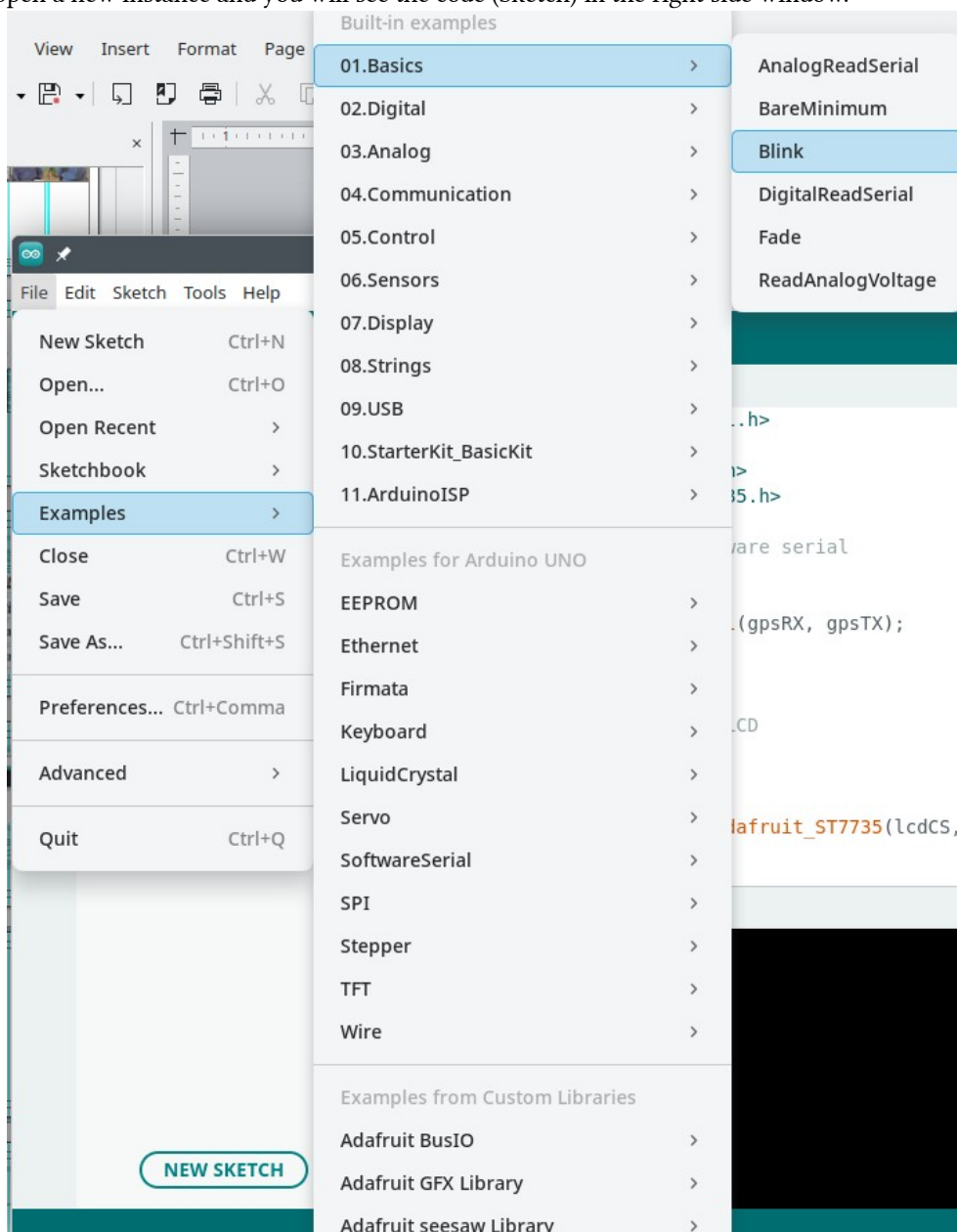
It is often a simple affair to add a “Shield” that simply plugs onto the Uno R3 to give you extra features and the Manufacturer of the Shield will make the Libraries available. A Library makes light work of interfacing to a different piece of Hardware and you do not have to worry about understanding the Programming, take a look at some of the examples.

It is customary in programming to perform a “Hello World” program, or in this case, a Sketch.

Lets look at the IDE and program a “Blink” sketch and upload it to the Uno R3

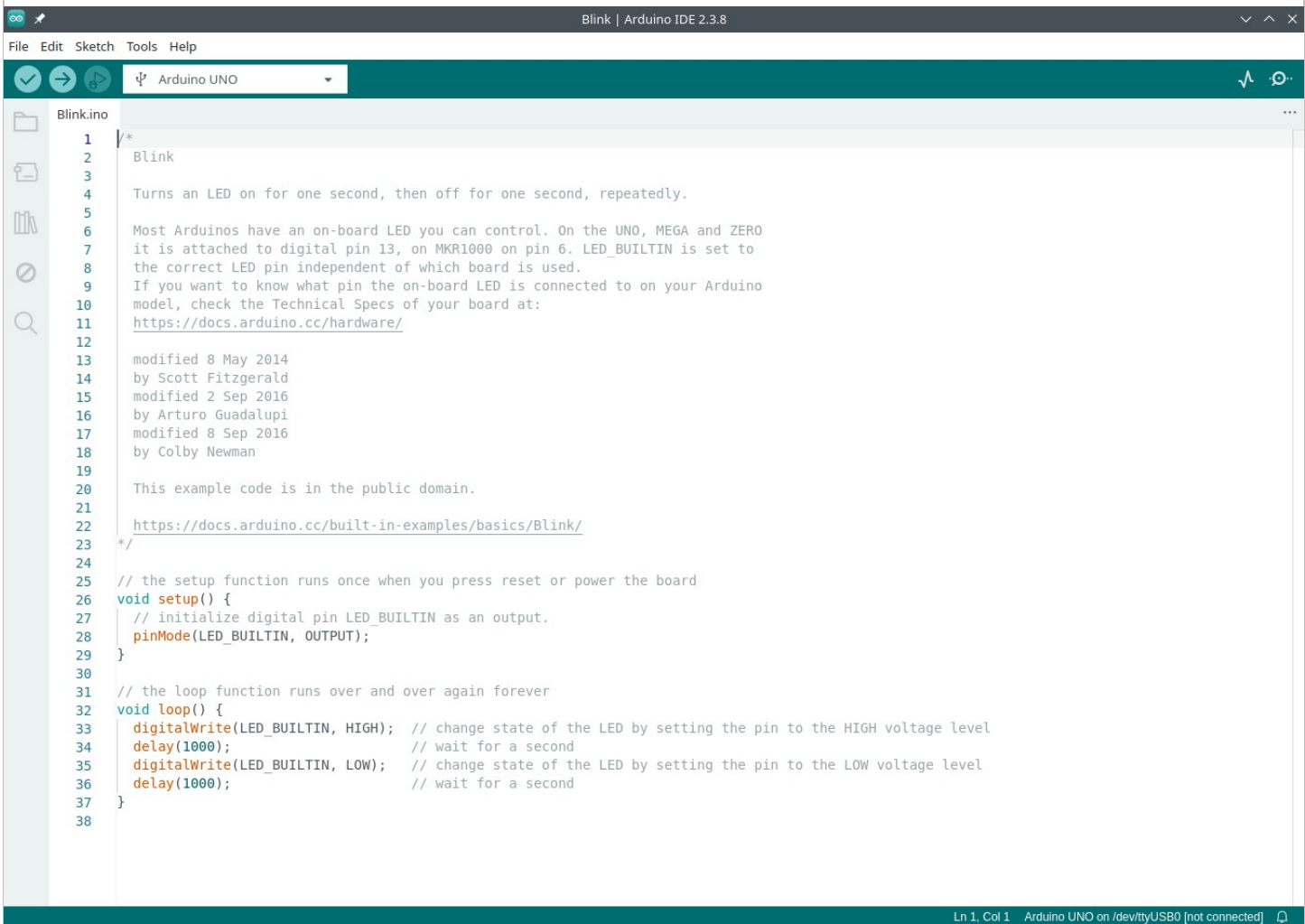
Fire up the Arduino IDE interface and Find the File Menu, Examples, Basics, Blink

The IDE will now open a new instance and you will see the code (Sketch) in the right side window.



An introduction to Arduino

You should now have something like this:

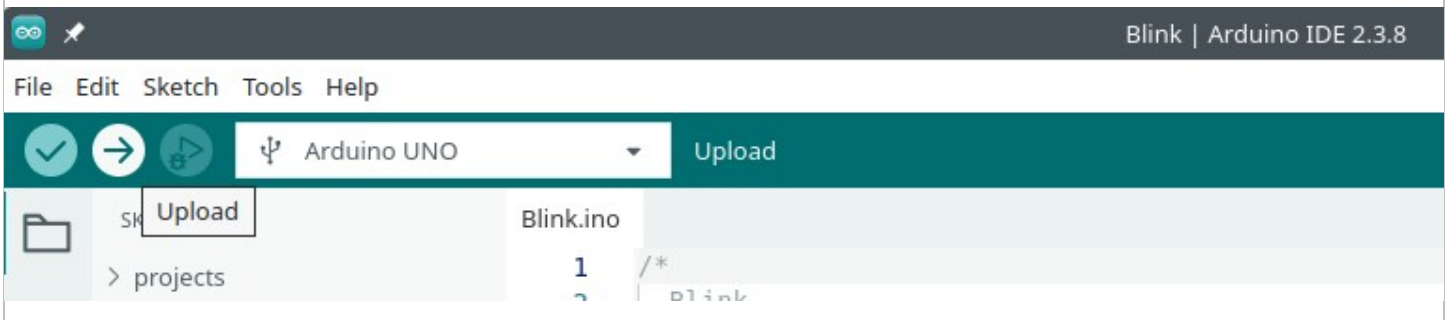


```
1  /*
2  Blink
3
4  Turns an LED on for one second, then off for one second, repeatedly.
5
6  Most Arduinos have an on-board LED you can control. On the UNO, MEGA and ZERO
7  it is attached to digital pin 13, on MKR1000 on pin 6. LED_BUILTIN is set to
8  the correct LED pin independent of which board is used.
9  If you want to know what pin the on-board LED is connected to on your Arduino
10 model, check the Technical Specs of your board at:
11 https://docs.arduino.cc/hardware/
12
13 modified 8 May 2014
14 by Scott Fitzgerald
15 modified 2 Sep 2016
16 by Arturo Guadalupi
17 modified 8 Sep 2016
18 by Colby Newman
19
20 This example code is in the public domain.
21
22 https://docs.arduino.cc/built-in-examples/basics/Blink/
23 */
24
25 // the setup function runs once when you press reset or power the board
26 void setup() {
27   // initialize digital pin LED_BUILTIN as an output.
28   pinMode(LED_BUILTIN, OUTPUT);
29 }
30
31 // the loop function runs over and over again forever
32 void loop() {
33   digitalWrite(LED_BUILTIN, HIGH); // change state of the LED by setting the pin to the HIGH voltage level
34   delay(1000); // wait for a second
35   digitalWrite(LED_BUILTIN, LOW); // change state of the LED by setting the pin to the LOW voltage level
36   delay(1000); // wait for a second
37 }
38
```

You can scroll around and change any aspect of the Sketch that you wish. First of all, let's get this code uploaded so you can see it working. Get your UNO R3 and connect it to a USB port with the cable supplied. It's a perfectly ordinary cable so you can use any cable you may have laying around. The cable must have the Data Pins connected so bear that in mind if something fails to work. If in doubt, use a good quality USB cable. The first time you connect the UNO R3 to your PC / Laptop, Windows might install a device driver for the hardware. This rarely fails. Linux users should take note of the /dev/ttyUSB notification (Linux systems do not use traditional COM1 COM2 notation)

Press the Upload (Right Arrow) button at the top left of the IDE.

If all goes well, your UNO should have a flashing light displayed. You can go into the code and change the value of the delay, we see it on lines 34 and 36. Change the 1000 (1000 milli Seconds) to 500 or even 200. Have a play and after each change, upload the new code to the UNO.



```
File Edit Sketch Tools Help
[Checkmark] [Right Arrow] [Play] Arduino UNO Upload
[Folder] [Sketch] Upload Blink.ino
  1  /*
  2  Blink
```

An introduction to Arduino

If all has gone according to plan, you have just installed the Arduino IDE AND uploaded code to run on the Micro-Controller! Go ahead and give yourself a pat on the back. As I have mentioned previously, I have uploaded a file to the website but it is password protected. The password is **darsnwasere** I have done this because the Newsletter and the files go together. Extract the files to your drive and open them one at a time. Upload the code to the Arduino and watch what happens.

We will go much deeper into the Arduino in future Newsletter issues. We will learn how to add libraries, how to work with LCD displays and how to use encoders to make hardware projects such as GPS receivers with a Display, Repeater Controllers with Adjustable settings and how to CAT control your Radio!

I also mentioned a GPS receiver and this will be in the next Newsletter. (Hopefully)

There are a lot of resources available online but I will also produce some more Sketches to let you have a play around. I also have a remote control VFO CAT tuner Sketch that I am working on. This is going to take a while and as soon as it's ready, I will be quite happy to release the code to the public.

I anticipate support for:

Icom IC-7100 IC-705 IC-7300 (CI-V)
Yaesu FT-8xx 217, 891, 991 plus some other variants.
Most Kenwood (Base Stations) will also work out of the box

Online Resources:

<https://docs.arduino.cc/tutorials/uno-rev3/Blink/>

<https://docs.arduino.cc/learn/>

<https://docs.arduino.cc/learn/starting-guide/getting-started-arduino/>

You may wish to check out some YouTube resources too.
There happens to be a huge amount of tutorials you can follow along with.

Dronebot Workshop has an informative, easy to follow channel that beginners will find of great help
<https://www.youtube.com/@Dronebotworkshop/videos>

There are plenty of others to be found if you search for Arduino UNO R3

"Getting Started"

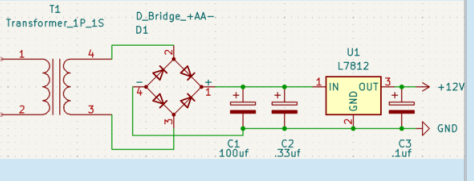
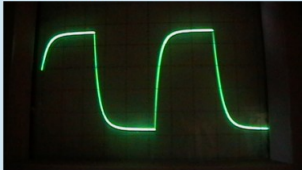
Tim (2E0TPH/M9WWA) held a talk at Sturminster Marshall on the 28th March and covered all sorts of topics and subjects. For those who could not attend, here is what happened.

Firstly, we did have a reasonably good attendance, thank you to those who were able to come along.

Subjects that got covered included: Multi-Meter Selection, what Meter is right for your needs. What are "Counts and Digits" We went into Multi-Meter Protection and explored the internal secrets that stop bad things from happening.

Oscilloscopes, How many channels do you need? We discussed the pros and cons of Analogue vs Digital Scopes and the typical feature sets you would find on each. We also covered the requirement for good "Probes" and why it is important to have minimal series resistance during measurements. The talk also explored power supplies and briefly explained the differences and "Use Case" of Linear power supplies vs Switch Mode. Frequency Counters also made it into the talk with a demonstration of Accuracy vs Resolution and Gate times. There will be some Test Equipment builds that you can follow along with at home in the later part of the year as we put our efforts into the other events that we all love to get involved with.

<h3>Getting Started in Electronics</h3> <p>An Introduction</p>  <p>Tim Hazel - M9WWA Wykeradio@gmail.com www.wavewizards.org</p>	<h3>Bench Multimeter (£100 ish)</h3> 	<h3>Melting Points</h3> <table border="1"> <tr> <td>60/40</td> <td>60%Tin 40%Lead</td> <td>180°C to 190°C (General purpose)</td> </tr> <tr> <td>63/37 (Eutectic)</td> <td>63%Tin 37%Lead</td> <td>183°C Low plastic range</td> </tr> <tr> <td>58/42</td> <td>58% Bismuth 42%Tin</td> <td>138°C Avoids Tin Whiskers</td> </tr> <tr> <td>80/20</td> <td>80%Gold 20%Tin</td> <td>Varies (Aerospace / Mil)</td> </tr> <tr> <td>S.A.C</td> <td>Tin Silver Copper</td> <td>217°C to 240°C Reflow / Wave Soldering</td> </tr> <tr> <td>Lead Free (Typical)</td> <td>99.3%Tin 0.6%Copper 0.5%Nickel</td> <td>217°C to 230°C</td> </tr> </table>	60/40	60%Tin 40%Lead	180°C to 190°C (General purpose)	63/37 (Eutectic)	63%Tin 37%Lead	183°C Low plastic range	58/42	58% Bismuth 42%Tin	138°C Avoids Tin Whiskers	80/20	80%Gold 20%Tin	Varies (Aerospace / Mil)	S.A.C	Tin Silver Copper	217°C to 240°C Reflow / Wave Soldering	Lead Free (Typical)	99.3%Tin 0.6%Copper 0.5%Nickel	217°C to 230°C
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<h3>The simple 12v 1A supply</h3> 	<h3>A Test Capture</h3> <ul style="list-style-type: none"> The Waveform photographed on my Scope 	<h3>The Circuit</h3> 
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Coach and Horses - Wimborne



The Club meet up was a fun afternoon, over lunchtime until 3pm. Great to see Club members friends and family all enjoying a chat, catch-up over a meal and a drink.

The pub staff were great and the food good. It was great to see Rick & Carolyn and Rob & Jenny. We had lots of discussion on various topics including the new Repeater GB3OF, upcoming camping trips and plans for the rest of the year.

Lins
M9LIN

Circuit Protection

Circuit protection techniques:

There are many ways to protect your circuit from those moments of stupidity. Maybe you accidentally connected the power lead to your device incorrectly and blew something? Lets take a look at the most popular methods of circuit protection.

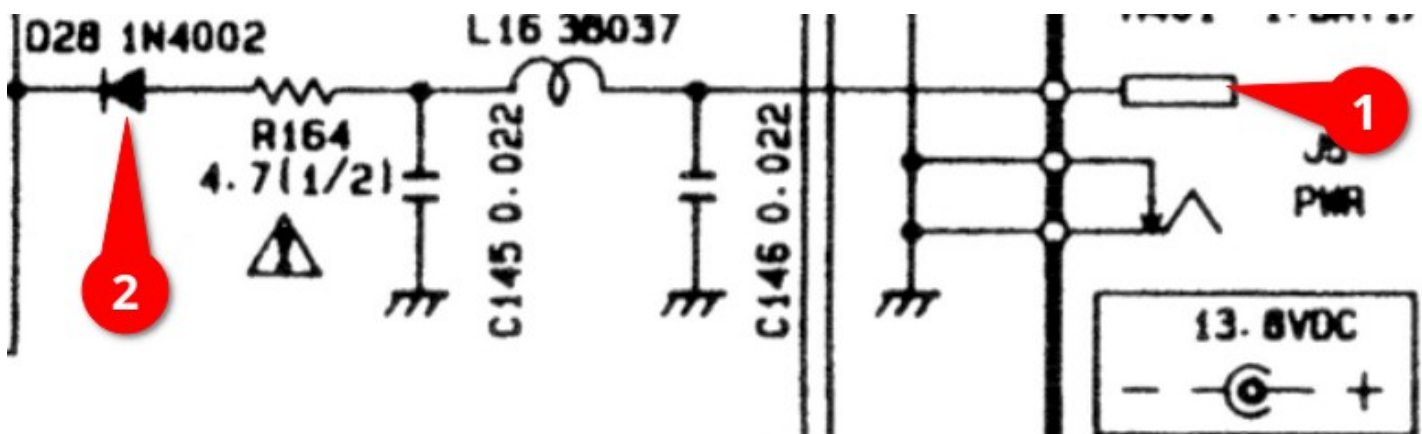
The most common method of protection can often be found in DC powered devices. Devices such as car radio units, Transceivers and of course, DC powered devices from cheap online stores that might use a negative center DC barrel jack.

The easiest way to protect a DC powered device is to use a Diode. Back in the day this was referred to as "The Idiot Diode" and was quite often found in early CB units. [Sometimes found burnt out - ED]



The principle is that the Diode will only conduct one way. In the image above you can follow the 12v line from the left to the right (the output). If a user should connect the power to the 0v line then the diode will take the brunt of the damage and burn itself out to protect the rest of the circuit. This does not always work, although in principle, it is a valid lower power protection method.

A better circuit would be to place the diode in series with the power line. The example below shows power coming in to the device (Pin 1) and making its way through to D28 (Marked 2). It is worthy to note the Inductor, also in series with two capacitors. This provides a small clean up of transient voltages and noise from the DC input. You might think of this as a 3rd order filter!



It is worthy to note that basic fuse protection is also better than nothing. An amateur radio transceiver may well have a fuse in both power leads. This is done for good reason and you should never bypass a fuse, EVER! It is there for a reason. A fuse fitted in the "Negative" lead (or 0v / Gnd) can help stop damage to the PCB inside your equipment. We will take a closer look at why this is in a future Newsletter issue.

Circuit Protection

I was having a chat on the DARSN Net one evening and the subject of Polyfuse (Resettable fuses) came up. This is one for Peter.

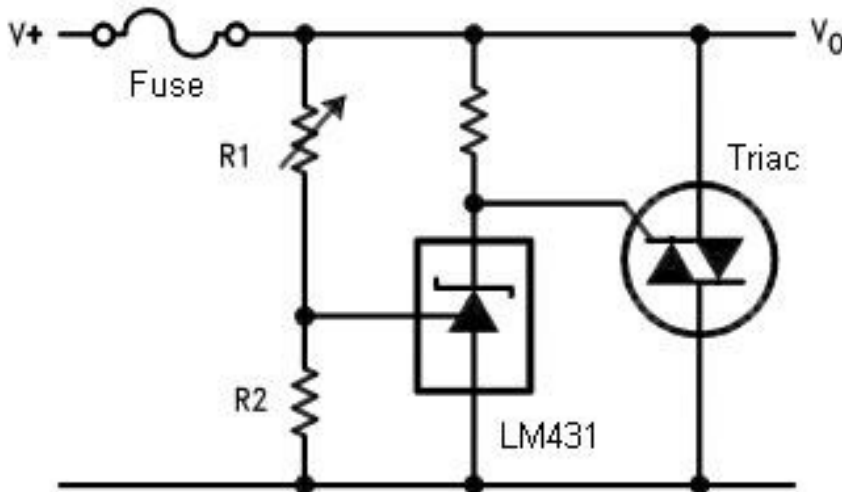


A polyfuse, also known as a resettable fuse, PPTC (Polymeric Positive Temperature Coefficient) device, or Polyswitch, is a passive electronic component designed to protect circuits from overcurrent faults. Unlike traditional fuses that permanently blow and require replacement, a polyfuse automatically resets once the fault condition is removed, making it ideal for applications where serviceability is difficult or where temporary overloads are expected.

The device operates using a polymer matrix embedded with conductive carbon particles. Under normal conditions, the polymer is in a crystalline state, allowing current to flow through the connected carbon chains. When excessive current flows, the device heats up, causing the polymer to expand into an amorphous state. This expansion separates the carbon particles, drastically increasing resistance and limiting current flow. Once the fault is cleared and the device cools, it returns to its low-resistance state.

Polyfuses do have voltage ratings marked on the Dipped Body section like in the picture (Left) This one is designed to trip when the voltage reaches 60 volts, or when 60 volts is exceeded depending on tolerance specifications.

Crowbar Circuits can be incredibly handy when the device to be protected contains CMOS or other logic. Crowbar circuits are normally found in higher power AC circuits but perform very well in DC applications. The images below were shamelessly nicked from the Texas Instruments LM431 Adjustable Precision Zener Shunt Regulator Datasheet



$$V_{\text{LIMIT}} \approx \left(1 + \frac{R1}{R2} \right) V_{\text{REF}}$$

You can find all the reference data in the Texas Instrument [DataSheet](https://www.ti.com/product/LM431)
<https://www.ti.com/product/LM431>

The theory of operation behind a crowbar circuit is amazingly simple. An SCR (Silicon Controlled Rectifier), or Triac (above) is used to bring the positive voltage down to 0v when the appropriate threshold voltage gets applied to the Gate pin of the device.

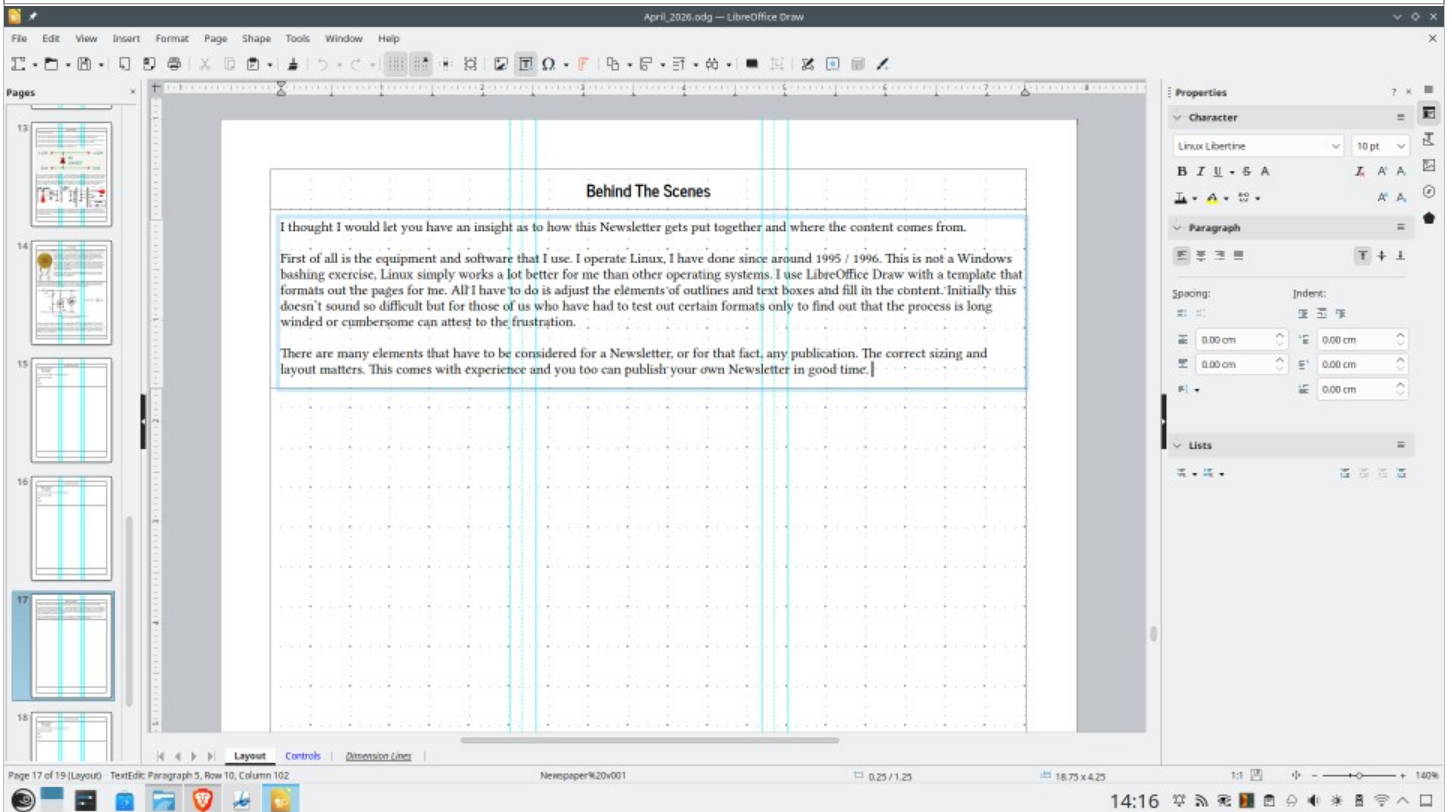
The gate pin is the pin coming into the Triac from the left side. When the threshold is reached then the Triac is effectively shorted and this will blow the Fuse on the voltage input. We choose a fuse here because we would want to investigate why the event happened. If we used a polyfuse then the fault might clear, the fuse resets and the fault shows up again. We do not want power oscillation on our power rail thanks!

Behind The Scenes

I thought I would let you have an insight as to how this Newsletter gets put together and where the content comes from.

First of all is the equipment and software that I use. I operate Linux, I have done since around 1995 / 1996. This is not a Windows bashing exercise, Linux simply works a lot better for me than other operating systems. I use LibreOffice Draw with a template that formats out the pages for me. All I have to do is adjust the elements of outlines and text boxes and fill in the content. Initially this doesn't sound so difficult but for those of us who have had to test out certain formats only to find out that the process is long winded or cumbersome can attest to the frustration.

There are many elements that have to be considered for a Newsletter, or for that fact, any publication. The correct sizing and layout matters. This comes with experience and you too can publish your own Newsletter in good time.



The image above is a full screen shot showing the pages on the left, the content in the middle and layout tools on the right. The vertical light blue bars are there to help line up elements such as the box drawing and text box areas. This helps to keep everything neat and aligned.

So we have the layout roughly done. I say roughly because we don't fully know how much content we have until it has been written. We need to be somewhat flexible and the use of drawn boxes to separate the content can always be changed later, as can the actual content. This makes life easier. Now lets talk about the actual content.

Content matters. All of the content is self generated. That is, from things I have designed myself, modified or invented. Maybe I have been reading a book about RF Filter design and I get an idea to incorporate a design into my own receiver. I think it's safe to say that I have enough content for a while.

This has not been, by any means, an exhaustive look at the actual publication side of this Newsletter. It is simply to bring to your attention that I do pour a LOT of hours into this. I do it because I can and I enjoy the challenge.

If you have any articles that you would like to submit, simply email me admin@wavewizards.org with your article. I will be more than happy to include it and of course, you get the acknowledgment and peace of mind that you have contributed.

Anything goes, a short one paragraph article helps fill a gap as does a multiple page version!

Well, that's this end of the April Newsletter. I hope you have enjoyed this issue.

Coming in the next issue:

An Introduction to Arduino (Leads up to a GPS tracker with Display)

Arduino CW Callsign Keyer and LED callsign Display

Echolink control system with PTT

And we finally get to build that VHF Linear Amp that I promised 2 Months ago!

Join the [Facebook Group](#) to get the newsletter or download it from <https://www.darsn.co.uk>

You can also Download from Wavewizards.org/newsletter.

We would all like to wish RON 2EOJPD a very Happy Birthday – 93 years young.

As usual, a huge thanks to everyone who go out and participate in events and meet ups.

Until next time, keep those finals warm. 73's Tim [M9WWA - Ed]

[Make a Donation](https://pay.collectiv.com/dorset-amateur-radio-social-network-running-costs-33420) <https://pay.collectiv.com/dorset-amateur-radio-social-network-running-costs-33420>

Lots of merchandise available check out the [website](#) for details, let me know if you would like anything.

Caps, t-shirts, key rings, sweatshirts, hoodies, chopping boards, pens, lanyards, note books, mugs etc

Please get in touch before you order online and ask about payment methods.

We are a not for profit club and all proceeds go towards keeping the club going.

Thank you for your support M9LIN

DARSN