Zero Retries 0105 - by Steve Stroh N8GNJ

zeroretries.org/p/zero-retries-0105

Steve Stroh N8GNJ

Zero Retries is an independent newsletter promoting technological innovation in Amateur Radio, and Amateur Radio as (literally) a license to experiment with and learn about radio technology.

About Zero Retries

Steve Stroh N8GNJ, Editor

Jack Stroh, Late Night Assistant Editor Emeritus

In this issue:

Web version of this issue - **https://www.zeroretries.org/p/zero-retries-0105**

Request To Send

Editorial by Steve Stroh N8GNJ

HAM RADIO Conference (Friedrichshafen)

I've seen a number of *a good time was had by all* mentions

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about the HAM RADIO conference in Friedrichshafen, Germany last weekend, but to date, I haven't seen much that is Zero Retries Interesting other than the Kenwood TH-D75A and the M17 Project's OpenHT Proof of Concept, both of which have been covered previously in Zero Retries. I saw that HAMNET (Europe microwave network) had a booth, but other than that I didn't see anything I could specifically identify as involving data communications. YouTube videos HamRadio 2023: Impressionen aus Friedrichshafen (turn on captions, and auto-translate to English) was a nice overview and "HamRadio2023 So war das ....." was a good view of the major vendor booths.

Ham Fair 2023

The last of 2023's "Big Three" Amateur Radio regional megaconferences will be Japan Amateur Radio League (JARL) Ham Fair 2023 in Tokyo, Japan which will be held on August 19-20, 2023. Co-equal with my desire to attend HAM RADIO, I hope to attend Ham Fair at least once. I have periodically found copies of Japan's CQ ham radio magazine (not the similarly named US publication) and while I don't read Japanese, I've seen mentions (well, photos, mostly) radios that are only available in Japan. In past years, I've enjoyed meeting and learning from Amateur Radio Operators from Japan representing Packet Radio User's Group (PRUG) that would regularly attend TAPR Digital Communications Conferences. In particular, I'd be curious to see if there has been any further progress on PRUG's FX.25 TNC - that was a neat idea.

Nice Mentions of Zero Retries

My thanks to Cale Mooth K4HCK for mentioning the major article from Zero Retries 0103 - Amateur Radio Moonshots - My Presentation for MicroHAMS Digital Conference 2023 in Issue 291 of Amateur Radio Weekly. That mention was responsible for a nice boost to the subscriber count for Zero Retries. It was especially an honor to be mentioned in that issue with Zero Retries Pseudostaffers Jeff Davis KE9V and Dan Romanchik KB6NU.

And, a belated *Thanks!* to K4HCK for including Zero Retries as one of Amateur Radio Weekly's Friends of the Newsletter. It's humbling to be included alongside the venerable and highly respected Amateur Radio Newsline.

MBARC President (Again)

To my surprise, I was elected as President of the Mount Baker Amateur Radio Club (MBARC) Digital Group (DG) based in Bellingham Washington for the 2023-09 to 2024-08 term. I was President of the DG one year ago - 2021-09 to 2022-08, but was voted out after that term. Apparently, I'm back.

Cornbread Road

Reminder - KE9V's Cornbread Road audio series is both *Zero Retries Interesting* and has my *personal recommendation*. I know it has an unassuming name, but believe me, it grabs you from the first episode. All episodes are now available for download or streaming. Given that you're reading this in Zero Retries, I *know* you'll enjoy listening to Cornbread Road. KE9V won't keep it online for much longer, so download the episodes ASAP.

Omnibus - Deferred

I intend(ed) that every fifteenth issue of Zero Retries would feature the latest edition of The Zero Retries Omnibus of Zero Retries Interesting Information. The Previous Edition of the Omnibus was coincident with Zero Retries 0090. With Summer activities, heavy travel, and a few higher priorities for Zero Retries, the new Omnibus will be deferred for at least a few issues.

Payment Options For Zero Retries Now Activated

Payment Options have now been activated. Thank you *very much* to those who have become paid subscribers to Zero Retries! I've added some details to Closing The Channel to reflect information about payment options.

Phil Anderson W0XI, Kantronics Cofounder, is a Silent Keyboard

By Steve Stroh N8GNJ

Phil Anderson W0XI was a cofounder of Kantronics, one of the most prominent manufacturers of Packet Radio equipment during the "Packet Radio revolution".

My thanks to Pseudostaffer Jeff Davis KE9V for alerting me to this sad news. ~~I cannot find any obituary to link to.~~ *Update* - Here is W0XI's obituary

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. KE9V states that the news was distributed on the Southeast Kansas Amateur Radio Club (SEKARC) mailing list, which is only accessible to members of the group. There is also "confirmation" on W0XI's QRZ page - SILENT KEY in the upper left corner.
A 2015 interview with W0XI by Eric Guth 4Z1UG for the QSO Today podcast states:

> Phil Anderson, W0XI, founded Kantronics in 1971 to build wiring harnesses for automobiles. The company morphed over time to become one of the premier manufacturers of terminal node controllers or TNCs for amateur packet radio.

Kantronics was a *prolific* creator of Amateur Radio products, mostly data communications (Packet Radio). For a time, Kantronics manufactured the DVR 2-2 radio and the D4-10 radio, the latter widely used for higher speed (9600 bps and faster). Kantronics also created the Data Engine that used a V40 processor that was capable of routing data between two 56 kbps modems (far beyond the capability of the TNCs of the era), and accompanying plug-in modem cards including a 19200 bps unit.

Notably, in the era when a number of manufacturers licensed TAPR's TNC-2 designs and firmware for expedience in quickly entering the Amateur Radio (and commercial) market(s), Kantronics made a different choice. Kantronics based their products on Motorola microprocessors, creating their own firmware, and thus was not beholden to TAPR to provide royalty payments for "cloning" the TAPR TNC-2. Kantronics KPC-3s for a time were the most popular product for operating Automatic Packet Reporting System (APRS) due to specific enhancements Kantronics implemented to support more efficient APRS operation. Kantronics continues to manufacture narrowband data communications products for Amateur Radio and commercial use.

I found it interesting that on his QRZ page, W0XI had made the transition from "fixed function" Packet Radio units such as Kantronics TNCs to a "Sound Card" interface - a SignaLink USB, which is the only item related to data communications in his description of his Amateur Radio station.

73 W0XI - you made a dent in the Amateur Radio universe!

Leave a comment

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Meet the BeaconBlaster-6

By Steve Stroh N8GNJ

Beacons in the Amateur Radio High Frequency (HF) bands are nothing new, but the BeaconBlaster-6 (BB6) currently in development by Turn Island Systems takes Amateur Radio beacon capability to a new level of precision.

> So what is a BeaconBlaster-6??? It's a six-channel transmitter, putting out one Watt FSK on up to six channels — simultaneously! The BB6 supports all ham channels from 160 meters to six meters, with extremely precise frequency, FSK shift. and channel timing when provided with an external 10 MHz reference clock.
>
> The initial release of the BB6 generates FST4W-120 signals, but WSPR and other FST4W rates will be supported very soon.
>
> The BB6 was developed to meet the needs of the HamSci community (see
>
> https://hamsci.org/
>
> and
>
> http://www.wsprdaemon.org/
>
> for more information), and is particularly useful in the study of the ionosphere. Of course the BB6 is also a great solution for general beacon activity.

The BB6 system includes a number of modules (it's well thought-out) that make it flexible and configurable:

- BB6 Control / Clock Generator

- Digital One-Watt Amplifier

- Six-Channel Foldback Current-Limiter

- Four-Band Power Combiner

- Single-Channel Filter

The Four-Band (80m, 40m, 20m, 10m) Power Combiner makes it possible to use a multi-band antenna, thus simplifying installation with a single coaxial cable.

> The complete and assembled BeaconBlaster-6 will cost approximately $700 (plus shipping), and should be available early August 2023.
>
> The assembled Four-Band Power Combiner will cost about $70, and be available early August 2023.
>
> Individual board price and availability are TBD. All prices are subject to change .

One of the most interesting aspects of the BB6 is that (from my limited understanding) is that it's composed mostly of digital components.

The BeaconBlaster-6 is a stellar example technological innovation in Amateur Radio! Kudos to Turn Island System's "Chief Designer" Paul Elliott WB6CXC for developing this new system!

Leave a comment

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ZR > BEACON

By Steve Stroh N8GNJ

Short mentions of Zero Retries Interesting items.

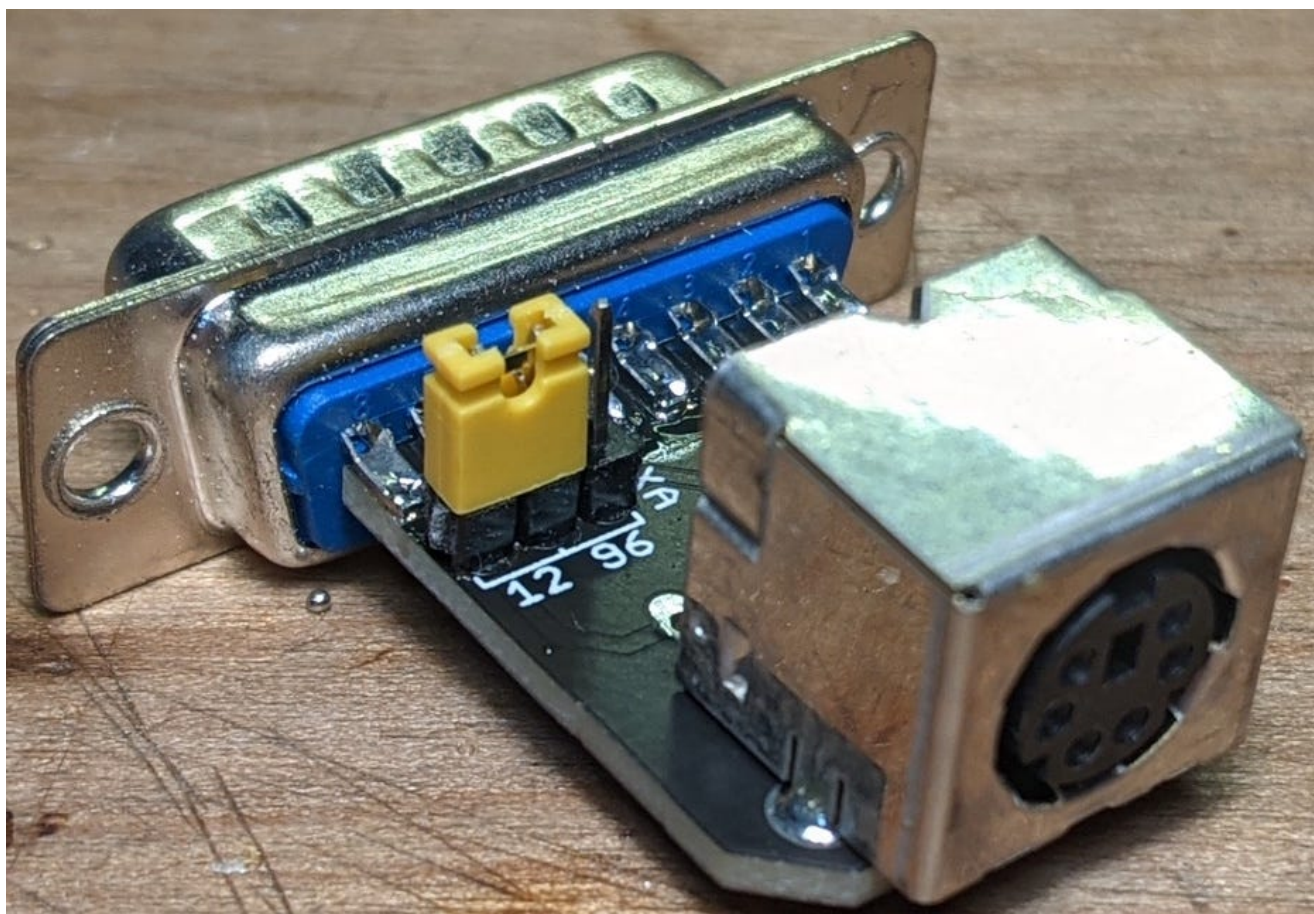**Prototype 6-pin MiniDIN Adapter for Tait TM8100 Data Radios**

Image courtesy of Jason Rausch K4APR

Jason Rausch K4APR on the Facebook Packet radio systems and information group:

> I recently bought some Tait TM8100 data radios to play with. I like them. Easy to program, good performance, perfect for data links. But I HATE the way they recessed the rear DB15 connector. It makes it a pain to use a connector with any kind of clamshell hood. While I was thinking of how I could get around this, it occurred to me that I could just go the full route and make a miniDIN adapter, since that is what I was converting too, anyways. I made this very much like I did my Motorola 16 pin to miniDIN adapter.
>
> Plugs into the port and provides a standard miniDIN packet port, with a jumper to route the audio to either the 1200 or 9600 baud receive audio pin on the miniDIN. I also included a row of pads to solder a cable directly to and holes for a thin ziptie to secure the cable.

Yet another option for a somewhat plug and play data radio.

ESPBoy Turned Into a Functional Walkie-Talkie

From Hackaday:

> The ESPBoy was first built as a hackable open-source game engine and handheld console for educational purposes. However, it's also a platform that can readily support all kinds of other uses. You can even turn the humble handheld device into a working walkie talkie.
>
> The build relies on adding a SA868 transceiver module to the ESPBoy, along with a microphone, speaker, audio amplifier and antenna as supporting hardware. It then relies on the ESPBoy's existing screen and buttons as a user interface for the radio. Assembled appropriately, it can then be used as a very basic and barebones walkie talkie for voice communication.
>
> You won't get coded squelch or other useful features, but it's enough to let you talk over the air with other handheld radio users. The SA868 module can transmit on a variety of frequency bands, but the video shows it operating in the UHF band around 433 MHz. With a power on the order of 1.8W, it should get you a few kilometers of transmission range in an open field.

I remain in awe of Hackaday's matter of fact coverage of radio technology as just another cool aspect of electronics experimentation, accessible to everyone.

Plug for British Amateur Television Club

Zero Retries Pseudostaffer Jeff Davis KE9V offered a brief recommendation for the British Amateur Television Club (BATC) in a recent article:

> While my affiliation with the group is long-distance and outside typical radio range, I join their weekly net each Thursday via streaming video. The live net is conducted throughout Europe and Africa via the QO-100 satellite. This feed is then streamed live via the BATC web site where I watch - and participate via online chat. After a few years of this I feel like I know many of the regulars on that net.

BATC is certainly a Zero Retries Interesting organization and one of these days Real Soon Now (RSN) I will actually pay the membership fee and be able to read the most recent issues of their newsletter and spend some time on Thursdays watching BATC's net.

Hack-A-Sat - Moonlighter Satellite (Literally, Made to be Hacked)

Five Teams of Hackers Will Compete to Breach U.S. Satellite in Space is the best overall article I could find about this project. Yes, officially sanctioned hacking, of an actual satellite *built for this purpose*, in orbit *is a thing*.

> The Moonlighter satellite was launched on a SpaceX rideshare rocket to the International Space Station June 5 by the U.S. government-backed non-profit The Aerospace Corporation. It's a foot-long toaster-sized cubesat satellite with extendable solar panels.
>
> If all goes according to plan, Moonlighter will be deployed into orbit early in July, Project leader Aaron Myrick told Newsweek. Moonlighter is designed to be hacked, he said, and there are numerous safety measures in place. "The first thing that we said was that propulsion was off the table," Moonlighter can't change its own orbit, which might make it a hazard to other satellites. And its ground controllers have the ability to reboot the system, kicking out any intruders and restoring their control.

But there's *ample* additional information - start with an official-looking website for Moonlighter and a PDF from Aerospace Corp., the builder of Moonlighter. If you're still hungry for info on this topic, a web search for "hack-a-sat OR moonlighter satellite" will yield hours of reading.

Moonlighter has apparently made it to the International Space Station on the scheduled launch. As of this writing, it has not been "launched" from the ISS into independent orbit.

But nowhere… *after an excessive amount of time looking*, could I find even cursory information on the communications system of Moonlighter, other than…

- Radio Antenna: Sends telemetry and receives commands from ground operators

- Payload Radio: Sends telemetry and receives commands from ground operators over a higher speed link

- Payload Antenna: Transmits and receives radio frequency energy for the commands and telemetry from ground operators

This… should be interesting. With this development, I'll be paying more attention to DEFCON 31 than I usually would.

Wouldn't it have been cool if after the Hack-A-Sat contest, this satellite could have been reconfigured for use as an Amateur Radio satellite? I guess there aren't any Amateur Radio Operators working for Aerospace Corp. to offer propose a secondary use for this satellite to stimulate a more constructive interest in satellite communications (rather than just hacking them).

Brief ARDC Updates

ARDC 2nd Batch Grant Announcements Real Soon Now?

The second (of four) batches of ARDC grants should be publicly released any time now. The submission window for the second batch closed April 1st (or May 1st

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), and the submission window for the *third* group of grant applications closes on July 1st (so they'd better be done with that second batch). Thus, it's odd that this info hasn't yet been released (as I write this). An update on this batch of grants is promised for the ARDC Community Meeting.

Next ARDC Community Meeting , Saturday, July 15 [2023]

> Our next Community Meeting will take place on Saturday, July 15 at 10:00 am PDT / 1 pm EDT / 1700 GMT via Zoom. We'll be discussing the ARDC Code of Conduct, our new vision statement, along with updates about our grants and work with 44Net. If you're interested in attending, watch for an email invitation with the Zoom information.

It's not clear if you will receive an email invitation with Zoom information if you receive the ARDC newsletter via email; previous ARDC Community Meetings required filling out an online form to be notified of ARDC Community Meetings. This will be the second ARDC Community Meeting of 2023.

ARDC Public Mailing Lists

ARDC is now using groups.io - https://ardc.groups.io for some new mailing lists. From the May / June 2023 newsletter:

> The main group is for announcements about ARDC.
>
> The community group is for topics of general interest. These may include discussions about ongoing projects, how to best apply for a grant, and discussions about the future of amateur radio.

Discussion is very light on the Community group and from my observations, *pretty heavily moderated*. There are a few other ARDC mailing lists including 44Net

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and 44Net VPN - see Subgroups.
Leave a comment

Share

Join the *Fun* on Amateur Radio

If you're not yet licensed as an Amateur Radio Operator, and would like to join the fun by *literally having a license to experiment with radio technology*, check out
Join the Fun on Amateur Radio for some pointers.

Zero Retries Frequently Asked Questions (FAQs) — In development 2023-02.

Closing the Channel

In its mission to highlight technological innovation in Amateur Radio, promote Amateur Radio to techies as a literal license to experiment with radio technology, and make Amateur Radio more relevant to society in the 2020s and beyond, Zero Retries is published via email and web, and is available to everyone at no cost. Zero Retries is proud *not to participate* in the Amateur Radio Publishing Industrial Complex, which hides Amateur Radio content behind paywalls.

My ongoing *Thanks* to:

- Tina Stroh KD7WSF for, well, *everything!*

- **Founding Members who generously support Zero Retries financially:**
  Zero Retries Founding Member 0000 - Steven Davidson K3FZT
  Zero Retries Founding Member 0001 - Chris Osburn KD7DVD

- Numerous Annual and Monthly subscribers who also generously support Zero Retries financially!

Want to Support Zero Retries?

- The *most* effective way to support Zero Retries is to simply mention Zero Retries to your co-conspirators that are also interested in knowing more about technological innovation that is occurring in Amateur Radio and encourage them to become a fellow subscriber.

- One particularly effective method of promoting Zero Retries is to add a mention of Zero Retries to your QRZ page (or other web presence) and include a link: https://www.zeroretries.org

  If you'd like to financially support Zero Retries, that is *greatly* appreciated and helps offset expenses incurred in publishing Zero Retries. Paid subscriptions for Zero Retries are *entirely optional,* as explained in this special issue of ZR: Zero Retries Administrivia - Activating Payment Options.

These blogs and newsletters regularly feature Zero Retries Interesting content:

- Dan Romanchik KB6NU mentions "Zero Retries Interesting" topics so regularly on his blog (that I otherwise wouldn't know about) that I've bestowed on him the honorific of Pseudostaffer.

- Jeff Davis KE9V also mentions "Zero Retries Interesting" topics so regularly on his blog (that I otherwise wouldn't know about) that I've bestowed on him the honorific of Pseudostaffer.

- Amateur Radio Weekly by Cale Mooth K4HCK is a weekly anthology of links to interesting Amateur Radio stories.

- Experimental Radio News by Bennet Z. Kobb AK4AV discusses (in detail) Experimental (Part 5) licenses issued by the US FCC.

- TAPR Packet Status Register has been published continuously since 1982.

- Other Substack Amateur Radio newsletters recommended by Zero Retries.

These YouTube channels regularly feature Zero Retries Interesting content:

- HB9BLA Wireless by Andreas Spiess HB9BLA

- KM6LYW Radio by Craig Lamparter KM6LYW (home of the DigiPi project)

- Modern Ham by Billy Penley KN4MKB

- Tech Minds by Matthew Miller M0DQW

The Substack email publishing platform makes Zero Retries possible. I recommend it for publishing newsletters.

If you're reading this issue on the web and you'd like to see Zero Retries in your email Inbox every Friday afternoon, just click below to join ~~100~~ ~~200~~ ~~300~~ ~~400~~ ~~500~~ ~~600~~ ~~700~~ *800+* other readers:

Please tell your co-conspirators about Zero Retries — just click:

Share Zero Retries

Offering **feedback or comments** for Zero Retries is equally easy — just click:

Leave a comment

If you're a fellow smart person that uses **RSS**, there *is* an **RSS feed for Zero Retries**.

Zero Retries (N8GNJ) is on Mastodon — n8gnj@mastodon.radio — just click:

Zero Retries / N8GNJ on Mastodon

Email issues of Zero Retries are "instrumented" by Substack to gather basic statistics about opens, clicking links, etc.

More bits from Steve Stroh N8GNJ:

- SuperPacket blog — *Discussing new generations of Amateur Radio Data Communications — beyond Packet Radio (a precursor to Zero Retries)*

- N8GNJ blog — *Amateur Radio Station N8GNJ and the mad science experiments at N8GNJ Labs — Bellingham, Washington, USA*

Thanks for reading!
Steve Stroh N8GNJ / WRPS598 (He / Him / His)
These bits were handcrafted (by a mere human, not an Artificial Intelligence bot) in beautiful Bellingham (The City of Subdued Excitement), Washington, USA.

2023-06-30

If you'd like to reuse an article in this issue, for example for club or other newsletters, just ask. Please provide credit for the content to me and any other authors.

All excerpts from other authors or organizations, including images, are intended to be fair use.

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Of course, I'm handicapped by only speaking and reading English, and the online translation tools are still clunky enough to only be able to get a general sense of what's being discussed in other languages. Eventually the emerging AIs should help a lot.

2
My thanks to Stan Horzepa WA1LOU for providing this link - I could not find an obituary at time of publication.

3
The January ARDC Newsletter stated the window for the second round of 2023 grants closed April 1st, but the May / June newsletter stated the second round closed May 1st. The ARDC website doesn't mention the closing dates for 2023 grant applications.

4
The legacy 44Net mailing list using Mailman is apparently being continued.