**Bacon Bits**

Flying Pigs QRP Club International, W8PIG
1900 Pittsfield St, Kettering, Ohio 45420
E-mail: w8pig@yahoo.com Web Page: http://www.fpqrp.com

FPQR membership is open to all licensed QRP operators who reside within 12,000 nautical miles of Cincinnati, Ohio.

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<tr>
<th>CONTACTS</th>
<th>NETS</th>
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<tr>
<td>Diz, W8DIZ  <a href="mailto:w8diz@cinci.rr.com">w8diz@cinci.rr.com</a></td>
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<td>Dan, N8IE <a href="mailto:n8ie@who.rr.com">n8ie@who.rr.com</a></td>
<td>Mon</td>
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<tr>
<td>Brian, KB9BVN <a href="mailto:kb9bvn@arrl.net">kb9bvn@arrl.net</a></td>
<td>Thurs</td>
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(All days/times listed are UTC)

ALL FPqrp frequencies are UP 4 kHz from the standard qrp frequencies except for 20 meters.

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**The WA1FFL Compact, Direct-Digital VFO – Built by K4VIB, Bill Harbour**

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Ramblings

Man, being a monthly newsletter guy sure makes the month go fast!! I'm stunned that it is already time for another Bacon Bits...but here it is. Bill Harbour has sent us a great article and review on the WA1FFL Direct Digital VFO circuit as seen in QST, Dan has found some neat Anti-Virus software, and who knows what else lurks in this issue.

The Net Report is missing this month, I didn't get any net reports in the mail. I know we're having nets but quite frankly I think the net reports belong on the mail list and not here.

Great job this month on article submissions!! Thank you very much. Keep them coming. Also, if you want to nominate a "Flying Pig of the Month", feel free...but include a story as to WHY and try to send a picture. No Piggie profile this month as I have no pictures!

72

DE KB9BVN – Brian Murrey

**WA1FFL Direct Digital VFO – by K4VIB**

I first saw this kit with its associated construction article, in the January 2002 issue of QST. The thing that caught my eye was the picture of the rig. It had its own optical shaft encoder, display and had a BNC connector built into the board. It looked simple enough to build. James Hagerty, WA1FFL, had done a good job of designing this VFO based on the latest research in digital signal generating technology. The basic cost of the kit is $35. I got the 5ppm oscillator (extra $10) and the custom programming for the 10Mhz wide version. Shipping and handling was $5 for a total of $60...not bad for a DDS VFO!

**VFO DESCRIPTION**

James describes the VFO as a "complete, digitally tuned, variable frequency oscillator (VFO) with six tuning steps sizes-100Khz, 10Khz, 1Khz, 100Hz, 10Hz and 1Hz." The output from the AD811AN opamp is at 500ohms. The VFO features the Analog Devices AD9833BRU DDS with, according to the article, " built-in 10 bit DAC, two frequency registers, uses serial control signals better close-in spurious energy suppression and simplified circuit architecture." Accuracy is on the order of 4ppm and power output is +13dBm (downward adjustable). All the proprietary software is contained in the Philips P87LPC762BN chip. An editors note in the QST article says that "the ARRL Lab measured phase noise at a level about as low as the Lab can measure." The VFO is powered by 12v and the AD811AN chip should have no less than 11v or signal distortion is a possibility.

While James describes the VFO as complete, the kit is not. To keep the total cost down, James provides the board with the DDS chip already soldered in, the Philips P87LPC762BN (and the chip socket) and the AD811AN. You'll have to purchase the BNC connector, resistors, capacitors, SN74HCT244N chip, Optical Shaft Encoder, LM340-AT5.0 regulator, Optrex Display and other chip sockets. The quality of the board is excellent, thoughtfully organized with solder mask, silk screened component locations and numbers and plated through holes. James provides some additional information with the kit which includes how to build VFO buffers, bandpass filters and how to connect the digital VFO to a tube rig.

Keep in mind that this rig isn't a general purpose frequency source. Originally, the kit was designed to provide 500Khz coverage on any band you choose. James extended the coverage to 1Mhz, then to 10Mhz on subsequent versions. The bandwidth limitations are imposed by the internal workings of the 9835 DDS itself. When building this kit it's important to remember that the VFO was designed to cover specific bands and as such in its initial form was more suitable for use in a single band rig. This in now way detracts from the usefulness of the VFO or the design effort that went into it. My VFO covers from 4.5Mhz to 14.5Mhz and should cover two or three bands depending on my IF frequency.

**KIT CONSTRUCTION**

Construction of the VFO was very straightforward, and although there were no assembly instructions per se, the construction article and other information provides all the reference material you'll need to build the kit. I did make a couple of substitutions. I used a 1N4004 instead of the 1N5819 (couldn't find it locally) and I used the CD74HCT244E instead of the SN74HCT244N.

I used alternating red and white wires to hook up the display so I wouldn't get confused in wiring it to the board. The Grayhill optical shaft encoder soldered in great and provides a neat touch to the rig. The encoder doesn't have that smooth feel but rather clicks as its turned. Pay special attention when you solder in the resistor arrays and make sure the dot on the array aligns with the marker on the board. As I said, the board is marked in such a way as to make instructions almost unnecessary. The encoder, resistor arrays and display were purchased from Mouser. All other parts came from my junk box, Spectronics or Radio Shack.

When power was applied the display sprang to life with 00000.000 and the step size. Pushing in the shaft of the encoder changes the step resolution and rotating the shaft quickly brings you to where you want to be. Note that the display reads from 0 to 10000 and that's not frequency. It's resolution steps. My particular VFO is programmed from 4.5 to 14.5Mhz. So to get the actual frequency you add 4.5 to what is on the display. For example: 5.606 on the display is 10.106Mhz output on the VFO. On retrospect I could have just used my frequency meter instead of purchasing the display and would have saved myself some money and got direct reading frequency.

I haven't yet put the VFO in its permanent home. My plan is to use the VFO and build two or three modular superhet rcvs...just connect the VFO to either of them and away you go.
CONCLUSION:
I definitely recommend this Kit. It's ideal for a one or two band QRP rig, it doesn't cost an arm and a leg, the kit quality is excellent, is easily built by someone with some soldering skill and is stable and accurate. James is also working on a 0-30Mhz version with a different DDS chip. WA1FFL can be reached at wa1ffl@arrl.net.

**Anti-Virus Report from N8IE**

Hello fellow Piggies and all Hams at sea!

I have run across a very good and most importantly FREE anti-virus program.

AVG Anti-Virus.

This program is pretty robust and offers features that are common to the two big commercial vendors, McAfee, and Norton AV. Such features are scheduling of updates, scanning of removable media, tech support, and E-Mail scanning. More advanced features are available in the AVG Professional Edition. A full commercial product offering maximum virus protection, product customization and most importantly free virus database updates and free technical support for life of the product. The full version retails for $39.95.

A version for multi-computers and servers are also available, and the company offers a 30-day money back guarantee.

AVG is compatible with MS Windows 95, 98, ME, NT, 2000, and XP. No listing is made for Linux so that OS might not be compatible, you will need to contact their Customer Support.

After my initial install and first scan, AVG detected several worm type viruses that McAfee had overlooked. They were cleaned and after 3 months of use I have yet to run across another virus. Another nice feature is incoming E-Mails (I’m using Outlook 2000) each get stamped with a certificate showing them to be virus free.

A very good deal for anyone on a budget or looking for an alternative to either McAfee or Norton.

72, oo

Dan, N8IE Ω

**Hey! Check this out…de AA8VS**

Wanna know about beacons?? Looky here! No more propagation guesswork!

[http://www.ncdxf.org/beacon/beaconSchedule.htm](http://www.ncdxf.org/beacon/beaconSchedule.htm)

The beacons transmit every three minutes, day and night. This table gives the minute and second of the start of the first transmission within the hour for each beacon on each frequency. A transmission consists of the callsign of the beacon sent at 22 words per minute followed by four one-second dashes. The callsign and the first dash are sent at 100 watts. The remaining dashes are sent at 10 watts, 1 watt and 100 milliwatts.

**Rumor is a horrible thing.**

Rumor has it: I was sighted at FDIM 2001. (I’m not saying I was or wasn’t, you’ll have to ask Phil WB8ABE, FP-61 or perhaps the cleaning lady who allegedly helped me out of that dumpster.)

Rumor has it: I was or have been abducted by aliens. (I will neither confirm nor deny this allegation, ask Jo K5HOY, FP-325, if anyone knows, she does.)

Rumor has it: Diz W8DIZ, FP-1 and others fabricated a Multi-Pig #4 with the blessing of the Vatican, and attributed the hideous effort to me. (Well, the Pope DOES know me.)

Rumor has it: that Joel KE1LA, FP-190 clandestinely in a depressed, funk-like trance turns his 40 meter tree-wire beam over the North pole and occasionally checks into the pig nets via long path using “AF4PS”. (Again, no comment.)

Rumor has it: I am a NoGA spy. (This one is DEFINATLY a bald-face lie, but I admit to affiliating with the NoGA QRP Club, AS a Flying Pig. Note: NoGA QRP Club will not respond to inquiries regarding this matter.)

Rumor has it: I never existed at ALL, that “AF4PS, FP-51” is simply a cruel hoax and FCC conspiracy. (I personally think it’s all a dastardly, covert effort to keep me from receiving the Flying Pig 2002 DXCC award Ed W1RFI, FP-400 is so graciously donating.)

Therefore, I’m submitting this material as some evidence that I do indeed exist, and remain available to accompany ANY Flying Pig who visits the Tampa Bay area to almost ANY eating establishment, but ESPECIALLY if it involves barbequed pig or even cow. So here goes:
#1 - I don’t want to be a NAME DROPPER or anything, but here in the first picture I (the one with the tie and glasses) am having breakfast with two of the absolute BEST contest ops out there: K4FB Paul, FP-124 (green shirt) and Jim N0UR, FP-448 (blue shirt). These guys are consistent top-ten finishers in the ARRL contests. You’ll find their calls printed in QST results, as well as the top QRP Fox hunt tallies. Paul heard we were having breakfast and just showed up. Jim came to town on vacation from the cold northern regions of Minnesota, where neither sleet, snow, rain, ice, nor dead of night keeps him from working for the Post Office. (Why is it that people who come to FL to visit me, even if they are from MN, are already better tanned than me?) Fred W2XN, FP-126 is taking the pic. (We stole his bacon while he was up and distracted by the camera.) Jack K4BYF, FP-191 wasn’t able to attend, but we saved a seat for him. It was worth the trip just to see Jim try to eat grits, plus somebody, I think it was Fred, BOUGHT MY BREAKFAST!!!!

This next picture catches Jim just prior to his first taste of grits.

#2 - Mikey WB8ICN, FP-68 is simply one of the nicest guys I ever met. You may have worked him as one of our Flying Pig Net Controls, or fell asleep in his room at FDIM. Mikey came to Tampa to actually work. He installs and repairs lasers, and get this… HE BOUGHT BREAKFAST!!!! So the LEAST I could do was wear his hat. We talked the waitress into taking the pic (JUST a picture, HONEST Mary Beth!)

Mikey and Mary Beth are headed this way in September to catch a cruise ship out of Tampa. Geeze, I may have to buy this time… naiihhhhh!!

#3 - OK, this next set is the highlight, but at the same time the lamest evidence. Our own Pappa Pig #1, W8DIZ Diz and phenomenal wife Nancy came to FL for a family visit. (I think Nancy had Diz condo shopping.) Diz had visited previously to show me the prototype of the Multi-Pig rig. He brought it to my house, hooked it up to my (then) not-so-stealth G5RV and we BOTH worked the Fox with one call each! We met at a barbeque restaurant and Nancy took this picture. (I can’t find the one with BOTH of us in the picture, NOR the one with the pig sign in the background. I think Diz, understandably, destroyed the one with him standing next to me, both in pig shirts.) Diz is the handsome guy on the left. (Note: I stole this picture capturing a MUCH younger likeness that I witnessed from his website.) Also… just so you don’t miss the pattern of this evidence… DIZ BOUGHT MY LUNCH!!!!
Well, there you have it, but if you are STILL not convinced, I would certainly welcome further opportunities to prove my existence, and proffer a standing invitation to any Flying Pig (even BRIAN KB9BVN FP-57) to visit the Tampa Bay area (but PLEASE don’t offer to straighten out our electoral process) and take me to breakfast, lunch or dinner.

oo
-MAC-
AF4PS
Odessa, FL
FP-51

**QRPp Attenuator – by Terry W1QF**

**QRPp ATTENUATOR**

By Terry, W1QF/8

It all started because I needed a simple, straightforward attenuator for QRPp. The Elecraft (there’s a plug) K1 and K2 are both reliable when set to 1W, but they are inaccurate as you get down towards 0.1W. So, this attenuator is intended to be driven between ½ and 1W. The maximum input power should be 1 watt unless you want to toast the resistors.

Each stage of the attenuator is a bridged-Tee, with input and output impedance of 50 ohms. And 3dB attenuation is half power, 6 dB is ¼ power, 12 dB is 1/16th power. The S unit (at least according to Collins Radio) is equal to 6dB, so if you reduce the output power by 6dB, the received signal should be reduced by one S value.

Bill Cunningham K4KSR pointed out to me that the 6dB steps don't seem to hold up very well at very low S numbers, and I have to agree. Dropping 2 S numbers may get you a "sri no cpy" if the receiving op. isn't a QRPp freak.

Here are Bill's Laws:

1. When dealing with another party not known to be playing the power-down game, S5 is roughly the threshold for inserting a 1 S-unit drop in power, which will also induce a drop in the readability index and some anxiety of perceived failure at the receiving end. With a willing participant, you can continue reduction to the point of true failure.

2. From S4 down, the readability and strength scales are no longer independent and the 6 dB per S-unit rule of thumb may reduce to 3 dB per S-unit.

Thanks Bill. At 1W, then-

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<th>Attenuation (dB)</th>
<th>Output Power (mW)</th>
<th>S Unit</th>
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<tr>
<td>3dB</td>
<td>500 mW</td>
<td>½ S unit</td>
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<tr>
<td>6dB</td>
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<td>21dB</td>
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I used 1/16 double sided copper clad stock (it can be cut with tin shears). Drill or punch the switch panel and end plates, then solder the switch panel to one of the sides and one of the end plates. That gives easy access for building. The shields can be 1/32 or 1/16. Then (after check out) add the other long side, and then tack down to the base at 4 corners.

The resistors can be pre-soldered to the switches. They don't need to be really accurate, 10% is good enough, and you can make them by series or parallel combinations. I used ½ watt R/S. Notice that the 6dB section consists entirely of 51 ohm resistors. Isn't that neat!

The copper box is really important. At 7mW, any common inductive or capacitive transfer will bypass the attenuator, so the shielding had better be good. To keep the input and output well apart, there is no Tx/Rx switch, so you may want to switch the attenuation out when receiving.

Terry W1QF FP #79 Oink! Oink!

**Oct Special Events – From ARRL Web – Need WAS? This might help!**

**Alexandria, MN:** Runestone ARC, W0W. 0501Z Oct 1-0459Z Oct 15. Discovery of America by early Vikings in 1362 (Kensington Runestone). 14.250; 20 m CW; 80 m SSB; 20 m PSK. Certificate. Bill Klundt, 509 Pine St S, Sauk Centre, MN 56378.

**Massillon, OH:** Massillon ARC, W8NP. 1300Z Oct 3-2200Z Oct 6. Massillon ARC Diamond Anniversary—75 years. CW all bands, up 35 kHz; SSB 40/20 meters, up 260 kHz, 15/10 meters up 360 kHz. Certificate. Massillon ARC, PO Box 73, Massillon, OH 44648.

**Anamosa, IA:** Jones County ARC, N0CWP. 1300Z-1700Z Oct 5. Anamosa Pumpkinstfest, in the pumpkin capital of Iowa. 14.260 ± QRM. Certificate. Jim McClintock, N0CWP, 301 Vine St, Morley, IA 52312.


St Thomas, USVI: US Coast Guard Auxiliary, N2A. 1400Z-2100Z Oct 5. 63rd Anniversary of the US Coast Guard Auxiliary. 28.355 21.380. QSL. Deborah Thomas, NP2DJ, PO Box 9280, St Thomas, VI 00801.


14.278 7.278. Certificate. NC4AR, PO Box 747, Trinity, NC 27370.


Mile Marker QRP - by Arnold CW Timm

From his humble Hogan on the Iron Range, Minnesota Ham pondered purposely. Perhaps there indeed was another approach to antenna reactance he hadn't tried? Inductance recently had been observed by science up on the giggle-hurts. Would HF harmonics also adhere to his qrp output? Maybe a dozen regen circuits or passive receivers (in series) attached to his wire beam, might transfer RF farther? The approaching winter weather made him ache already. Thinking about trudging through snow drifts to accomplish this setup, only aggravated him more.

On his morning jog he passed highway mile poles his wife was just now acknowledging. By placing infantile apparatus (detectors) at prescribed intervals, wouldn't the ground reflection or sky wave improve? The state took exception to lacing #30 magnetic wire from point to point. So he busied himself assembling crystal sets tuned to 7040. His arthritic fingers grew numb in the process and his blood sugar dropped. Running past such proportions each day soon had the outlet configured. The Flying Pigs were airborne over Ohio when he keyed his concoction.

Five watts of contest crackling bacon blabber — shot from his powder keg!

Huge RF flares formed over Cleveland, prompting local UFO complaints. What were those strange lights in the sky, they asked. Somehow his shockwave had amassed "capacity contours" along and either side of the net frequency. Hi KA0TPZ

wdx0awt@juno.com
## About the Flying Pigs QRP Club

### OUR MISSION:
1: Have Fun.
2: No rules.
3: Have a group of Friendly Hams who enjoy Amateur Radio, and sharing their skills with their fellow Hams.

### CLUB EMAIL POLICY:
These are not rules, just common sense.
Club email is not moderated, as we are not a stuffy group. You can send off topic messages about most subjects, but please keep it clean and in good taste. We do like good-natured ribbing and joking with each other, but we will not tolerate flaming other members or spamming the group.
We will remove offenders who abuse our open policy.

### CLUB WEB PAGE:
The club web page is our forum for sharing projects, and information about us. You are encouraged to submit your ideas and projects to be added to the web page.

### PROBLEM REPORTING:
If you are having problems with email, the web page, or a fellow club member, please report this to either:
- Diz, W8DIZ at w8diz@cinci.rr.com
- Rick, WB6JBM at ripowell@mpna.com
- Dan, N8IE at n8ie@who.rr.com
We welcome all to join the Flying Pigs QRP Club, and we hope you have fun! Ω