K1BKE

The KEY

The Newsletter of the Contoocook Valley Radio Club

Volume 11, Number 2 April, 1999

Programs

April 13, 1998—Come to the April meeting for a screening of "Last Voice From Kuwait." This exciting video chronicles the heroic efforts of Amateur Radio operators during Desert Storm. Produced by Frank Moore, WA1URA, WANE-TV. 1991. After the video we will hold a roundtable discussion to solicit ideas for upcoming programs. If you have anything to say on the subject, please be at the meeting to voice your opinion! If you can't attend the meeting, contact a club officer with your ideas beforehand.

CVRC meetings are held on the second Tuesday of the month at the Hopkinton Town Library in Contoocook, NH. Members and nonmembers alike are welcomed. Talk-in is on the K1BKE 146.895 -600 kHz (100 Hz PL) repeater.

The KEY is published every other month at the beginning of the even numbered months. The deadline for articles and submissions is the fourth Tuesday (coinciding with the usual business meeting schedule) of the preceding month.

NH QSO Party Report

Cliff Eisner, N1GJF

The 1999 NH QSO Party has come and gone with a great success and enjoyable time. It seems like we were just making plans for the contest and as usual time flies by and we can talk about the great time we had this year.

The club call, K1BKE was on the air for 26 of the possible 48 hours that clubs could operate during the contest. This was made possible by 12 club members, AF1T, N1SKZ, N1VRT, W1GTA, N1IIC, N1FOJ, WA1VKO, N1JHJ, WA1UKV, N1KPZ, K1PDY and N1GJF.

K1BKE's score was 19,926 points and with the addition of 170,078 known points donated (to K1BKE) by club members, gives The Contoocook Valley Radio Club the possible total score of 190,004 points in the contest.

The club has won first place in the NH QSO Party for the past three years. This is a great score in which the club can be proud of and hopefully give us a good score competing for first place once again.

My sincere thanks go out to all members for operating the club call and those who donated there many points to K1BKE. Many thanks to all Hams that made time to get on the air and make a contact with K1BKE. I enjoyed the many contacts with friends and new contacts around the country.

At left is a photo of Louise's (K1LAS) cupcakes made in honor of the second annual CVRC indoor spring hamfest! See page three for more information on the event.

A Simple Low Cost Magnetometer

Ken Wilkens, K1MID

This will be the first of a two part article on construction of an easy to build, solid state earth field sensor. The device will function in the same capacity as the larger and more complicated fluxgate unit that was discussed as part of our last club meeting's program presented by Dave Olean, K1WHS.

The device does not use a saturable core transformer or complicated AC drive circuitry and frequency measuring techniques. The device

is based upon a magnetoresistive sensor that when powered with 5 volts DC outputs a DC voltage proportional to a magnetic field strength.

The sensor consists of 4 resistors connected in a Wheatstone bridge configuration and packaged in a tiny integrated circuit type enclosure. The entire sensing device measures only 0.400 by 0.210 inch and weighs 0.14 gram.

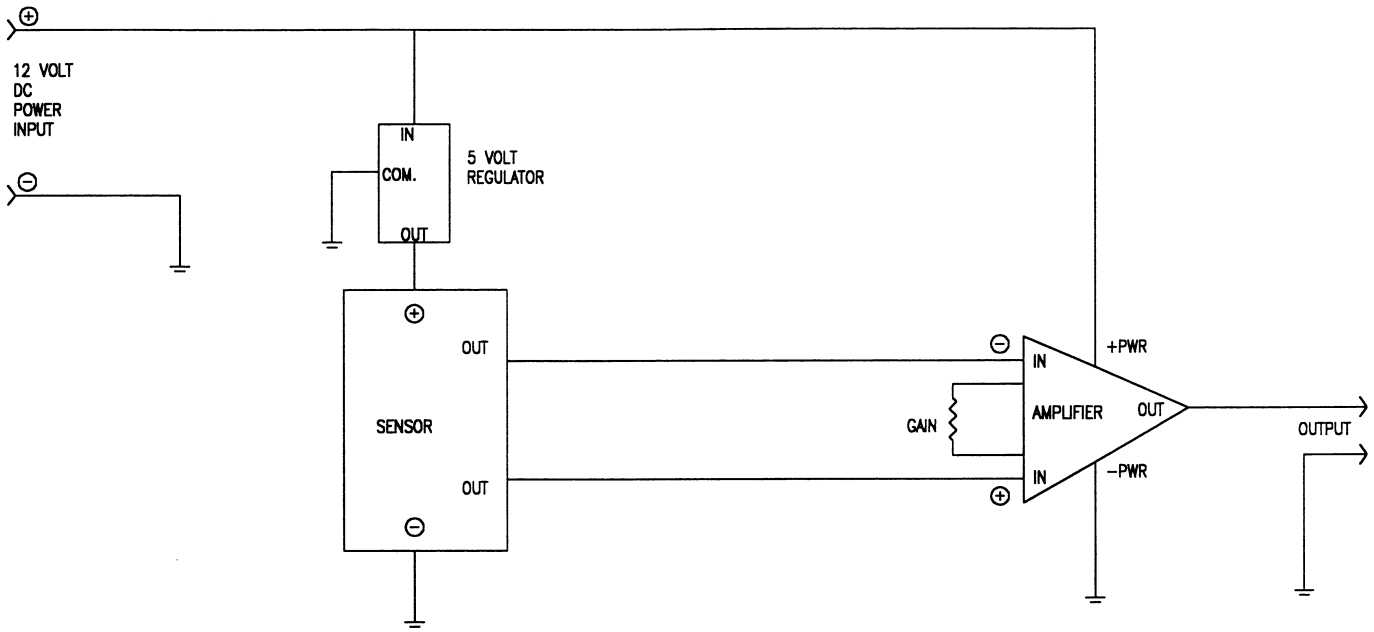
This sensor output voltage is +/- 16 millivolts when rotated within the earths magnetic field and has a linearity of +/- 0. 5 %. The cost for this sensor is $17. 00.

In order for the 16 millivolts to do useful things for the radio amateur, it will have to be amplified to a higher level. This is accomplished by an integrated circuit known as an instrumentation amplifier. These devices operate at frequencies all the way down to DC.

Analog Devices markets an amp - 04 which requires only a single 12 volt DC power source to amplify millivolt signals up to 1000 times. The gain of this device is set using a single resistor. It has a differential input which allows the input signal source to float above chassis ground while still maintaining a gain of 1000 across its two input terminals. The amp - 04 does not require a regulated DC power source and costs only $9.00!!!

Connecting the DC output signal from the magnetic sensor into the differential input of the instrumentation amplifier and adding 75 feet of 3 conductor wire will be all that is needed to get the underground portion of an aurora detector ready for burial.

While I complete the hand held version of this device for display at the next club meeting, you can begin to think about what type of output display we could couple onto the output of the amp - 04. The signal level at this point will be about a 1 or 2 volt change when a geomagnetic storm occurs.



DC MAGNETOMETER SCHEMATIC

Spring Hamfest

The second annual CVRC Spring Hamfest was held on Sunday, March 28, at the Henniker Community School. By all accounts the event was a resounding success. All of the thirty-six available tables were reserved before the flea market started and some were used by a second person after the first one sold out! The VE Session held in an adjoining room produced three new Hams and one new General Class licensee. Be sure to come to the April meeting for a report of exactly how much money the club made this year.

Check-in Table on right with treasurer, Dave, N1KTP (checkered shirt) and George, K1DBL. ARES and CVRC info table in center with Tom, N1SKZ (red shirt), Refreshment Table in rear with Jason, N1IIC (white shirt).

CVRC President Marc, N1QGM, at his table (All the good stuff was already sold by this point!)

Frenchy, K1DFQ, at his table. Why does that vertical antenna have a fishing reel and line attached to it?

Here is a view of the room while the vendors were still arriving (all of the tables were eventually filled)

Lindsay, K1JY, on cleanup detail at the end of the day

CVRC Tech-plus Class Update

Larry L. Beavers, W1GTA
CVRC Class Coordinator

The spring 1999 CVRC class has just passed week #3 and our 7 students (ranging in age from 12 to 60+) are doing great. All are taking code as well as theory to have the 5 wpm code speed out of the way in anticipation of the current license restructuring proposals. They look forward to the possibility of becoming general class operators in the future. They also seem to be getting a real kick from learning cw and being able to learn to communicate using another language by sending to each other in class. All of them are becoming accustomed to handling the key and hearing the characters as they should sound. The first week, one of the students could believe that she actually sent a message by morse code to another student across the table and he understood it! Hey, it's fun.

Dale, AF1T, has done his usual great job of teaching theory the last two weeks in a row. He took the second week since no one else signed up for it. Week #7 is still open for an instructor. It is the first of three weeks of technician class material on Common Technical Problems, RF Safety, Ionosphere/Propagation and Modulation/bandwidth/emissions. If you have April 22 available and can teach the class, I can get the material to you...just give me a call.

VE Session a Success

Dexter Howe, KY1M, reports that seven people sat for exams at the VE session on March 28 (Dexter is the CVRC VE Coordinator). The session was held in conjunction with our hamfest at the Henniker Community School. There were fourteen elements taken of which nine were passed. Of those attending two people earned new Technician licenses, one earned a new Technician Plus licenses. One person upgraded to a General Class license. In addition to Dexter, the examiners were Dan Cronin, N1OAJ, Lindsay Collins, K1JY, Bob Hadley, K1DWI, Larry Beavers, W1GTA, and Dale Clement, AF1T.

CLASSIFIEDS

Classified ads are free for C.V.R.C members. Ads received by the fourth Tuesday of each odd numbered month will appear in the next month's issue.

2-Meter HT For Sale:
Alinco DJ-F1T HT with tone encode/decode, wide-band receive with air band, soft case, ni-cad and alkaline battery packs, manual and schematic. $180.00
Call Tom, N1SKZ at 464-4095 evenings.

Merrimack County ARES Corner

Tom, N1SKZ, Emergency Coordinator

Net: 20:00 Local Time, Mondays
Frequency: 146.895 (CVRC Repeater)
Alternate: 147.570 Simplex
E-mail: N1SKZ@ARRL.NET
Phone: 464-4095 (evenings)

Here we are, one quarter into the 1999 and I'm happy to report, Merrimack County ARES is alive and well! Check-ins are strong and interest in ARES by other agencies is promising. Over the past several weeks, we have seen the ranks of regular participants in the net remaining stable with new, and not so new, calls checking in for the first time. ARES members took part in the CVRC flea market by manning the talk-in frequency and ARES table. My thanks to K1DBL, N1IIC, N1VRT and N1ZIH for their assistance during the flea market.

As some may be aware, N1VRT and myself attended a one-day conference in Connecticut dealing with the relationship between the American Red Cross (ARC) and ARES. Our brethren in Southeast Connecticut have a very strong relationship between their group and the local chapter of the ARC. To date they have installed a HF station, VHF/UHF communications and APRS at the ARC chapter house in New London. The station operates under the call of KB1DJO and runs not only weekly VHF nets, but also a weekly HF net. The HF net operates on 3.915 MHz at 2000 EST on Wednesdays and all are invited and encouraged to participate.

One of the most interesting pieces of information I learned at the conference is that Ham radio is typically considered to be THE method of communications at the Red Cross for emergencies of less then 72 hours in duration. The local ARC chapters do not have the radio equipment that would be needed for point-to-point communications in the event landline and cellular telephone communications were disrupted. The radio equipment in some chapters consists of low-band VHF HTs and mobiles, none of which utilize a repeater system. Given such limited resources, Amateur VHF and UHF equipment would be needed to provide communications between the affected area, staging areas, the local chapter and the Emergency Operations Center (EOC). HF stations may also be needed to communicate outside of the affected area to other chapters or to their headquarters in Washington DC. If the emergency extends past 72 hours, the ARC folks from Washington would respond with dedicated communications equipment which may include VHF and satellite systems. You can begin to realize how the skills of a well-organized and trained ARES group would be an asset to the ARC. It was a very inspiring conference that provided me with a sense of the type of assistance we may be able to provide to the Red Cross in our area. Stay tuned to this column and the Net for more developments between local ARC and your ARES organization.

No matter what agency or group asks for our help, you may wonder what type equipment you should have ready if you are needed to respond. Well the answer to this question, and many other ARES questions may be found in the ARES Field Manual available from the ARRL or at many Ham Radio stores. The Manual recommends the following equipment for a deployment of up to 72 hours:

2-Meter HT, 2-Meter Mag-Mount, Ear or head phones, Paper and Pencil, ARES ID Card, Extra Batteries, Appropriate Clothing, and Food and Water

This equipment may be packed in a knapsack or other suitable container that can easily be carried between locations where you may be deployed.

Please do not hesitate to contact me via e-mail, phone or radio if you have any questions or comments about ARES.

Hope to see you all on the net. 73, Tom

N1SKZ manning the ARES talk-in station at the Flea Market on March 28. The antenna was a mag-mount placed on Tom's car just outside the door.