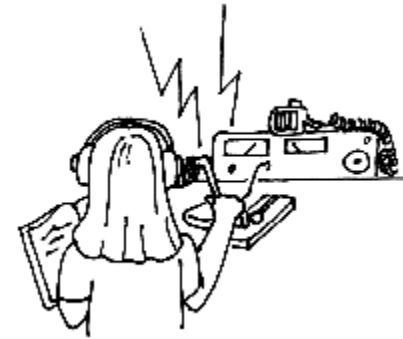


From the NCARC President

Joe Hawley KDØTYU
president@ncarc.net

Well, the Ham Fest is over and I think we succeeded with everything we tried to do. I want to thank all the staff who worked very hard for almost eight months to prepare for this show, and it seemed to reflect their hard work. Our plans for the next few months are to look for a venue to start holding our Rosin Corps events as soon as possible. Bob Schmid and I have been discussing different projects we could do, and I think we have some interesting ones lined up. Please stay tuned to the website for any information about upcoming events. We're also considering possibly having a Hamlet class or, as I like to call it, "I got my license now. What do I do with it?" in the next few months. More information to come on upcoming events. Let me know if you have anything that you would like to see us do that's different, and we will get it on the schedule. Thanks so much for supporting the Northern Colorado Amateur Radio Club.



-marie steele 1997

Public Affairs Office

Dave Winnett WØDDZ
pao@ncarc.net

Numbers as of February 13, 2024

YouTube

Views (last 28 days): 1,956
Watch time (hours, last 28 days): 237.6
Subscribers: 2,797
New Subscribers (last 56 days): 22

Top Video Views

Stealth Antennas – 886
Repeater 101 – 541
GridTracker - 99

Facebook

Members: 579
New Members: 4

NCARC Club Meeting

8:30 am Golden Corral opens- breakfast and socialize, **9:00 am** club meeting

LIVE and IN PERSON at

The Golden Corral
1360 Sculptor Dr, Loveland CO 80537

PLUS

Zoom streaming - All members will receive a link to the online broadcast.
If you don't receive a link by Friday before the meeting, please email treasurer@ncarc.net
You choose what you feel comfortable doing: attend in person or online.

Topic:

Silent Keys Estate Planning

Dino Papas
KLØS

Next meeting:

March 16, 2024
Golden Corral
Loveland CO

It's Never Too Late (or Too Early) to Renew!

Renew your NCARC membership.

It's quick and easy.

[Click here!](#)

NCARC Hamfest Raffle

Raffle License No. 2024-18877

And the winners are:

Grand Prize

Yaesu FT-891

Matt Thompson



2nd Prize

Yaesu FTM-330R

Mark Sheets



3rd Prize

Yaesu FTM200R

Shane Koch



4th Prize

Yaesu FT70DR



Mike Ring

5th Prize

Yaesu FT65R



Damon Ellis

Did You Know?

A regular contribution from Bob Schmid, WA9FBO

The Current Source



It's easy to identify *voltage sources* (symbol at left) because they're so common: 1.5 V flashlight batteries, 5 V USB chargers, 9 V smoke detector batteries, 12 V car batteries, 120 V outlets, 240 V outlets for clothes dryers (and linear amplifiers!). A voltage source outputs a constant voltage; the output current depends on the load resistance. If the resistance increases, the current decreases. An ideal voltage source can supply any amount of current, but in practice there's always a limit.

The *current source* is much less familiar (symbol at right). A current source outputs a constant current; the output voltage depends on the load resistance. If the resistance increases, the voltage increases. It's the dual of the voltage source. An ideal current source can supply any amount of voltage, but in practice there's an upper limit known as the compliance voltage.



Current sources are often buried within other designs and are used when we want a constant current independent of the load. Sometimes driving a device with a current is better than driving it with a voltage. For example:

- An uncharged capacitor or battery looks like a short circuit. Charging the capacitors in products from defibrillators to strobe lights with a voltage source requires a very large current at the start, possibly requiring overcurrent protection. A charging circuit based on a current source is smaller and more efficient.
- A torque motor allows a payload to be directly coupled to the rotor without a gearbox or transmission. Since torque is proportional to current, an adjustable current source can be used to precisely set the torque.
- The light output of a laser diode closely follows current. Laser diodes are usually driven with current sources so that the light output can be accurately controlled.
- Because LED forward voltage drops vary, driving a series string of LEDs with a voltage source can result in LEDs of varying brightness. Driving the string with a current source forces the current to be the same through every LED and ensures equal brightness.
- Current loops have been used for long-distance signaling, from the days of telegraph and Teletype to industrial analog control and DC remote control, due to their ability to tolerate voltage drops.
- Charging a capacitor with a current source yields a linear voltage ramp. Many ICs and analog circuits use that technique for measurement, waveform generation, and more.

Here's a way to visualize a simple current source. Imagine a 100 V power supply and a 1000 Ω resistor connected in series. If this circuit drives a 0 Ω load (a short circuit), the current in the load is 100 mA. With a 1 Ω load, the current is 99.9 mA. With a 5 Ω load, the current is 99.5 mA. With a 10 Ω load, the current is 99.0 mA. With a 20 Ω load, the current is 98.0 mA. In other words, if the load resistance is low compared to the output impedance of the current source, the load current remains constant despite changes in load resistance.

Shorting the output of a current source doesn't damage it because the current is fixed, whereas a voltage source may need protection from short circuits. However, a current source can't drive an open circuit (defined as a circuit in which no current flows), nor can it drive a very high resistance load if the compliance voltage is insufficient.

Get the Goods!

The [NCARC Store](#) is always open for business! We have stickers, T-shirts, patches, water bottles and keychains. We have monogrammed clothing too.

Upcoming Ham Radio Events

The Swapfest: Feb 18, 2024, Adams County Fairgrounds, Brighton, CO, [More info here](#).

LARCFest: April 6, 2024, Boulder County Fairgrounds, Longmont, CO, [More info here](#).

Quad Rock Race Event: May 11, 2024, Lory State Park, Fort Collins, CO. [More info here](#). Contact Ron KØAZA

Never Summer Race Event: Jul 26-28, 2024, Gould, CO. [More info here](#). Contact Wayne ADØKE

Megafest: Jul 27, 2024, Monument, CO. [More info here](#).

Red Feather Trail Jamboree: Sep 20-22, 2024. Red Feather, CO. [More info here](#). Contact Brian NØBCB

Blue Sky Marathon: Oct 19, 2024, Fort Collins, CO. [More info here](#). Contact Ron KØAZA

Weekly On Air Events

FoCo CW Round Table, Tuesdays, 8:00 pm MT, 7.118 +/- for QRM. [More info here](#).

NCARC Tech Net, Mondays, 6:00 pm MT, 447.275 (100 Hz tone)

NCARC Club Net, Wednesdays, 6:30 pm MT, 447.275 (100 Hz tone)

Biweekly Get Together

Martinez-Clarke Luncheon: every other Wednesday, 11:30 am, Perkins Restaurant, 2222 W Eisenhower Blvd, Loveland,

From the Editor

Ann Donoghue KØARD

newsletter@ncarc.net

The NCARC Hamfest was a big success!
Lots of vendors, buyers and happy winners of the raffle.
This month's club meeting topic is all too relevant, and an important one to consider!
Please send your articles, ideas for articles and announcements for inclusion in the newsletter.