

Mountain School Tech Tips: What's New With Avalanche Transceivers

I know there are a bunch of old timers out there who remember dragging a piece of cord behind them, that was (theoretically, at least) supposed to help their buddies recover them in the advent of an avalanche. There's also the not so old timers, like myself, who started out skiing with the old 257 kHz transceivers, complete with the ever so annoying ear-piece that never stayed in your ear, back in the day when we all used the grid method. Happily, technology has advanced since then, we're all on 457kHz and - most people anyway - have mastered the faster induction (or tangent) search technique. But, what else is new? Well, quite a lot.

Most importantly, you now have a choice between a digital transceiver and an analog transceiver. All avalanche transceivers transmit their pulse of electromagnetic energy (the "beep" you hear) using one antennae (usually aligned with the long axis of the transceiver), the difference between digital and analog transceivers is how the pulse signal is received and processed. Analog transceivers have one antennae and this is used to transmit and receive. The user hears a real time "beep" and (in most cases) also has some type of LED to help align the receiving transceiver with the transmitting transceiver. The interpretation or processing of the signal (i.e. aligning the searching unit with the transmitting unit to get the strongest signal) is done by the person operating the transceiver. Digital transceivers have two or more (the most to date is three) antennae and use some kind of microprocessor to interpret the signal. The output from a digital transceiver is a direction arrow and distance indicator. In other words, the interpretation of the signal is done by the transceiver.

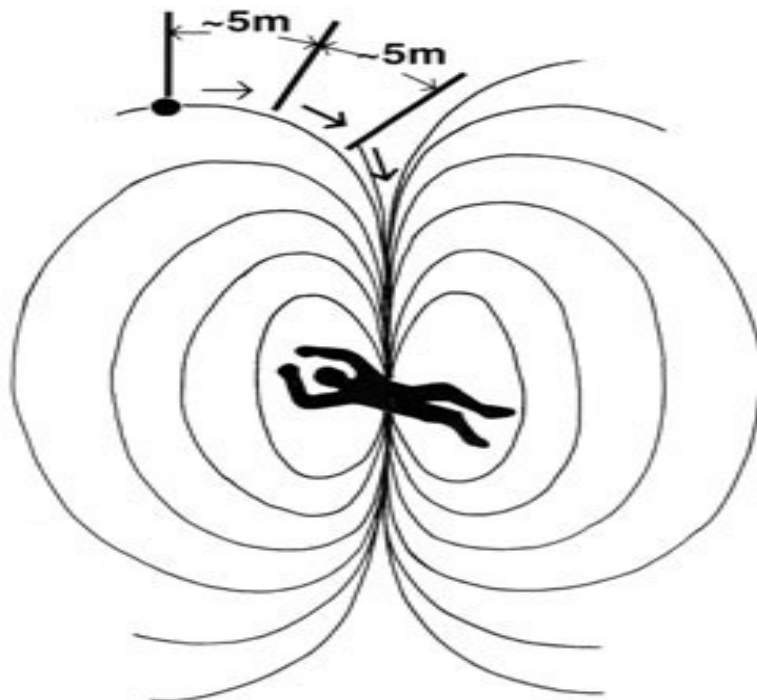


Figure 1: Schematic representation of electromagnetic signals transmitted by an avalanche transceiver - aka the flux lines

The advantages of digital technology have probably become apparent to anyone who has persevered (309 words and counting) thus far with this article: digital transceivers quickly put you on the “flux line” and keep you on it as you follow it in to the buried transceiver. No more stopping and starting to re-orient yourself with the flux line, just follow the arrow in. With one caveat: if the direction numbers are increasing you are walking the long way around the flux line to the buried transceiver and should turn and head 180 degrees in the opposite direction. The pinpoint search, remains the same old grid that you use with an analog transceiver, the only difference being that you are looking for the smallest distance in metres, not the loudest sound.

Most digital transceivers also provide some kind of additional feature(s) that helps untangle multiple signals in the case of more than one avalanche victim. These vary from the simple enabling of the real-time pulse tones with the Barryvox Opto 3000 to the complex (and not always reliable) scanning and marking of the Pieps DSP. Some of the newest three antennae transceivers (notably the Barryvox Pulse and Ortovox D3) also have functions that help eliminate the plethora of false maximums and minimums that plague deep burials (although in practice, some of these features are not performing as advertised).

It might seem as if technology has made searching so easy there is no need to practice anymore, but that just isn't so. New features on the digital transceivers require practice to become familiar with - how many of you Tracker owners really know what that “special function” does? - and most people still move far too fast in the pinpoint phase of the search, thus overwhelming the speed of the transceiver's microprocessor and actually slowing down the overall time needed to pinpoint the buried transmitter.

This article is already far too long to include a review of the avalanche transceivers out there. Instead, I'll point you to a web-page where all the most popular (and some of the rarely seen) transceivers are fully reviewed: <http://www.beaconreviews.com/transceivers/>