LABRADAR
THE HANDLOADER'S LIFE SAVER!

WRITTEN BY ~ GREG DULEY

Accurate chronographs have revolutionized both the quality of factory ammunition and handloading in the last 20 years

Suddenly manufacturers couldn't claim exaggerated velocities for their products anymore, as they were getting caught out by the number of shooters who now had chronographs. These shooters quickly called BS when they found the velocities didn't come close to matching those advertised. And handloaders have been able to work up far more consistent loads with a much better handle on pressure and velocity variations.

The large majority of these chronographs have used the photo-cell light-sensitive screen technology that relies on seeing the bullet passing over the screens to start and stop very accurate stop watches. **A simple little calculation in the various units "brains" of time taken to travel the distance between the screens and bingo you have the instrumental velocity.** As all this type of chronograph relies on is seeing the "shadow" of the bullet, the consistency of the lighting is critical to accurate measurements. Also the further apart the screens are, the more potentially accurate the reading will be. A lot of the cheaper chronographs have as little as a two foot screen spacing, which does limit the accuracy of their readings. If you take a few readings, the average will be near enough, but you can't guarantee any one reading is actually exactly what it says it is. In other words, you can't use this type of chronograph to judge Standard Deviation or Extreme Spreads - two very important requirements especially at longer range where excessive vertical in your groups comes from poor velocity consistency.

Oehler came up with probably the best of the light screen chrono's, the Oehler 35 and its associated Ballistic Laboratories that use the 35 system for the velocity measurement part of their measurements. The big advantage of the Oehler is you can set the screens as far apart as you want, and use a light box setup to completely control ambient light to be able to get very accurate and consistent readings. **Also the 35 uses three screens to take two measurements of every shot, and then compares them, so you can check the accuracy of that particular measurement.**

Next came acoustic chromos, that are activated by the sound of the bullet going past, but we've never found these particularly accurate. And then the magnetic field models that although very accurate, without any of the light variations issues, they have to be attached to the rifle barrel and so affect your barrel harmonics and point of impact so you can't test for both velocity and accuracy at the same time.

The state of the art military systems use Doppler Radar to track the path of anything from planes to rockets and bullets, all the way to the target.

These systems are wonderfully useful but very expensive, and many of us longed to be able to test our long range loads across these facilities. And then came LabRadar, a civilian company that managed to produce a scaled down Doppler radar system in a portable and reasonably priced package that made it suitable for private individuals.

I've been using a LabRadar for a numbers of years now - any time I'm away from the full Oehler 43 Ballistic Laboratory and lightbox setup I have on my home range. I've tested it many times against the Oehler 43, and it always agrees within a few fps which is very satisfying to know. What I especially love about the LabRadar is how portable and quick to setup it is, ideal for use in the field away from a formal rifle range. Within a minute I can have it set up on either its tripod or the flat plate bench mount, aimed at the target and operating. It makes it easy to record that most important velocity any time you are trying to do long range field validations of your ballistic solutions, so you know exactly what the velocity was for each point of impact – **not just using the average you got when you developed the load in what may be different atmospheric conditions altogether.** The LadRadar records and can display the velocity of your load at five distance intervals from the muzzle, out to as far as it gets a reading, so you can actually do a reasonable BC calculation of its results as well. Unfortunately it doesn't have the range of the large and expensive military units. To give you a rough idea its maximum range is about 60 yards for 22 cals, 100yds for 30 cals, and 130yds for 375cals. I have mine set to read every 15 yards to 75 yards, which seems to be about right to still get five reliable readings on the range of hunting rifles we work with. I have been able to get very useful BC calculations off the results out to 75yds, and have just been testing the new Hornady A-Tips whose BCs are simply mind blowing!

The positioning of the LabRadar in relation to the muzzle is important. For a non-braked bare barrel, you want the Radar 90 degrees/adjacent to the muzzle, and within a maximum of 18 inches. If you are using a muzzle brake, you need to insure the radar isn't directly in the muzzle blast, so this depends on the direction of your muzzle brakes ports. For a standard 90 degree or radial brake, position the Radar about 12 inches behind the muzzle. For an angled port brake with the ports pointing backwards, you are best with the Radar back at 90 degrees to the muzzle again, as the exiting gases will go behind it. For suppressors, again, 90 degrees to the muzzle of the can is best. If you have any issues getting the unit to trigger with a suppressor, then use the optional air rifle microphone trigger. That's what I use with my Oehler 43 light box set-up and it works perfectly.

The LabRadar can be powered by 6AA batteries or a USB power bank. It records to its internal memory and to an SD card. We don't have room here to go through all the functions and set up recommendations but unusually for this day and age, **it comes with a very comprehensive instruction booklet that makes it a breeze to use.**

WWW.OWLOPTICS.CO.NZ

Ziggy ringing the gongs across the LabRadar

I love the portability of the LabRadar, enabling you to record velocities any time you are doing long range validations in the field