PLRF 25C BT - Quick Review

In contemplating a one word summary of the PLRF 25C BT, “amazing” comes readily to mind. Then again, so does “solid”, “reliable”, and, of course, “expensive.” At $8500 for the Bluetooth capable model, it is a substantial investment. However, if your equipment gives you the ability to shoot and hit targets at 1500 meters and out, you will have to buy a rangefinder of such quality and superior engineering to insure consistent ranging results at those distant targets. If you can see a target anywhere within the possible range of your rifle, you want to be able to reliably get the range to that target. These days, depending upon the cartridge, this could be out to 3000 meters with some shooters pushing out to 4000 meters.

Of course, the phrase “long range” means different things to different people and if the phrase describes shots out to 1000 yards for you, then you do not need a PLRF 25C. There are a number of rangefinders currently available that can reliably obtain ranges for targets out to 1000 yards, and some, like the TruPulse 360R, a little further. But as targets extend out to a mile, there is not much out there that will return a range to a non-reflective target reliably, consistently, and without the need to repeatedly range the target in order to finally get the device to show a range instead of the infernal “----“. The PLRF 25C can range surprising distances. I’ve ranged targets as far as 9373 yards. Yes, it was a fairly clear morning with just a hint of haze. And it was a dark area in a large tree, not a light colored building with a flat surface angled away from me or a small animal sized target. But this little device ranged that distance repeatedly without a problem. I find it simply amazing performance that it could range that distance at all.

This is an initial review and a great deal more time needs to be spent ranging in different environments, different times of day, different size and reflectivity of targets, through different atmospheric pollutants. But I don’t need it to range 9000+ yards under any and all conditions. What I need is a device that will range a target I can see out to 3000 meters and range it consistently, repeatedly, and reliably. A rangefinder that can do that is a good match for any small arm cartridge that is currently available up to and including the .50 BMG. The first indications are that the PLRF 25C can be that rangefinder.

Beam Divergence

According the specifications for this device, the beam divergence is 0.7 Mil x 1.7 Mil which means that by 1000 yards the size of the beam is a 0.7 x 1.7 yard rectangle. It is important to know beam size so that you can visualize its footprint at the target and what else that beam may be hitting and returning. In this regard, once you understand beam divergence you need to find out where at beam footprint is relative to the aiming point on the rangefinder. The 25C has an aiming point that is two short lines crossed at right angles like a scope reticle. These lines are 4 Mils length so that from the center point the aiming lines extend 2 Mils in each direction. I took the time to find a distant target that was elevated above the horizon so I could see when the edge of the beam would move off the target and no range would be returned. For my unit the beam was approximately 1 Mil on each side of the center and approximately 0.4 Mil above the aiming point and 0.5 Mil below. So, when I range a target I can now visualize what else the beam is hitting on its way to and at the target as well as beyond the target. I have configured the system to give me up to 3 ranges so that if the beam hits an object (like a tree branch, fence, etc.) on the way to the target, it will still give me the range to the target although it will also give me the range to the tree branch, fence, etc. These ranges are given in order of returning signal strength so that it is possible to figure out which range represents that of the target and which were other objects that were hit by the laser beam. For example, if the rangefinder returns ranges of 27m, 384m, and 455m, if you are sure that you had the aiming point on the target you can figure that the 27m reading was the tree branch, the 384 was your target and the 455m was something beyond your target picked up by the beam that was larger than your target. But you will have a difficult time figuring that out if you do not know where the beam is relative to your aiming point and the size of the beam at the target. However, it is not always a given that the strongest signal is from the closest object. For instance, it is possible that the ranges in our example are 384m, 27m, 455m. This happens is the target at 384 is a good reflective target so that the returning signal is actually stronger than the signal reflected by a few small branches closer in.

One strategy to get rid of close intervening objects all together is to use the Distance Gate function. The user can set a minimum distance for ranging objects and any object reflected signal for any shorter distance will be blocked. The shortest distance is 200m and the farthest is 2000m. So if there are trees, fences, etc., between you and the actual target, setting the distance gate to block display of the trees, fences, etc., is one way to go.

Serial Communication

The 25C BT can communicate the range, azimuth, and angle to the target to another device, such as a Trimble Nomad, via a serial cable or Bluetooth.

Serial Cable

To communicate with a PC type device, which in this case would include a Nomad running a Windows Mobile operating system, the user needs either the SEV48 Data Cable or the SEV78 Data Cable with Remote Trigger. The latter is the better option. The cable has a Lemo connector for plugging into the 25C and an RS232 to connect to the PC device. To use this connector on a Nomad, the unit must come with a "Serial Boot" that incorporates the 9-pin RS232 connector. With the Interface mode on the 25C set to "PC" and the cable plugged into the 25C and the Nomad, simply open the Com1 in the Delta V. Each and every time the ranging button is pushed on the 25C, the range, azimuth, and target angle is transmitted to the software and a firing solution computed for that target. The RS232 connector on the Nomad is always Com1.

Bluetooth

The 25C has an excellent Bluetooth communication protocol. Once the pairing process is complete, the user can elect to have the device in Bluetooth ("BT") mode. The nice thing about this is that in BT mode, the serial data is still delivered to the serial cable port so that if the cable is to be attached for a period of ranging there is no need to change the settings back to mode "PC"; just leave the unit in "BT" mode and you can elect to use either mode to communicate with the software. If the unit is in "BT" mode but is not paired with the Nomad, after each ranging the unit will show the distance ranged and then begin flashing "BT WAIT" meaning that the Bluetooth transmitter is not paired, has not transmitted the data, but is waiting to pair with a device. Simply press the ranging button again and the message disappears and the unit is ready for the next ranging operation.

If the Nomad has previously been paired with the 25C and the 25C is in BT mode, during the "BT WAIT" period it is only necessary to turn the Nomad's Bluetooth receiver on and open the com port designated to receive data from the 25C device. When the port is opened, pairing occurs and all subsequent ranging operations will be broadcast by the 25C and received by the Nomad. Each time the ranging button is pressed the range, azimuth, and angle of the target is received and processed by the Delta V software

automatically computing a firing solution for that target. The 25C will continue to retain the paired connection for 15 seconds and if a second ranging operation is performed within that period, the data will be transmitted and a new 15 second timeout period begins. If no ranging operation occurs before the end of the 15 second period, the 25C terminates the paired connection and shuts down its Bluetooth transmitter. This short timeout period ensures that a minimum of battery energy is taken to power the transmitter thereby insuring an extended life for the battery.

However, if the shooter is scanning the area for targets or attempting to catalog multiple targets, 15 seconds is clearly too short a time to get the work finished and once the pairing to terminated, the shooter is forced to go back to the PLRF interface page to again establish a communication pairing between the two devices. To accommodate the need for a longer timeout period, the Vectronix engineers have added optional timeouts of 5 and 15 minutes. Using either of these gives plenty of time to finish the ranging work and gives flexibility to the user to trade off battery life for his needs to make real use of the rangefinder. In the absence of using Bluetooth at all, Vectronix says that one CR123 battery should provide 5000 ranging operations. How the habitual use of Bluetooth functionality and a 5 minute timeout impacts that number is not known at this time. But the 25C does keep track of each time the ranging button is pressed, so a careful record keeper can work out battery life based upon the way he uses this tool.

It appears at this time that the Bluetooth functionality is working extremely well. However, users should understand that reliable Bluetooth operation has only recently been introduced on Vectronix rangefinders. Although Vectronix has manufactured Vectors and PLRFs with Bluetooth for many years, it has only been in the last year that the Bluetooth protocol was re-engineered to work with Windows Mobile operating system devices. Therefore, the PLRF 25C BT unit that was manufactured recently works splendidly with the Nomad and, I suspect, other devices running Windows Mobile 5 or 6.x. However, older PLRFs and Vectors available on the used market may not have the current Bluetooth protocol even though they claim to have Bluetooth capability. Whether these older units can be upgraded I do not know.

Display Units
Range units can be displayed in meters, yards, and feet. It appears that irrespective of which units are selected, the accuracy remains the same: +/- 2m for ranges 50m to 1500m; +/- 5m for ranges < 50m or > 1500m.

For target azimuth and angle, the 25C can display either degrees or mils. If the user wants mils, he can choose 6400, 6300, or 6000 mils per revolution with 6400 being the default. The Delta V software can display target azimuth and angle in mil units and uses the NATO standard of 6400 mil per revolution so it is best to choose the 6400 option for the 25C such that what is displayed in the 25C is the same as what is displayed in the software.

Accessories
There is a short list of accessories for the PLRF 25C that includes a variety of tripods but they seem to be hard to find on the Internet. Contact Jim Goodman at Twenty20 Insight, Canada. www.twenty20insight.ca, 613.902.0153.

Anomalies
1. At local rifle range, I measured the distance from bench to target backing which was black tar paper. Distance was consistently displayed as exactly 100 yards. After mounting a white target, ranging from the bench yielded consistently 97 yards. Moving between the white target and the black target backing the range alternated consistently between 100 and 97 yards. Clearly the color and texture of the two surfaces was having an effect upon the distance computed in the device. And, in all fairness, the different results can certainly fall within the +/- 2m accuracy spec for the distance measured. Still, it is a 3% error and demonstrates why using a rangefinder to do scope calibration is not advised unless the rangefinder specifications advise accuracy +/- 1 foot at the distance of 100 yards/meters.

2. The PLRF 25C will not range through a pane of glass. I have found this true for all of the PLRF models I have used. It is not true for the larger Vector units; they seem to have no difficulty getting consistent distances through glass windows and even window panes that have been treated with solar reflective film. For some reason, that capability was not included in the smaller units.