

# Optical revolution in the connected battlespace

Soldier Modernisation talks to Mike Lewis, Rifle Sights Mission Lead for ELCAN Specter sights

**I**mproving lethality of the modern soldier is a multi-domain challenge, having to balance conflicting system requirements like weight and power against the desire to increase capabilities. It is also an ongoing challenge to navigate the technology landscape and help allied soldiers maintain an overmatch advantage on the battlefield.

The wishlist of modern militaries continues to expand. Every piece of equipment we place on a soldier must be lightweight, consume less power, be fully integrated as well as plug and play and integrate cutting-edge technology. New capabilities, not previously included in the man-portable domain, are becoming standard requests like onboard target acquisition and cyber-hardened integrated communication capabilities.

This sounds like the utopia of the modern battlefield. Raytheon ELCAN have designed a new fire control sight for soldiers that overcomes many of these challenges. More importantly, Raytheon ELCAN have developed a design framework such that this product will evolve as

our battlefield and technology evolves to provide a future-proofed system for the modern militaries.

**Q: Could we talk about the new sight and its use on the modern battlefield?**

**A:** It is an exciting time in our product revolution. I see this as the first step of many in our creation of intelligent optics. While relying on our strengths designing rugged, reliable optical systems we have incorporated advanced sensors including an integrated laser rangefinder into a 1-8 zoom scope. We have a digital display injected into the field of view and an onboard ballistic computer. By integrating these capabilities, we are able to evaluate environment and mission data within seconds and calculate a digitally disturbed reticle. This allows a shooter to be more effective, with a faster response to increase their lethality and survivability. As mentioned, I see this as just the first step. Over the next 10 years, this revolution will create an expanding capability for allied soldiers. That future will include networked sights, fused sights, augmented reality, and advanced sensors.



Deliveries have started to the Danish Army. DALO selected the ELCAN Specter DR 1-4x dual role sight for use on rifles and light machine guns and the ELCAN Specter DR 1.5-6x military weapon sight for their heavy machine guns.

During a recent field trial, we had untrained shooters, alongside snipers and trained military on a test range with 600, 700 and 800-meter targets. Not surprisingly, the untrained shooters missed every target at those ranges with conventional weapons and optics. With the DFCS, the untrained shooters hit 100 percent of the targets at 600, 700 and 800 meters. The impact this system has on reliability, effectiveness and ultimately survivability of soldiers is evident.

**Q: Can we discuss your current product development (strategy)?**

**A:** Our product development strategy is focusing on two main areas. First to expand the missions that we support, second to increase our advanced capabilities. To expand our mission support we have been looking at strengthening our performance on adjacent platforms like machine guns, extending our range and developing CQB capabilities. For machine guns, ELCAN Specter sights are now evolving the weapon's role from suppressive fire to an effective targeting tool. The success of our product development has always been driven by our customers' requirements. By working closely with our customers, we tailor our developments to meet those needs.

Our advanced capabilities are focusing on increasing lethality as well as enabling soldiers to be more effective within the battle space. The integration of more capability into lightweight, modular packages will enable soldiers and command to make quicker decisions under any conditions.

**Q: What advanced capabilities will you be integrating?**

**A:** We are adding wireless communications and cameras to the sights to allow sharing of both images and information between units and command. Advanced software processing will also enable active target tracking and augmented reality capabilities.

**Q: Can you tell me more about the Danish Program and the reasons they selected your products?**

**A:** I can't speak on behalf of the customer but I can tell you that we are excited about continuing our support for our Danish Allies. We have started deliveries on this program. DALO have selected our DR 1-4x for their rifles and light machine guns and our DR 1.5-6x for their heavy machine guns. The choice of all three weapon-platforms demonstrates the ruggedness and reliability of our sights.

DALO has also upgraded the sights to include an ambidextrous lever, integrated laser safety filter and integrated rail, this allows any member of a squad the use of any weapon and helps ensure the safety of the user and the equipment.

**Q: What does "future-proofing" mean for a soldier sight/system?**

**A:** An important part of supporting our customers is developing products that can evolve through this optics revolution. Our design strategy is to use a modular approach such that as technology evolves we can upgrade sensors, controllers, power management and communication.



*The current configuration of the ELCAN Specter DFCS (digital fire control sight) takes eight pieces of mission information (temperature, humidity, atmospheric pressure, range, weapon, ammunition, and weapon tilt) and reduces that down to a ballistic solution in a split second.*

We would like our customers to think of our product as a dynamic solution that will evolve with them and develop new capabilities to help them achieve and maintain an overmatch advantage in a connected battlespace.

**Q: What benefits do these provide to soldiers?**

**A:** The benefits can typically cover two fronts. One front is focused on increasing effectiveness, improving accuracy, and reliability. The second front is managing the information that is flowing to the soldier and distilling that down to actionable information that can be applied instantly. As an example, our current DFCS (digital fire control sight) takes eight pieces of mission information including temperature, humidity, atmospheric pressure, range, weapon, ammunition, and weapon tilt, and reduces that down to a ballistic solution in a split second. This helps soldiers increase the chance of first hit on target, making them more effective and keeping them safer.

**Q: What is your technology horizon or timeline for incorporating these advanced capabilities?**

**A:** The timeline for these advanced capabilities is typically paced by two challenges - managing the weight and power. As we add these advanced capabilities they obviously add weight and power demands. We know that every gram matters for a soldier so challenging industry on weight solutions is critical. I have had many discussions with our customers in which they know that power management is a pacer for the technology and therefore product development. Technology, like the powered rail or wireless power, will be key enablers for our developments. In line with the future-proofing concept and constant evolution, we view more of a gradient of capabilities rather than a fixed horizon. But to your question, some of these capabilities like our DFCS are ready now. Each year over the next 3 years will see many of these capabilities go live as part of our product revolution. ■