

# Jenoptik's Powerful DLEM 20 Laser Rangefinder Pushes the Limits

(Photo: Jenoptik)



The release of the latest family member of Jenoptik's diode laser rangefinder modules (DLEM), designated DLEM 20, addresses the trend for Size, Weight, Power (SWaP) and Cost optimised devices for today's dismantled soldier and lightweight UAV applications.

## Less Weight to Carry and a Wider Reach

Effective firing ranges of 1.5km and beyond with today's rifles require the shooter to have very accurate information about the range to the target to increase the first hit probability. In the past dedicated handheld laser rangefinders (LRF) were often used. As LRF technology advanced over the last couple of years, the LRFs have been shrunk to the size of a match-box and integrated weapon mounted solutions have been developed. The main advantage of weapon mounted solutions is that the sniper does not have to carry a rather heavy second piece of optics, but can use the already present rifle scope instead as the LRF is co-aligned with the rifle scope. Apart from devices that only provide the range, clip-on solutions which integrate other lasers (visible and infrared) for pointing and illuminating as well as ballistic computing have been developed in line with the trend towards multi-functionality devices.

The new DLEM 20 is the ideal candidate for this kind of equipment as it is the most powerful sensor in its class weighing less than 33 grams. Its very small divergence also results in a very small laser spot on target – even at long distances. This enables the shooter to get range to target instead of to surrounding objects, which would lead to limited reliability of the range reading. Capable of handling shocks in excess of 1,500g, it can be mounted on any kind of rifle in service today and in the future. Derived from the field proven DLEM SR, of which thousands of units have been delivered worldwide, the new DLEM 20 pushes the performance limits further. Out of a miniaturised package it can range man-sized targets out to 2km and extended targets out to five kilometres.

## Reduced Ammunition Cost and Increased First Hit Probability for Airburst Ammunition

In today's asymmetric warfare when enemy forces operate from behind protective barriers the use of airburst ammunition against such targets in

the form of 25m and 40mm grenades is becoming more and more common. The "smart" airburst ammunition is programmed to detonate at a defined time after leaving the barrel, which could for instance put the high explosive round just behind and above a brick wall where the target is hiding. An accurate and reliable range output from the LRF is essential for increasing first hit probability and reducing potential collateral damage and for the fire control system to determine the right aiming point for the soldier to compensate for the trajectory of the grenade. That is the only way to ensure the ammunition detonates at the desired position and affects only the engaged target and thus providing more security for the task forces.

The DLEM 20 is a huge leap forward towards meeting these requirements as its accuracy has been increased to a fraction of a metre. Its high degree of accuracy is independent of the range and ensures reliable range output for distances of

up to five kilometres. The use of sophisticated software algorithms ensures the accuracy is also maintained over the wide operational temperature range of -40°C to + 80°C as well as on targets with low and high reflectivity.

## More Airtime and Increased Functionality for UAVs with Micro Gimbals

UAVs are becoming more and more popular for reconnaissance tasks when information is to be gathered from positions that a person cannot reach or that would involve an unnecessary risk to that person. Small UAVs weighing a few kilograms that can be transported easily and deployed very quickly are increasingly being equipped with stabilized 4-7in micro gimbals containing electro-optic (EO) payloads that provide more than just a day- or infrared-video feed. Geolocation of observed targets becomes possible when the position and the heading direction of the UAV in combination with the range to the target are known. Due to the size and weight limitations of these kinds of UAVs the battery capacity is the limiting factor of the achievable air time, which is desired to be as long as possible without increasing the size and weight. Therefore size, weight and power efficiency of the EO payload play an important role in maximizing the air time of any given UAV.

With a volume of less than 37ml, a very light weight and very low power modes of operation the DLEM 20 addresses all the requirements for maximum air time for small UAV applications. Waking up from the off state into measurement readiness takes less than 100ms, which even allows the device to be maintained in the off state for most of the time when it consumes no power. The continuous range output with up to 25 times per second simplifies software design for the gimbal when implementing target tracking or speed measuring functionality. The proven capability to range extended targets up to 5km underlines the DLEM 20 being the ideal rangefinder sensor for small, high-performance gimbals.

The DLEM 20 is based on the field proven product DLEM SR, which has been deployed on many high-powered weapon platforms, missile launchers, UAVs, base camp protection, dazzler safety, space applications, etc. It is the worldwide smallest and lightest eye-safe class 1 LRF with a range capability of 2km against a man-size target and 5km at extended targets. It marks the first model of a new generation of DLEM laser rangefinders

which are currently undergoing a major redesign in order to meet market needs. Hence, the substantially smaller, lighter and more power efficient LRF modules with significantly increased ranges are to be released in the near future.



(Photo: Wilcox Industries)



(Photo: US Army)



(Photo: DST Control)

