

SAFETY OF USE MESSAGE

L3 EOTech Enhanced Combat Optical Sights

SU-231/PEQ NSN: 1240-01-533-0941

SU-231A/PEQ NSN: 1240-01-587-9345

SU-231D/PEQ NSN: 1240-01-591-7601

SU-253/PEQ NSN: 1240-01-566-2844

SU-264/PEQ NSN: 1240-01-590-7763



14 September 2015

Applicability

This safety of use message applies to all L3-EOTech Enhanced Combat Optical Sights (ECOS) SU-231/PEQ, NSN: 1240-01-533-0941, SU-231A/PEQ, NSN: 1240-01-587-9345, SU-231D/PEQ, NSN: 1240-01-591-7601, SU-253/PEQ, NSN: 1240-01-566-2844, and SU-264/PEQ, NSN: 1240-01-590-7763. In the text below, the specific information is applicable to both the SU-231/PEQ and SU-231A/PEQ, because those are the products most prevalent in the field. The effects will be similar on the SU-231D/PEQ, the SU-253/PEQ and the SU-264/PEQ, but are not quantified at this time.

Purpose

The purpose of this safety of use message is to inform the operational community that the Program Office has identified performance issues with the ECOS systems which may affect the aiming precision of these optical devices. The ECOS systems performance issue is Thermal Drift which affects point of aim point of impact as operating temperature changes. The Program Management Office (PMO) has been working to resolve this issue with the Original Equipment Manufacturer (L3-EOTech), but that effort, to date has not eliminated the issue. This safety of use is being issued so the operational community can mitigate the risk associated with using the ECOS system to direct fire.

Important Information

Thermal Drift - After zeroing the ECOS systems at or near ambient temperature (73°F), the zero position will shift during operating temperature changes. The ECOS systems have the potential to shift approximately +/- 4 Minutes of Angle (MOA) at -40°F and 122°F. Due to thermal drift, the sight may not return to zero. The systems have the potential of approximately a +/- 2 MOA zero shift upon return to ambient (73°F) after being exposed to any temperature between -40°F and 122°F temperatures. Impact to the operators is the sight zero will be affected at varying operating temperatures. Please refer to below table to determine the MOA effect in inches based on target range:

MOA Effect RANGE (m)	MOA (Point of Aim to Point of Impact in Total Inches of Error)												
	0.5	0.75	1	1.5	2	3	4	5	6	7	8	9	10
10	0.1	0.1	0.1	0.2	0.2	0.3	0.5	0.6	0.7	0.8	0.9	1.0	1.1
20	0.1	0.2	0.2	0.3	0.5	0.7	0.9	1.1	1.4	1.6	1.8	2.1	2.3
30	0.2	0.3	0.3	0.5	0.7	1.0	1.4	1.7	2.1	2.4	2.7	3.1	3.4
40	0.2	0.3	0.5	0.7	0.9	1.4	1.8	2.3	2.7	3.2	3.7	4.1	4.6
50	0.3	0.4	0.6	0.9	1.1	1.7	2.3	2.9	3.4	4.0	4.6	5.2	5.7
75	0.4	0.6	0.9	1.3	1.7	2.6	3.4	4.3	5.2	6.0	6.9	7.7	8.6
100	0.6	0.9	1.1	1.7	2.3	3.4	4.6	5.7	6.9	8.0	9.2	10.3	11.5
150	0.9	1.3	1.7	2.6	3.4	5.2	6.9	8.6	10.3	12.0	13.7	15.5	17.2
200	1.1	1.7	2.3	3.4	4.6	6.9	9.2	11.5	13.7	16.0	18.3	20.6	22.9
250	1.4	2.1	2.9	4.3	5.7	8.6	11.5	14.3	17.2	20.0	22.9	25.8	28.6
300	1.7	2.6	3.4	5.2	6.9	10.3	13.7	17.2	20.6	24.0	27.5	30.9	34.4

Example: If you have a 4 MOA shift (2nd row 4 MOA), you will have a 4.6" shift if target is at a range of 100 meters (1st column 100 m).

Safe Use

The ECOS systems sight zero position should be verified and adjusted accordingly during and after exposure to temperature extremes.

Also refer to prior safety of use message issued on 16 March 2015 (Rev13: 40 03/12/2015), which discusses fading reticle and parallax error. Both conditions discussed in that message still exist. Details from that message follow:

Fading Reticle - The complete 65 MOA ring with 1 MOA dot reticle may not be visible to the operator throughout the entire viewing window of the ECOS-Q optic. The ECOS-Q system's age and environmental exposure are factors which accelerate reticle dimming. Impact to operators is the holographic reticle may not be visible in all firing positions.

Parallax Error – Parallax is an apparent change in the position of an object resulting from a change in position of the observer. The 65 MOA ring with 1 MOA dot reticle point of aim will appear to move in relation to your target during off-axis firing positions where maintaining cheek-weld and sight picture is not feasible. The ECOS-Q system has the potential of approximately 4 Minute of Angle (MOA) parallax error at 70°F and approximately 6 MOA parallax error at 5°F. Impact to the operators is the point of aim / point of impact will be affected by a MOA parallax error, in off-axis firing positions at all temperatures.

Path Forward

The Program Management Office will develop a bridging strategy.