

L-CAS - LASER COLLISION AVOIDANCE SYSTEM

L-CAS

Command Light, in collaboration with Real Fire Tools, has developed a Laser Collision Avoidance System (L-CAS) that creates a heads-up display when approaching a structure with an aerial ladder. No more relying on spotters, whose time could be spent better with other operations.

The L-CAS uses three laser beams that appear on the building. As an aerial ladder approaches the building, the beams of light move closer together giving operators a precise indication of the distance from the building. When using the L-CAS in tests, operators were accurate within 4 inches, even when ladders are extended to distances of 80 and 100 feet.

The intuitive system is as effective with all three aerial movement axes. Whether you are extending the ladder, rotating it, booming it in, or a combination of all three, the L-CAS will give you the confidence of knowing exactly how far from the building you are.

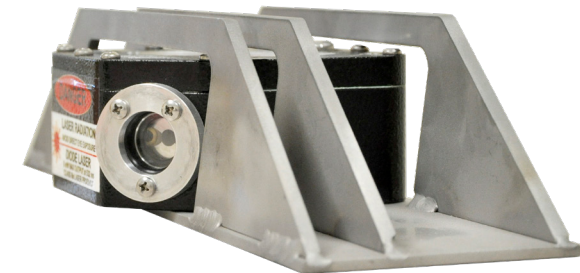
The L-CAS also increases accuracy when laddering a roof. The operator is able to see exactly when the tip of the ladder has crossed the edge of the roof, as the beams of light will disappear. No more expectations of a six foot aerial overshoot, only to find it overhanging two feet making the transition of the roof much more risky.

TECHNICAL SPECS

HxWxD (Nested):	2" x 5.5" x 4" - 50mm x 140mm x 100mm
Weight:	2 lbs - 1 kg
Power Requirements:	12V DC - 20w - 1.6amps
Lasers:	3 - in order to be able to view from any situation

OPTIONS

Armour Package: Stainless steel armour to protect L-CAS from bumps, drops, etc.



shown with optional Armor Package



L-CAS by Command Light in collaboration with Real Fire Tools

The Laser Collision Avoidance System from Command Light, or L-CAS for short, uses laser beams projected from the tip of an aerial ladder to create an intuitive, heads-up indication of distance from the aerial to a structure.

The L-CAS was invented by a veteran firefighter that found that lasers are the best way to artificially create the visual effect he saw when the sun was to his back as he extended the aerial toward a building. The shadow of the aerial climbed the wall of the building, as the aerial extended toward the building, until it met the tip of the aerial as the aerial reached the building. He recognized that the shadow was a perfect indicator of the distance between the tip of the aerial and the building.

When looking down the length of an extending aerial, past about 30 feet, our binocular vision loses ability to perceive distance accurately. In observations of experienced aerial truck operators, or ATOs, this phenomenon produces a typical error in judging the distance from aerial to structure of about 10-15% of the operator's distance from the aerial's target. For example, we saw that when an ATO tries to extend an aerial toward a structure so that the aerial tip stops 6 inches from the structure, he or she is likely to stop 5-6 feet short of the structure at an extension distance of about 50 feet. This error grows to about 10-12 feet short when extending 80 feet, and so on.

Under the same conditions, the L-CAS reduced the operator's error in judging these distances to typically 3-4 inches, even at extension distances of 80 to 100 feet.

The L-CAS is as effective to use with all three aerial movement axes so it won't matter if you approach the building while extending the aerial, rotating it, booming it in, or a compound movement including all three.

The L-CAS also increases accuracy when laddering a roof. The operator knows the tip has just crossed the edge of the roof when the lasers disappear over the edge of the roof. The ATO then further extends the aerial the distance they want it to overhang the edge.

Aerial operators have tested the L-CAS and found they were comfortable with it after only minutes of practice.

An L-CAS unit should be installed on both sides of the tip of an aerial to complete the system. If a unit is placed on one side only, and the aerial is used at an angle leaving the L-CAS on the far side of the aerial away from the wall, the L-CAS will remain too far from the structure to give accurate positioning information for the side nearest the wall.

With the "heads-up" visual nature of the L-CAS, aerial operators need not look away from the tip of the aerial. Other collision avoidance systems, like those based on technology found on rear bumpers of some newer cars, provide a warning indicator on the aerial control panel, requiring the operator to look down away from the target.

Should the L-CAS fail for any reason, say from an electrical short in the apparatus or something, it is immediately recognizable to the operator.

A known limitation of the L-CAS stems from a federal regulation requiring that any laser used in the presence of unprotected eyes be no higher than 5mW in strength. This limitation means that on a bright sunny day, typically most people find the laser projections to be useably visible on all sides of a structure except the surface in direct sunlight. However, this is also the only surface on the structure that will show the natural shadow of the aerial.

WARRANTY

Command Light products* come with a industry leading 5 year warranty against any defects in materials and workmanship when used and operated for a period of five years. If during this time period, you have any malfunctions not related to misuse, accident, neglect, or normal wear and tear, please take the following steps in order to have your light tower serviced under Command Light's warranty.

Please make contact with us as soon as problems arise in order to execute our warranty. We must have knowledge of the issue and a work order in place in order to pay or reimburse the department with the issue. Any unauthorized service voids this warranty. (No work is authorized until the call is made to us)

*excludes light producing components (bulbs, lasers, LEDs) These components come with their own manufacturer warranty. Contact us and we can help get it.

WARRANTY PROCESS

1. Contact us immediately for initial diagnosis and parts if needed at 800-797-7974 or info@commandlight.com
2. You will need to have immediate access to light tower. This process can be done by individuals with little mechanical ability. (involves pushing buttons and telling us what the light tower is doing or not doing)
3. We then send parts (if needed) and have a technician dispatched (if needed) with a written work authorization number and a base amount of hours allotted to do repair
4. We remain available for service support via phone, email, or video conference while technician completes repair, also to extend original time allotted if additional issue arise
5. Mark repair as completed and validate the work authorization number for hours of labor / travel rates as agreed during diagnosis
6. Finally, we will pay out or credit the invoice when we receive it from person/company performing the repair