

FA-165

A Revolutionary Short Range Aton Lantern



with Optional High Conspicuity Strobe Flash

The FA-165 is designed to eliminate problems with light washout in areas with significant background lighting and the phenomena of buoy lights and beacons seeming to “disappear” as a ship approaches the light. This is especially true with large vessels and is the result of vertical divergence that focuses the light in a narrow beam in the horizontal plane.

Large Vertical Divergence

The FA-165 uses a high flux lambertian LED source. With a near uniform output from -30 to +30 degrees vertical divergence, the FA-165

You don't need a brighter light if you have good vertical divergence

ensures the mariner will be able to see the light with equal brightness as the vessel approaches the buoy—it can even be seen looking directly down on the light when close aboard—and provides a much higher probability of detection, even with significant buoy roll in rough seas.

High Conspicuity Option

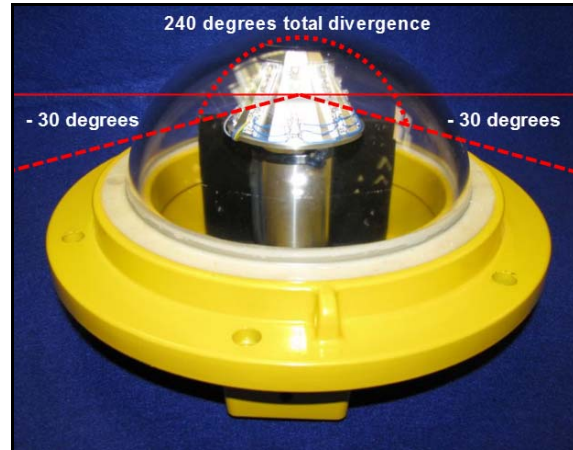
Flickering the LEDs at a 7 Hz rate simulates a strobe effect providing an unsurpassed level of conspicuity and eliminates the problem of hard-to-see buoy lights in areas with high background lighting.

The lantern enclosure of cast marine grade aluminum with an upper section of a tempered, toughened glass globe cemented into a support ring provides superior performance over plastic products in high temperature and high UV marine environments.

The LEDs are mounted on metal core PCBs with heat pipes to cool the LED arrays. This highly efficient cooling system gives the LED array the highest design life in the marketplace (greater than 60,000 hours).

The FA-165's rugged enclosure ensures the life of the lantern housing will last the life of the LEDs.

Form no.: 031412E



MODEL FA-165

Tri-Color LEDs: User can select Red, Green or White LED output by switch setting. Yellow color available on request.

Flash Codes: 256 selectable, strobe flash

Input Voltage: 12-24V

Watts (fixed)	Red cd	Green cd	White cd	Yellow cd
9.2	56	70	84	70
4.6	30	37	45	37
2.3	15	18	23	18

Power settings are user selectable

Equivalent Detection Range due to increased vertical divergence: 6 + nm.

Mounting: Four 7 mm diameter holes, 90 degrees apart. 229 mm (9") x 191 mm (7 17/32").

“I commend Automatic Power for providing a short-range navigation lantern that provides significantly improved, continuous, visibility from approach, to close aboard, to departure. The FA-165 lantern overcomes a significant shortcoming in existing buoy lanterns.”

Captain James T. Cushman
Master Mariner
Maritime Operations Consultants, Inc.



WHY VERTICAL DIVERGENCE IS MORE IMPORTANT THAN INTENSITY FOR BUOY LANTERNS

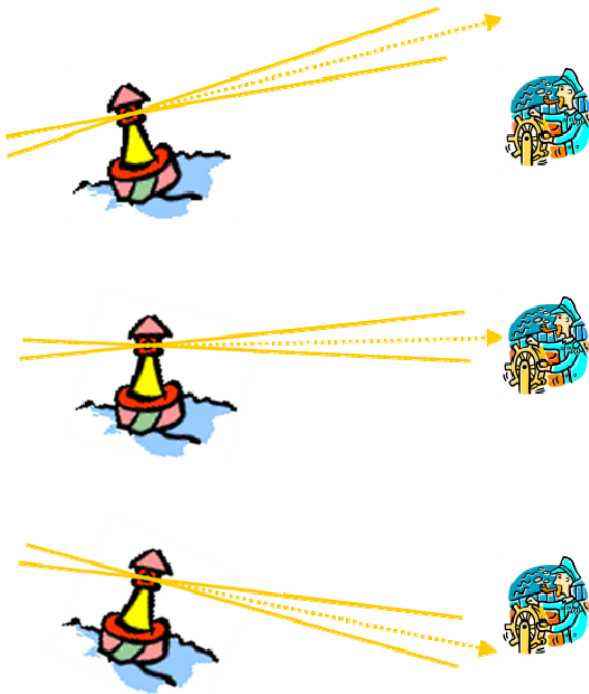
U.S. Coast Guard visual tests have shown that the typical effective range of a buoy light is only 30% of its nominal range due to buoy motion. However, lights with significant vertical divergence can achieve an effective range that is 80% + of its nominal rated range on a buoy in a seaway.

The unprecedented vertical divergence of the FA-165 actually increases the range at which a mariner can correctly identify a buoy by its lantern flash character. A 3 nm light with exceptional vertical divergence will be identifiable at a greater distance than a 5-7 nm light with a smaller vertical divergence.

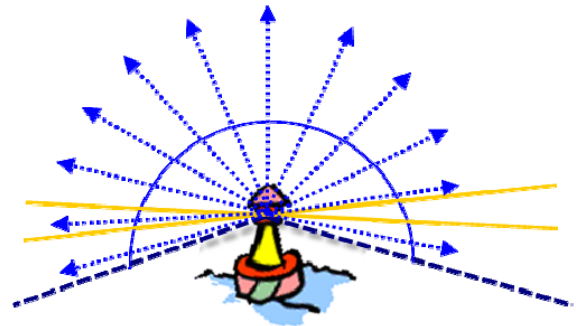
The reason for this effect is that the roll of a buoy with a narrow lantern vertical divergence confuses the flash character to a distant mariner. Sometimes he sees the light, other times he doesn't as the buoy rolls. It is not possible to know if the disappearance of the light is due to a normal flash interval or the rolling of the buoy. So even though the mariner may see a lantern from some distance, he will not be able to identify the buoy by its flash character. The wider the vertical divergence the further away a lantern's flash character can be correctly identified.

However, the closer the mariner comes to the buoy, the dimmer the light appears until it is not seen at all when close aboard due to limited vertical divergence.

The FA-165 eliminates both these problems by providing a light visible over 240 degrees vertical—it can even be seen when the mariner is looking directly down on the lantern!



Existing buoy lanterns with a small vertical divergence prevent correctly identifying the light character or seeing the light when close aboard



The FA-165's vertical divergence allows the mariner to see the light continuously, even with a 30 degree buoy roll and when close aboard the navaid