

Re-Thinking Scene Lighting

Bigger isn't always better.

During the 1970s and 80s, fire departments purchased generator-powered scene lights based on the premise that “more watts = more light.” While this standard operating procedure was sufficient for the time, technology has advanced significantly over the past 30 years. Thus, departments will significantly benefit in reevaluating protocols when specifying scene lighting.

Bigger isn't always better - 900W vs. 1500W

To illustrate, consider the Havis 1500W Stonco fixture compared to the Havis 900W Magnafire. The 1500W lamp produces approximately 10% more lumens than the 900W lamp, yet consumes 67% more power. Moreover, lumen rating measures only *the amount of light produced by the lamp* and fails to consider other variables associated in delivering the light. These variables include: *reflector design, diffuser design, and material construction.*



Table 1

Part ID	Watts	Volts	Amps	Lamp Type	Bulb Lumen Rating	Lamp Hours	MSRP	Lumens / Watt
KR-1-2BC15	1500	220	6.5	Quartz Halogen	35,800	2,000	\$244.00	24
KR-39	900	240	4.2	Quartz Halogen	32,000	2,000	\$350.00	35

Note how the 900W fixture uses 600W less power than the 1500W. A 3000W generator running at 100% capacity could power only two 1500W fixtures, producing a total of 71,600 lumens (2 x 35,800). The same 3000W generator running at 90% capacity could power three 900W fixtures, producing a total of 96,000 lumens (3 x 32,000). Clearly, bigger isn't always better.

Best efficiency - 12V vs. 120V

When comparing different technologies such as Halogen vs. Metal Halide H.I.D., it becomes more difficult to compare apples-to-apples. The biggest advantage to specifying 12V lighting is the realized cost savings associated in not having to purchase a generator. Despite the similarity in lumen rating, the 150W H.I.D. produces 50% greater night visibility than halogen. The reason is that Metal Halide H.I.D. lamps produce a whiter light than halogen, which is yellowish in appearance. Further, the 150W H.I.D. consumes 67% less power than the 500W halogen.



Table 2

Part ID	Watts	Volts	Amps	Lamp Type	Bulb Lumen Rating	Lamp Hours	MSRP	Lumens / Watt
KR-55	500	120	4.5	Quartz Halogen	10,500	2,000	\$263.00	21
KR-32	150	12-24	13 @12V 7 @ 24V	Metal Halide H.I.D.	11,250	10,000	\$848.00	75

As seen from the above, the thinking that “more watts = more light” is no longer valid. While Lumen Rating provides a measure of lamp brightness, it fails to consider any other variables associated in delivering the light. Using a calculation like Lumens / Watt can help determine efficiency, especially in dissimilar wattages and technologies.