

## Energy Saving Estimation for DIGITEK-ILT-HID

X ~ Light bulb watt.

Y ~ Energy saving percentage.

Z ~ Hours of operation per day.

Energy consumption per HID light per hour =  $X W \times 1.25$ :

The energy consumption of ballast is about 25% of the bulb.

Energy consumption per year =  $X W \times 1.25 \times Z \times 365$

Energy saving per HID light per hour =  $X W \times 1.25 \times Y$

Energy saving per HID light per day =  $X W \times 1.25 \times Y \times Z$

Energy saving per HID light per year =  $X W \times 1.25 \times Y \times Z \times 365$

Examples:

Operation hours per day: 12 hours

Energy saving percentage:

Sodium light: 20%

Mercury light: 15%

a. 100 W:

Energy saving per light per year on Sodium light:

$$100 W \times 1.25 \times 20\% \times 12 \times 365 = 109,500 W \\ = 109.5 KW$$

Energy saving per light per year on Mercury light:

$$100 W \times 1.25 \times 15\% \times 12 \times 365 = 82,125 W \\ = 82.125 KW$$

b. 150 W:

Energy saving per light per year on Sodium light:

$$150 W \times 1.25 \times 20\% \times 12 \times 365 = 164,250 W \\ = 164.25 KW$$

Energy saving per light per year on Mercury light:

$$150 W \times 1.25 \times 15\% \times 12 \times 365 = 123,187.5 W \\ = 123.1875 KW$$

c. 250 W:

Energy saving per light per year on Sodium light:

$$250 W \times 1.25 \times 20\% \times 12 \times 365 = 273,750 W \\ = 273.75 KW$$

Energy saving per light per year on Mercury light:

$$250 \text{ W} \times 1.25 \times 15\% \times 12 \times 365 = 205,312.5 \text{ W}$$

$$= 205.3125 \text{ KW}$$

d. 400 W:

Energy saving per light per year on Sodium light:

$$400 \text{ W} \times 1.25 \times 20\% \times 12 \times 365 = 438,000 \text{ W}$$

$$= 438 \text{ KW}$$

Energy saving per light per year on Mercury light:

$$400 \text{ W} \times 1.25 \times 15\% \times 12 \times 365 = 328,500 \text{ W}$$

$$= 328.5 \text{ KW}$$

e. 1,000 W:

Energy saving per light per year on Sodium light:

$$1,000 \text{ W} \times 1.25 \times 20\% \times 12 \times 365 = 1,095,000 \text{ W}$$

$$= 1,095 \text{ KW}$$

Energy saving per light per year on Mercury light:

$$1,000 \text{ W} \times 1.25 \times 15\% \times 12 \times 365 = 821,250 \text{ W}$$

$$= 821.25 \text{ KW}$$

Light Bulb W		Energy Consumption/Year	Energy Saving/Year
100 W	Sodium Light	547.5 KW	109.5KW
	Mercury Light	547.5 KW	82.125 KW
150 W	Sodium Light	821.25 KW	164.25 KW
	Mercury Light	821.25 KW	123.1875 KW
250 W	Sodium Light	1,368.75 KW	273.75 KW
	Mercury Light	1,368.75 KW	205.3125 KW
400 W	Sodium Light	2,190 KW	438 KW
	Mercury Light	2,190 KW	328.5 KW
1,000 W	Sodium Light	5,475 KW	1,095 KW
	Mercury Light	5,475 KW	821.25 KW

### Survey on HID

Light Bulb W		Quantity (Q)	Energy Saving/Year (Energy Saving per light per year x Quantity)	Money Saving/Year (Energy Saving per year x Utility Rate)
100 W	Sodium Light			
	Mercury Light			
150 W	Sodium Light			
	Mercury Light			
250 W	Sodium Light			
	Mercury Light			
400 W	Sodium Light			
	Mercury Light			
1,000 W	Sodium Light			
	Mercury Light			