

# SmartNotes

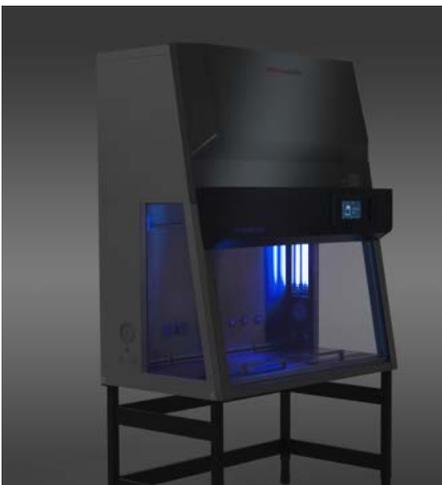
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## How can I ensure my UV germicidal bulb is giving optimal performance?

Ultraviolet (UV) irradiation is used in addition to “scrub and wipe techniques” inside Class II Biological Safety Cabinet (BSC) work areas and surfaces to achieve disinfection and sterilization.

Over time the bulbs, radiant intensity will decrease. Using the Thermo Scientific™ UV intensity correction system will help ensure effectiveness even as the UV bulbs age. Short-wave UV-C irradiation has an extremely germicidal effect and is therefore used in all Thermo Scientific Class II BSCs for routine disinfection and sterilization.

Thermo Scientific BSCs use high performance UV bulbs that have a wave length of 254nm. When these bulbs start to lose their radiation intensity, the actual disinfection process may lose some of its effectiveness. Thermo Scientific™ Herasafe™ 2030i BSCs use a UV intensity correction system that compensates for this helping to ensure optimum performance.



Herasafe 2030i BSC running UV program

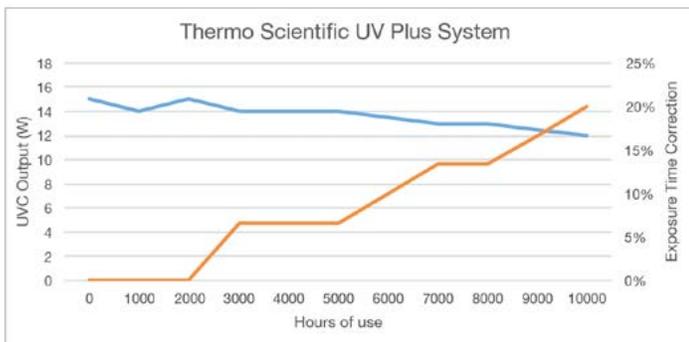
# Self-adjusting germicidal UV light intensity

## The traditional method of UV within Class II BSC

Traditional Class II BSC UV designs are very simple with manual on/off switching of a single UV bulb, sometimes with a timer. This can be inefficient and lead to excessive use of the UV bulb resulting in frequent replacement of bulbs. This type of older design also does not have any correction factors or tracking of UV use built into them. When the UV bulb starts to lose its radiation intensity, disinfection or sterilization could be compromised.

## The Thermo Scientific Herasafe 2030i approach to UV

The Thermo Scientific approach to UV within a Class II BSC is a highly effective means of disinfecting work surfaces offering protection against contamination. Their diffused radiation reaches micro-organisms in otherwise inaccessible places. This is accomplished by the use of the 4 x cross beam UV-C irradiators. In addition, the cabinet monitors UV use and remaining UV lamp life. Our UV lamps are rated for 8000 hours. Our cabinet tracks your UV use and lets you know when you are getting close to 8000 hours. Finally, and even better – the cabinet will



**Chart 1.** This chart illustrates UV-C lamp output over time for a typical UV bulb with the blue line. The orange line represents the UV Plus correction factor applied to exposure time after bulb burn in to help assure the intended inactivating dose of germicidal radiation.

adjust the exposure time for the age of the UV lamp. If the UV has been used for about half of its rated life, its intensity should have declined by approximately 10%. Our UV compensation feature will increase the selected UV disinfection cycle time to compensate and help ensure the desired germicidal energy is delivered automatically.

When used after scrub and wipe disinfection, UV-C irradiators help ensure maximum elimination of germs from work surfaces in very brief killing times when used with the programmable timer. The UV Intensity correction feature will also add to maximum effectiveness even when the bulbs have decreased their radiation output.

## Summary

Using the Thermo Scientific (patent applied for) technology for UV intensity compensation guarantees repeatable disinfection cycles helping ensure protection against contamination.

## Chart 2. Bulb Hours of Use

Hours of Use	UVC Output (W)	Time Correction	Factor	Output W	% of Start	
0	15	0	100	0	15	1
1000	14.00	0.00	100	0.0	14	
2000	15.00	0.00	100	0.0	15	
3000	14.00	0.07	100	0.9	14	
4000	14.00	0.07	100	0.9	14	
5000	14.00	0.07	100	0.9	14	
6000	13.50	0.10	100	1.4	13.5	
7000	13.00	0.13	100	1.7	13	
8000	13.00	0.13	100	1.7	13	
9000	12.50	0.17	100	2.1		
10000	12.00	0.20	100	2.4		

Find out more at [thermofisher.com/bsc](https://thermofisher.com/bsc)