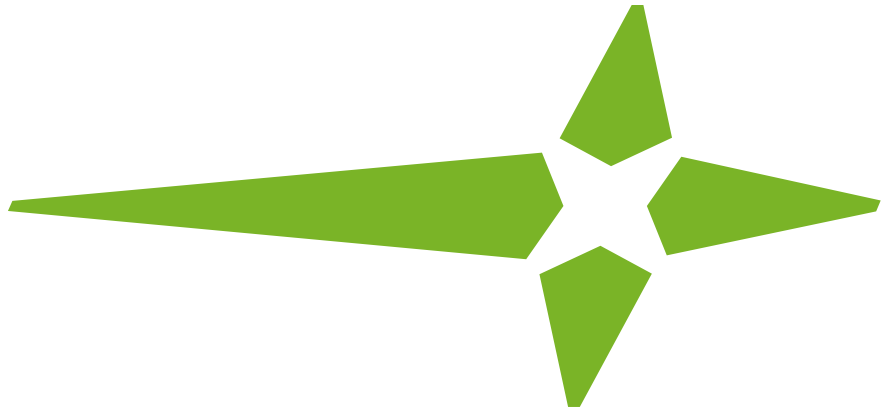


NobleLight®

**High-quality light sources**  
for analytical instruments



  
**excelitas®**



## **About Excelitas**

Excelitas is a leading provider of advanced, life-enriching technologies that make a difference, serving global market leaders in the life sciences, advanced industrial, next-generation semiconductor and avionics end markets. Headquartered in Pittsburgh, PA, USA, Excelitas is an essential partner in the design, development and manufacture of advanced technologies, offering leading-edge innovation in sensing, detection, imaging, optics and specialty illumination for customers worldwide.

Excelitas is at the forefront of addressing many of the relevant megatrends impacting the world today, including precision medicine, industrial automation, artificial intelligence, and connected devices (IoT).

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## Applications

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|--------------|--|
| <b>C</b>     | Atomic absorption spectroscopy                     |
| <b>B</b>     | Emergency first response                           |
| <b>B C</b>   | Exhaust monitoring                                 |
| <b>B</b>     | Gas chromatography (GC)                            |
| <b>C</b>     | High Performance Capillary Electrophoresis (HPCE)  |
| <b>C</b>     | High Pressure Liquid Chromatography (HPLC + UHPLC) |
| <b>B</b>     | Leak detection                                     |
| <b>B</b>     | Mass spectrometry (MS)                             |
| <b>B</b>     | Personnel safety in confined spaces                |
| <b>A B C</b> | Pollution monitors                                 |
| <b>A C</b>   | Process control                                    |
| <b>C</b>     | Semiconductor inspection                           |
| <b>C</b>     | Thin layer chromatography (TLC)                    |
| <b>A C</b>   | UV-VIS spectroscopy                                |

### Measuring and analyzing seawater

Water analysis is becoming increasingly important, not only for marine research and the fishing industry, but also for controlling dangerous chemicals in water. FiberLight® D2 enables highly sensitive water analysis particularly in the deep blue sea just above the ocean floor quickly and safely – with the greatest accuracy.



### Detecting explosives at the airport

Photoionization detector (PID) lamps by Excelitas help ensure safety at airports: They allow easy and reliable passenger screening in airports worldwide. Due to its reliability and consistency, our PID lamps are used in explosives trace detectors (ETD) at major airports around the world.



### Ensuring fair sports competitions

Testing the best: Deuterium lamps enable extremely low detection limits and high sensitivity to determine illegal doping by athletes – and thus ensure the fairest sports in competition.



# FiberLight® D2

UV-VIS light source for high measurement consistency.

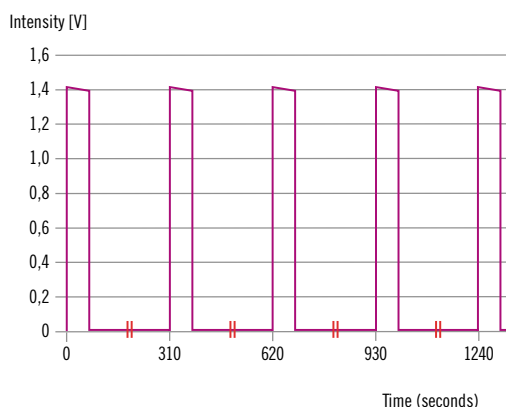


Measuring and analyzing seawater – With FiberLight D2 mobile measurements can be made with the greatest accuracy.

Monitoring seawater helps ensure compliance with environmental regulations and protects sea life from dangerous chemicals. Water analysis is also increasingly important for marine research and the fishing industry. FiberLight D2 is especially suitable for testing the quality of seawater in the deep sea just above the ocean floor quickly and safely.

FiberLight D2 enables highly sensitive water analysis directly on site.

## Cyclic Operation



## FiberLight D2 Basic

The 6W FiberLight D2 Basic is the only UV-Vis light source on the market combining a deuterium lamp, with a tungsten lamp, a shutter, optical system and an SMA 905 connector in such a compact module.

The spectral emission covers the entire range from 185 nm to 1100 nm and can be extended to 160 nm. All components are mounted on a printed circuit board. Both lamps and the shutter can be individually controlled by a TTL signal.

The small size of the FiberLight D2 makes it the ideal light source for applications with limited space in the equipment, whether stationary, portable / handheld or even battery-driven instruments. Low power consumption, small dimensions and ease of operation open up new possibilities for instrument designers. With the flexibility of the product and design Excelitas can meet the customers' needs.



- **Reduced design costs due to a plug & play light source module**
- **Easy integration and optical coupling using an SMA connector**
- **Space saving size which allows integration into small devices**
- **Instant ON/OFF enables cyclic operation which can extend the lifetime up to 3 years**

## Instant ON and Instant Stability

The FiberLight D2 electrodeless discharge lamp (EDL) is the only deuterium lamp that can be switched instantly ON and instantly deliver a stable light output. FiberLight D2 is therefore the ideal light source in analytical instruments for waste water analysis and other pollution monitoring where light absorption is measured for only a few seconds and repeated after long intervals. As an EDL, the number of ignitions does not reduce lifetime. In addition, cyclic lamp operation results in an extended service life of up to three years.



10 mm

FiberLight D2 Basic



# Photoionisation Detector Lamps

For high quality gas detection and gas chromatography.



## Detecting explosives at the airport

Excelitas Photoionization detector (PID) lamps detect explosives at major airports around the world, thus ensuring safe travel of passengers and crew. Major airports around the world choose our PID lamps for their explosives trace detection (ETD) needs due to its simplicity, reliability and consistency.

## VOC detection or air quality monitoring

VOC detection or air quality monitoring Excelitas PID lamps help keep the public safe from harmful pollutants in the air by helping industry and governments monitor air quality and meet increasingly stringent regulations. Laboratories, petrochemical plants, factories, cities, and major airports rely on Excelitas PID lamps to rapidly and reliably detect and monitor a range of harmful gases. Excelitas manufactures PID lamps using the world's first and only fully automated process. This enables quality and consistency levels that would not be possible otherwise. As a result, OEM manufacturers of analytical instrumentation such as gas chromatography (GC), mass spectrometry (MS), volatile organic compound (VOC) detectors, and explosives trace detectors (ETD), rely on Excelitas PID lamps to maximize their instrument performance while reducing the end-users cost of ownership.

Available in either DC or RF, Excelitas offers a complete range of PID lamps with the highest quality in terms of intensity, spectral purity and long life. Additionally, the PID lamps are available with different gas fills and window materials. Our fully automated RF Lamp production enables us to offer the shortest delivery times in the industry without sacrificing quality.

Excelitas works alongside OEMs to design and build products that meet their specific dimensional and instrument performance requirements.

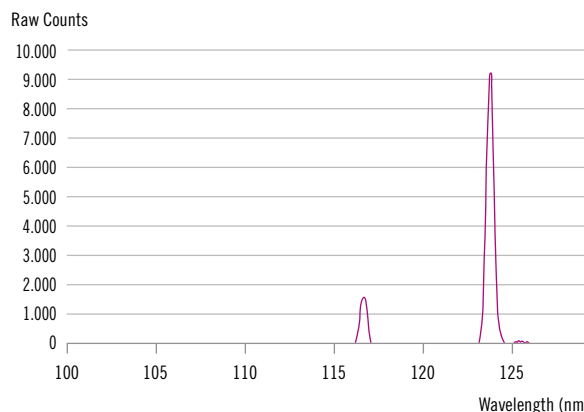
### Features and Benefits



- **Enhanced lamp life through accurate control of bulb dimensions and gas fill pressure**
- **Shortest delivery times in the industry due to ease of production scalability**
- **Customized lamp designs and dimensions to fit your specific application**
- **Different gas fills and window materials with photon energies from 8.4 – 10.6 eV for more selectivity in gas detection**
- **High purity window material for better transmission and higher intensity**
- **Proprietary getter technology and high purity gas fill for longer lamp life**



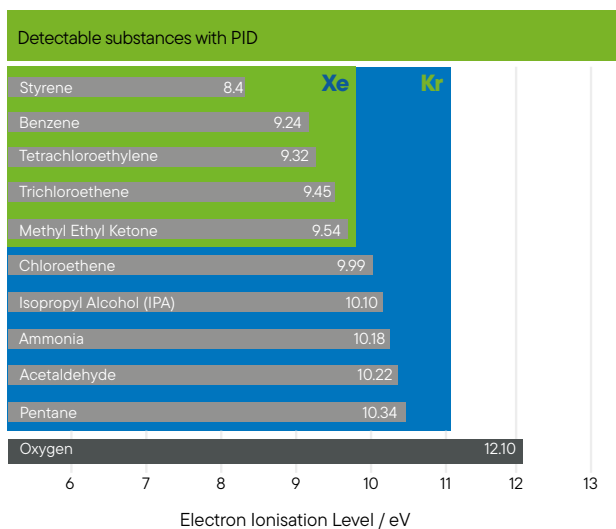
### Spectrum Krypton PID Lamp



### Did you know?

Excelitas is the first PID manufacturer to use an automated production process which ensures more reliable processes for the highest quality lamps. Clear advantages for the customer: consistent quality, longer operating lifetimes and quickest delivery times.

### Detectable Substances with PID



# Deuterium Lamps

**Extremely low detection limits and high sensitivity.**



**To ensure fair sports competitions athletes must submit urine samples to test for illegal doping. Similarly, analyzing pharmaceuticals for their purity, content, and quality ensures effectiveness and safety for patients.**

In these situations various analysis methods are appropriate, such as UV-Vis spectroscopy for purity testing or high-performance liquid chromatography (HPLC) for determining the content of the active ingredients.

Excelitas specialty light sources are ideal for both analysis methods. High-quality deuterium light sources provide reliable and very precise measurement results to ensure accurate test results and product quality.

Using the latest material and process technologies, Excelitas new lamps combine unmatched output stability and intensity over a lifetime of more than 2,000 hours. This clearly places them above from other long-life lamps on the market and makes them the ideal choice for ultra-high-performance liquid chromatography (UHPLC) instruments or high end UV-Vis spectrophotometer.



## Features and Benefits

- **Less instrument recalibration due to consistent intensity over lifetime**
- **Higher throughput due to shorter sampling times resulting from better signal to noise ratio**
- **Highest precision analytical results due to lowest noise and high intensity**
- **Best price/performance ratio and lowest Cost of Ownership due**

## Excelitas latest generation deuterium lamps serve different needs and applications:

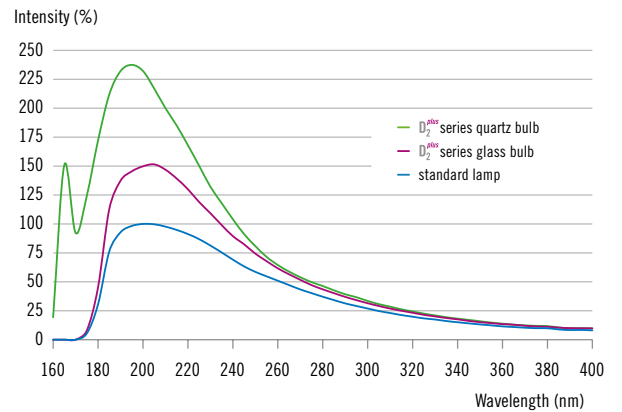
- **Enhanced Lifetime Performance (ELP) technology**

Excelitas' high transmissive synthetic quartz envelope maintains twice the intensity compared to standard D2 lamps at the end of life. The patented ELP coating protects the light filament against degradation caused by VUV radiation and reactive plasma components.

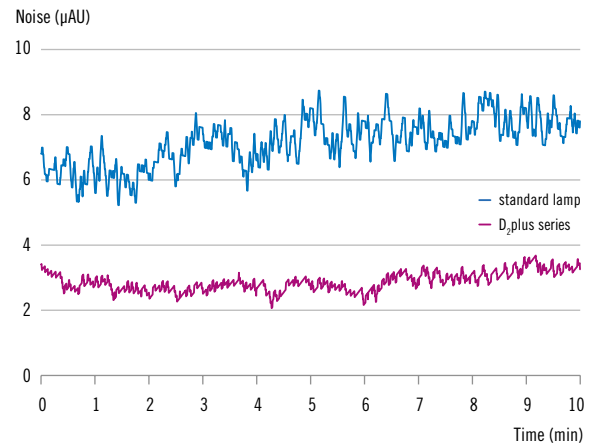
- **See-through versions of all lamps available**

See-through lamps offer a straight-line arrangement of a tungsten halogen lamp and a deuterium lamp in an optical system. This enables OEMs to simplify and reduce costs of UV-Vis spectrophotometers. For example, this approach can eliminate the need for a moveable mirror or a semi-transmissive beam splitter.

## Spectral Comparison D2<sup>plus</sup> Deuterium Lamp



## Optical Stability at 254 nm



D2<sup>plus</sup> Deuterium lamp with UV glass envelope



D2<sup>plus</sup> Deuterium lamp with quartz envelope





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