



a xylem brand

The Photometry Dictionary

TIPS AND TRICKS FOR PHOTOMETRIC MEASUREMENTS -
FROM OUR CUSTOMERS' MAGAZINE

WATERWORLD

Photometers with Incandescent Lamps Compared to LED Photometers

wtw.com/en/photometry

photometry-compendium.com

Photometer with incandescent lamp compared to LED photometers

If you are measuring in a laboratory, you will often have very high expectations of highly precise measuring results, which must be secured as per AQA and IQC. These results may be needed for instance, for wastewater emission calculations or further processing for subsequent testing. The laboratory environment offers favorable conditions for the operation, such as relatively constant temperatures at a stationary work station with a power connection.

But who wishes to conduct mobile measurements at different sites or in process control, has totally different requirements: easy handling and space saving, energy efficient, precise, robust.

photoLab® Series: Photometer with tungsten halogen lamp

These are characterized by:

- precise optics with high quality interference filters and lens technology
- a large extinction range (-0.3-3.2 E)
- the use of different cuvette types (round, 10, 20 and 50 mm rectangular cuvettes) and therefore large measurable areas of concentration
- automatic turbidity correction
- a total wavelength range of 330-850 nm possible through the lamp

An incandescent lamp gets really hot, which is compensated, however, by the short lived activation during a measurement and the reference beam technology. For this, the incandescent technology offers important advantages: You can measure very quickly and with an extremely stable zero value! The barcode contains all method data and the system is very easy to operate, including a reagent blind value. The higher energy consumption of an incandescent lamp does not have a significant meaning during laboratory use.

Every photometer has its justification: Therefore, you should consider the current requirements, long-term needs and the entire measurement environment in your calculations.

LED Filter Photometer: for mobile applications

These are characterized by:

- low energy consumption
- minimal heating up
- long service life of the lamps
- no expensive lens technology required due to the characteristics of the LED
- cost-effective solution with simpler and more precise optics with higher tolerances

LEDs are only available for specific wavelengths, which will cause a limitation of the test number - even if only slight. A turbidity correction cannot be performed as the respective wavelength is not available. The extinction range is smaller (approx. 0-2 E), compared to the laboratory photometer, approx. by a factor of 10. This decreases the measurable concentration areas by approx. 1/3. LEDs have higher fluctuations when the ambient temperatures in the field change; however, this can be balanced by an automatic temperature compensation feature in the device. Furthermore, a zeroing will be performed prior to series measurements. In the field, a barcode support is not state-of-the-art due to the space-consuming technology or an "energy eating" external barcode scanner.