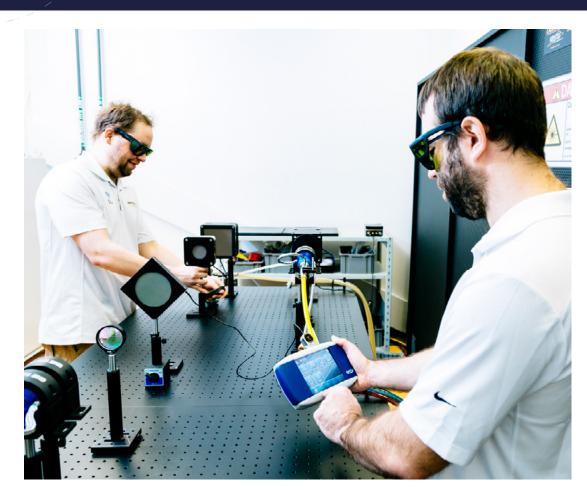




# HIGHEST CALIBRATION STANDARDS Measuring with Gentec-EO accuracy



At Gentec-EO, we understand that the essence of our business since over 50 years has been delivering accuracy. There are no half measures : it either measures accurately or it doesn't. This is why one of our company's values is rigor, because our customers expect nothing less.

1

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# THE GENTEC-EO ADVANTAGE



We use only GOLD Calibration Standards, guaranteeing our customers the lowest calibration uncertainty possible

For each detector that we calibrate

50 Parameters are collected and logged

in our ISO-certified quality system

The calibration reference is checked

2 to 3 Times during EACH calibration process

**Proven Statistical Calculation Processes** 



Our Personnal Wavelength CorrectionTM (PWC) data offers you **NIST and/or NRC Traceability over** the entire range of the detector

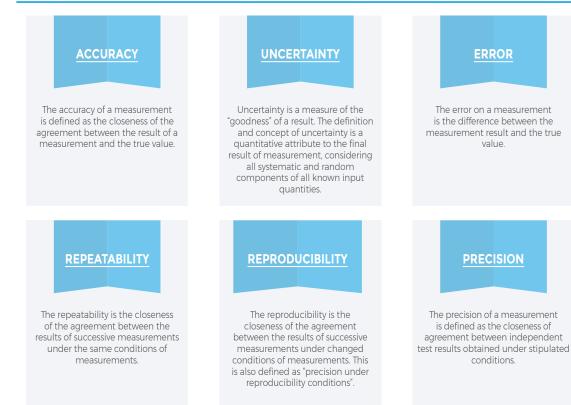
Our uncertainty values are based on

Each of these steps contributes to the TOTAL ACCURACY of your detector



Traceable

# THE TERMS



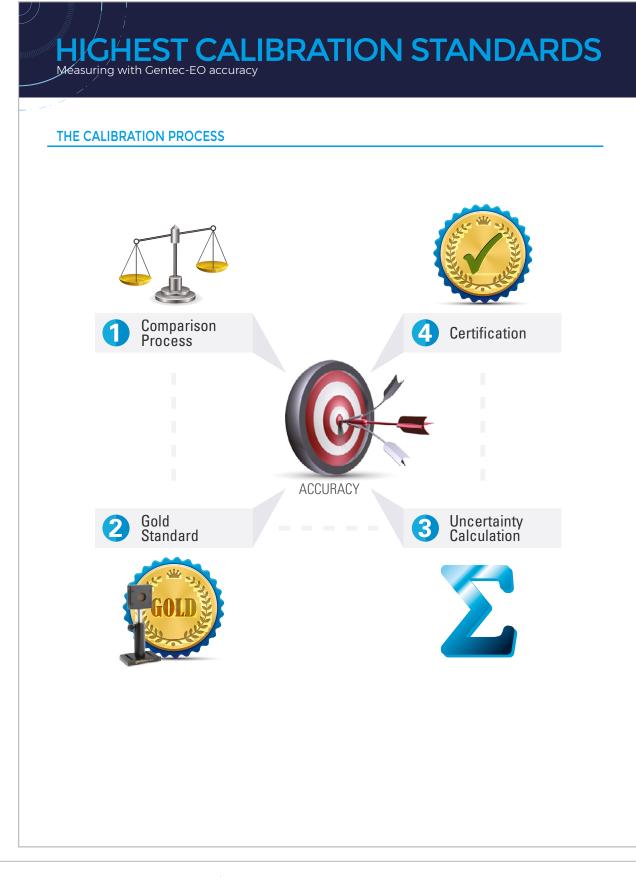
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### Nordic Countries





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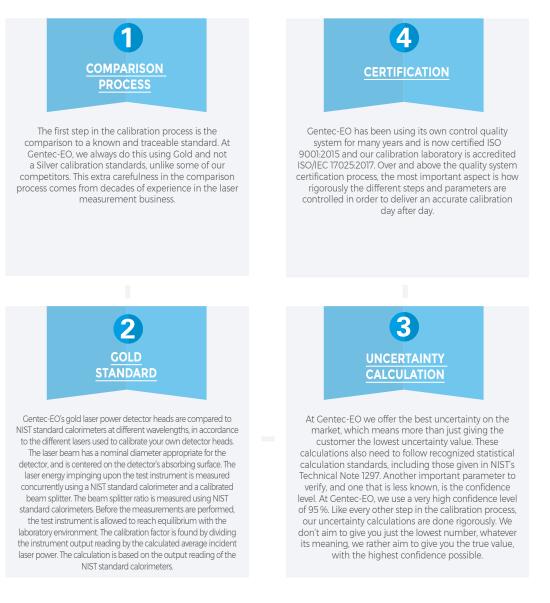
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# THE TECHNIQUE

By definition, calibration is a comparison between measurements, one of a known magnitude or correctness, which is typically called a "gold standard", and another measurement comparable to the first one. In the calibration process, there are four critical aspects that need to be controlled precisely:



4

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HIGHEST CALIBRATION STANDARDS

#### **ELECTRICAL INSTRUMENTS**

All of our electrical instruments are calibrated by certified calibration suppliers. They certify that, at the time of calibration, the instruments used for calibration meet or exceed all published specifications and have been calibrated using standards whose calibrations are traceable to the NIST and/or other recognized international standards. The electrical and physical properties of their laboratories meet the highest requirements for ambient temperature, relative humidity and cleanliness. Their equipment is maintained by procedures that meet the requirements of ISO 9001:2015 and ISO/IEC 17025:2017.

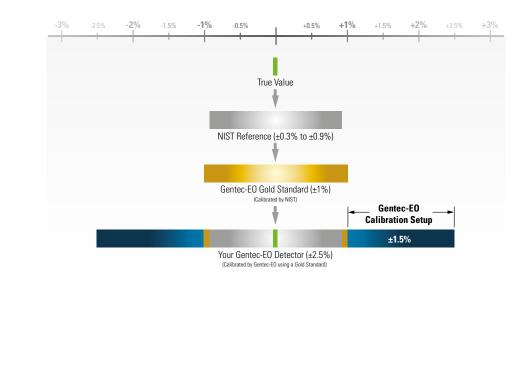
### THE FACTS

#### HOW GENTEC-EO CALIBRATES YOUR DETECTOR

Every detector is individually calibrated to the best possible accuracy traceable to NIST standards. Stable laser sources at various wavelengths are used in our calibration process.

#### UNCERTAINTY

One very common misconception is the absolute value of calibration uncertainty. Be aware that this value is made using a complex statistical method that takes in account ALL the sources of uncertainty that are present in the process. The figure below shows these steps and their respective contribution to the value of uncertainty. As you can see, the manufacturer itself is only one of these sources.



03/24 / V12 / RB-IF / gentec/calibration-power-energy-detectors

5

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# CALIBRATION WAVELENGTHS

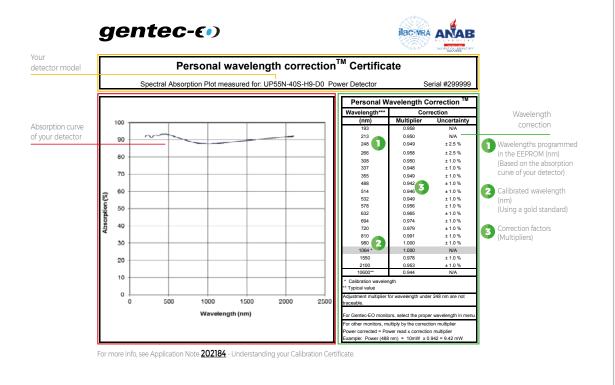
Another misconception is that any wavelength can be NIST calibrated. The NIST only supplies references for distinct wavelengths contained between 157 nm ( $F_2$  excimer lasers) and 10.6  $\mu$ m ( $CO_2$  lasers). Every other wavelength within this range or out of this range is subject to an additional error.

For more information about NIST's calibration wavelengths, please visit their website at: https://www.nist.gov/calibrations

# PERSONAL WAVELENGTH CORRECTION<sup>™</sup> CERTIFICATE

To fill the gaps between the NIST references, Gentec-EO offers you the only NIST traceable calibration in nm steps, from 250 nm to 2.5  $\mu$ m. We achieve this using our proprietary setup that is based on a NIST traceable spectrophotometer. This way, instead of supplying you with typical values, we offer you a NIST traceable calibration. What you get is an overall accuracy that is not more than  $\pm 1\%$  away from the original calibration accuracy, in the calibrated spectral range.

Each Centec-EO detector comes with a Personal wavelength correction™ Certificate. The correction factors are based on measurements that were made with YOUR detector. They are not based on the general curve of the absorbing material or the general response of equivalent products. This means you get the best wavelength correction tool available on the market. This data is stored in the smart interface of your Gentec-EO detector, you just have to select the wavelength in your display device or PC interface to get the most precise laser measurements on the market.



6

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