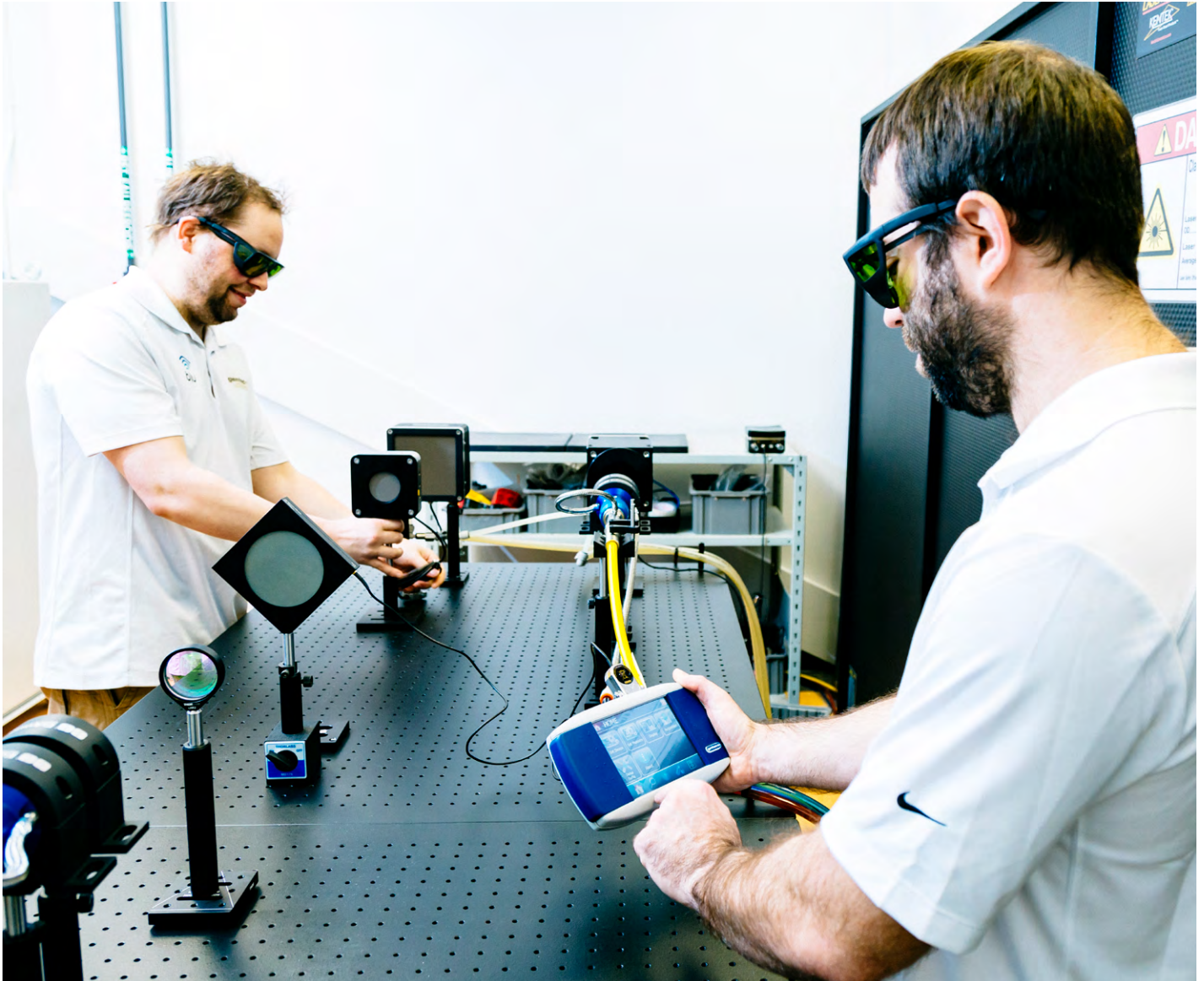


# HIGHEST CALIBRATION STANDARDS

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: all our instruments are built to measure accurately. This is why one of our company's values is rigor, because our customers expect nothing less.

## 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

Our uncertainty values are based on **Proven Statistical Calculation Processes**



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

**NIST\***  
Traceable

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



## THE CALIBRATION PROCESS



# HIGHEST CALIBRATION STANDARDS

Measuring with Gentec-EO accuracy

## 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

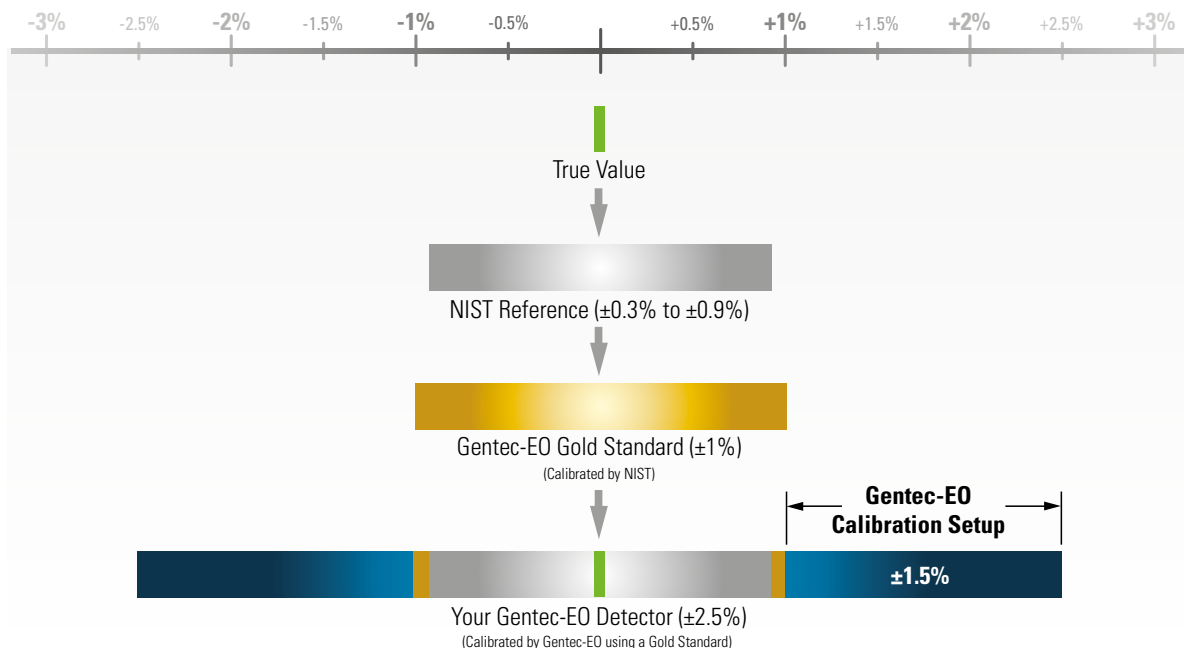
### HOW GENTEC-EO CALIBRATES YOUR DETECTOR

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.

Gentec-EO's gold standards are detectors that were compared directly to NIST references.

In our calibration laboratories, we use laser beams with the appropriate diameter and power level for each detector that we test. Before the measurements are performed, the test instrument is allowed to reach equilibrium with the laboratory environment. The laser power or energy impinging upon the tested instrument is measured using a gold standard and a calibrated beam splitter. The calibration factor is found by dividing the instrument's output reading by the calculated average incident laser power.

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.



## CALIBRATION WAVELENGTHS

The NIST only supplies references for distinct wavelengths contained between 157 nm (F<sub>2</sub> excimer lasers) and 10.6 μm (CO<sub>2</sub> 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™ 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 μm. 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 ± 1% away from the original calibration accuracy, in the calibrated spectral range.

Each Gentec-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.

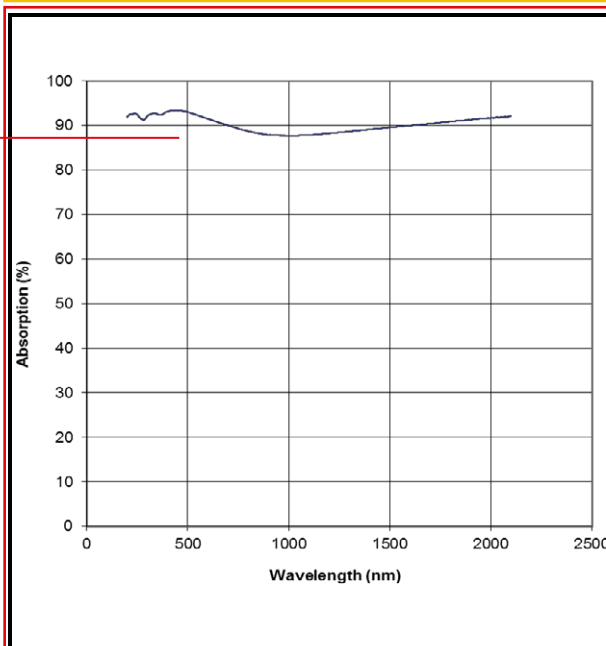


Your detector model

**Personal wavelength correction™ Certificate**

Spectral Absorption Plot measured for: UP55N-40S-H9-D0 Power Detector Serial #299999

Absorption curve of your detector



Personal Wavelength Correction™		
Wavelength*** (nm)	Correction	
	Multiplier	Uncertainty
193	0.958	N/A
213	0.950	N/A
248	0.949	± 2.5 %
266	0.958	± 2.5 %
308	0.950	± 1.0 %
337	0.948	± 1.0 %
355	0.949	± 1.0 %
488	0.942	± 1.0 %
514	0.946	± 1.0 %
532	0.949	± 1.0 %
578	0.956	± 1.0 %
632	0.965	± 1.0 %
694	0.974	± 1.0 %
720	0.979	± 1.0 %
810	0.991	± 1.0 %
980	1.000	± 1.0 %
1064*	1.000	N/A
1550	0.978	± 1.0 %
2100	0.953	± 1.0 %
10600**	0.944	N/A

\* Calibration wavelength  
 \*\* Typical value  
 Adjustment multiplier for wavelength under 248 nm are not traceable.  
 For Gentec-EO monitors, select the proper wavelength in menu  
 For other monitors, multiply by the correction multiplier  
 Power corrected = Power read x correction multiplier  
 Example: Power (488 nm) = 10mW x 0.942 = 9.42 mW

Wavelength correction

- 1 Wavelengths programmed in the EEPROM (nm) (Based on the absorption curve of your detector)
- 2 Calibrated wavelength (nm) (Using a gold standard)
- 3 Correction factors (Multipliers)

For more info, see Application Note [202184](#) - Understanding your Calibration Certificate.