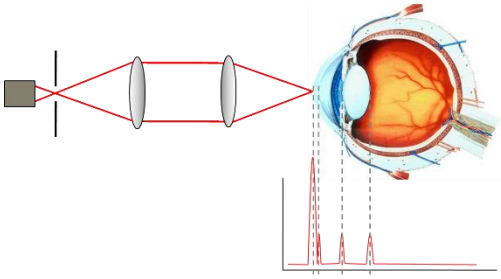
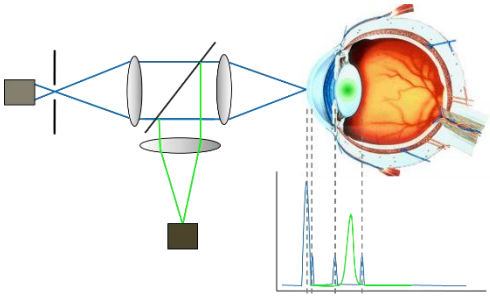
# OCCUITY TECHNOLOGY

## Confocal Scanning Technology



Occuity's scanning confocal technology is an adaptation of a proven optical measurement technique that is normally used in very high-end microscopes. The key advantages of the confocal system are that it has high spatial discrimination, can evaluate an item under test that is behind or within a confounding medium and is non-contacting. The advance that Occuity has made is to use an established component from the telecommunications industry to make the meters small and cost effective whilst retaining their accuracy and resolution.

The basic principle is that a tight focal point of light is scanned through the medium of interest and each time the focus passes through a surface a reflection is detected. By analysing the return light, the location of a surface, the thickness of a medium and information about its composition can be obtained.



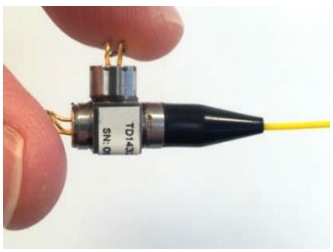
In an enhanced version of the meter, the optics can also be configured to detect a different wavelength of light to that used to illuminate the item under test. With this system the fluorescent signature of specific compounds can be detected and the meters can be used to screen for and diagnose a number of medical conditions.

## Occuity's Technical Advantages

The team at Occuity have spent many years developing and enhancing the confocal technology and in the process have achieved a number of unique benefits for the systems:

**Compact**

Occuity uses a "bi-di" source-receiver module from the telecommunications industry that is adapted for its particular needs with dedicated IP. This module is extremely compact and enables the whole measurement system to be reduced in size to a handheld format.



**Fast scanning**

Occuity has developed an extremely fast scanning technology, with patents applied for, that enables data to be collected at over 1kHz whilst simultaneously scanning across depths of field of several millimetres. When measuring the eye, this fast scan speed enables the eye to be effectively "frozen" and the accuracy of the measurements improved immeasurably.

**Accuracy**

The combination of the high-resolution position encoder (patented), the scanning technology (patent in draft) and the data processing algorithm (tacit IP) means that the meters are capable of sub-micrometre accuracy.