

re|fibri

Refbri

is a refractometer designed for concentration measurements by means of a fiber optic sensor. Key features: remote control, continuous precise sensing, real-time measurement, user-friendly interface

Precise measurement of the liquid concentration is important due to its applications in bio-chemical analysis, environments and contamination assessment, diagnostics, food and chemical industry. So far, many different techniques offer the liquid concentration measurement, among them the current technique which is based on Fresnel reflection gained attentions for the advantages of having real-time measurement, easy to operation, cheap setup and remote monitoring.

Laser light at wavelength of 1550 nm passes through a single mode fiber optic cable. Changing the medium at the interface between the fiber optic tip and the liquid sample results in changing the refractive index, therefore the reflected light (feedback signal) has an angle proportional to the refractive index of the second medium. Here, in the case of single mode fiber, the incidence beam is normal to the interface plane so $\theta_1 = \theta_2 = 0$.

TYPICAL PHYSICAL PROPERTIES

Central laser wavelength: 1550 nm

Typical operating voltage: 8 (V) – DC

Max Rev voltage: 2 V

Typical Output Power 55 mW

Storage Temp: -10 to 65 °C

Operating Temp: 0 to 50 °C

Typical Weight: 1 Kg

Typical dimension: 200 mm x 150 mm x 80 mm (main box) + 95 mm x 87 mm (external card)

Fiber optics cable: Single mode fiber - glass

Length of Fiber optics cable: to be decided based on the application

Range of measurement of refractive index: $1 < n < 2$

Phase of sample: Liquid

Safety

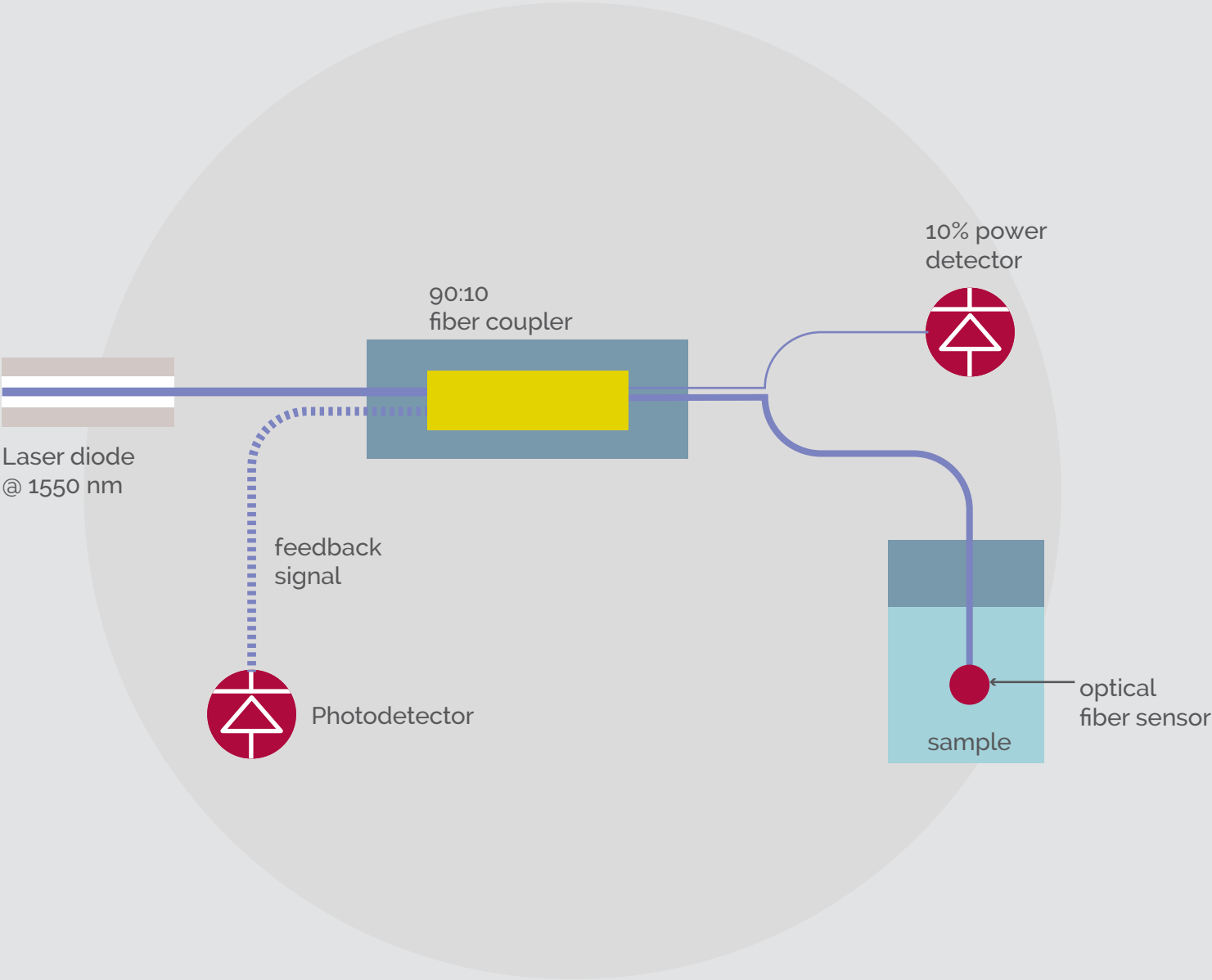
Class 3R laser product

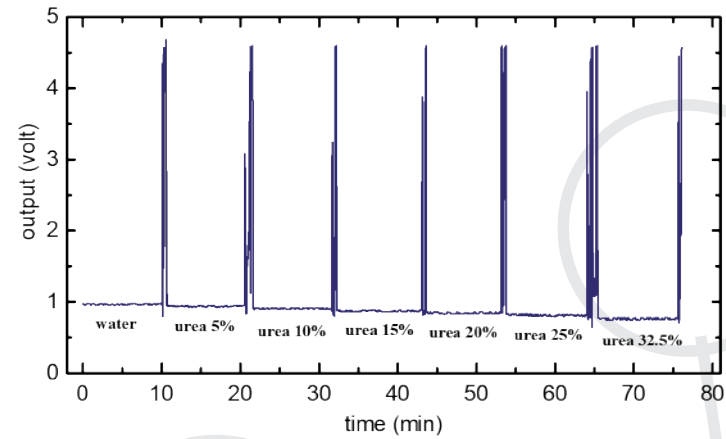
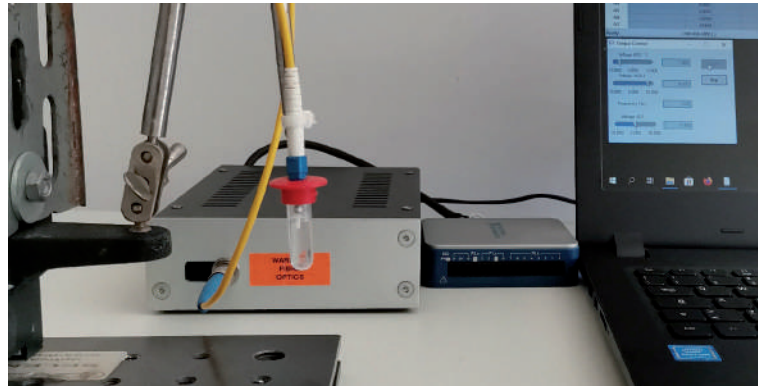
Class 3B laser product

ADVANTAGES

- High precise measurements Small size of fiber tip
- Resistance to corrosion, immunity to electromagnetic interference
- Using long enough fiber optic cables make Refbri to be available as "remote" and far away from control room and operator.
- Real-time measurements give the user possibility to view and control the sample properties.
- A user-friendly software is provided.
- Calibration is simple and flexible according to the ambient condition

How Refibri works





APPLICATIONS

FUNDAMENTAL RESEARCH

CONCENTRATION OF BINARY FLUIDIC MIXTURES FOR AEROSPACE PURPOSE

EFFECT OF ENVIRONMENTAL PARAMETERS (I.E. TEMPERATURE, HUMIDITY, PRESSURE, ETC.) ON REFRACTIVE INDEX OF LIQUID

OPTIMIZATION OF CONCENTRATION MEASUREMENTS BASED ON TIME CONSUMING TECHNIQUES

FOOD INDUSTRY

MEASUREMENT OF BRIX LEVEL OF GLUCOSE IN:

TOMATO INDUSTRY

MILK INDUSTRY

WINE AND BEER INDUSTRY

OTHER INDUSTRY

PAPER MILL



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