maselli PROCESS ANALYZERS

OLEINITEC

Part of WEST Invest Group

Maselli Misure Proposal Overview Beer

Maselli Production Range

IN LINE ANALYZERS

- Refractometers
- Beverage
- Beer
- Control Panels
- Systems

LABORATORY ANALYZERS

- Refractometers
- Beverage
- Beer
- Spectrophotometers

TOMATO GRADING

- Quality Station
- Modular Elements

WINE ANALYZERS

- Maturation
- Receiving Area
- Fermentation
- Process

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In line Anlyzers

REFRACTOMETERS

- **UR24**
  Bx / nD / User Scale
- **UR62**
  Bx / nD
- **URX1**
  Bx / nD / User Scale

BEVERAGES

- **IB08**
  Bx / Diet / CO_2
- **IB07**
  Bx / CO_2
- **UC09**
  CO_2 only
- **UG01**
  Oxygen

BEER

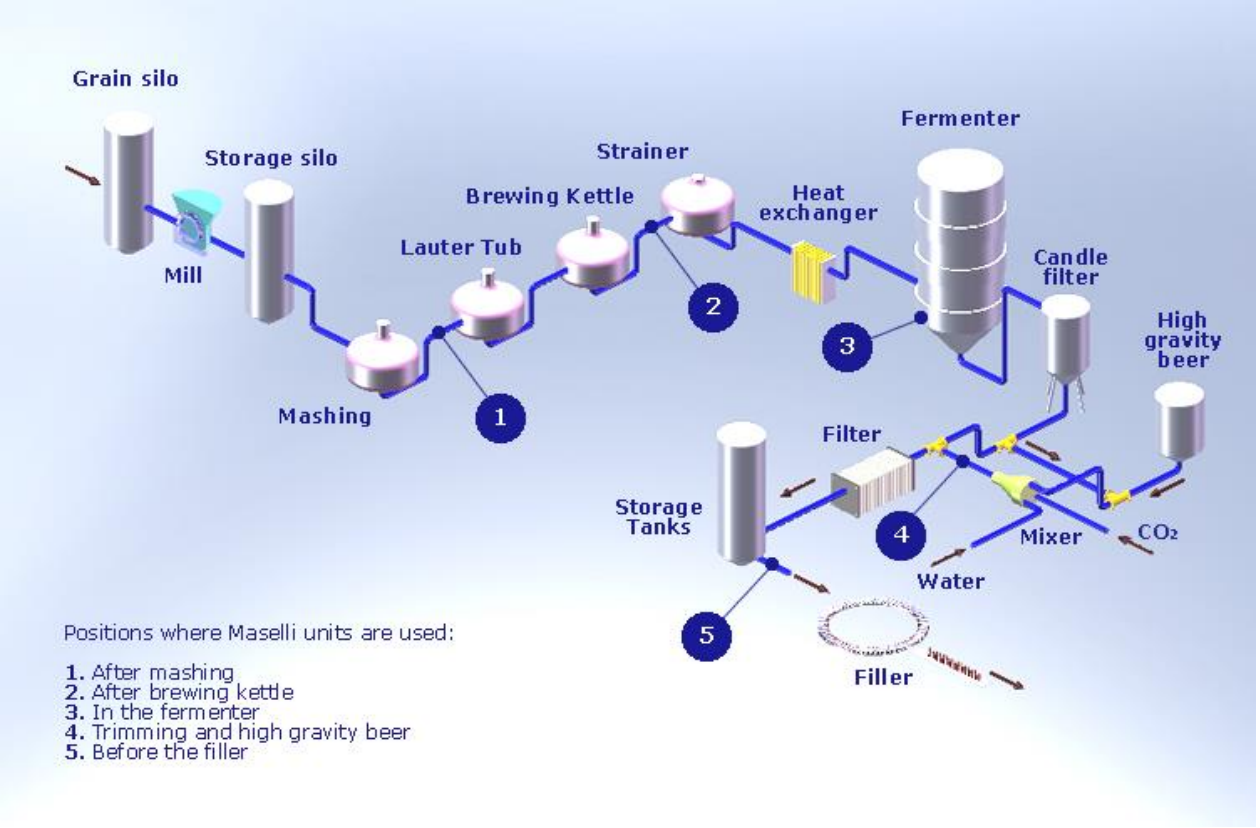
- **BA06**
  Alcohol / Extract / Plato / CO_2
- **UC09**
  CO_2 only
- **UG01**
  Oxygen

CONTROL PANELS

- **RC24**
  Optional Receiver
- **MP01**
  Basic Receiver
- **MP02**
  Top Receiver
- **M8**
  Data Collection / Software

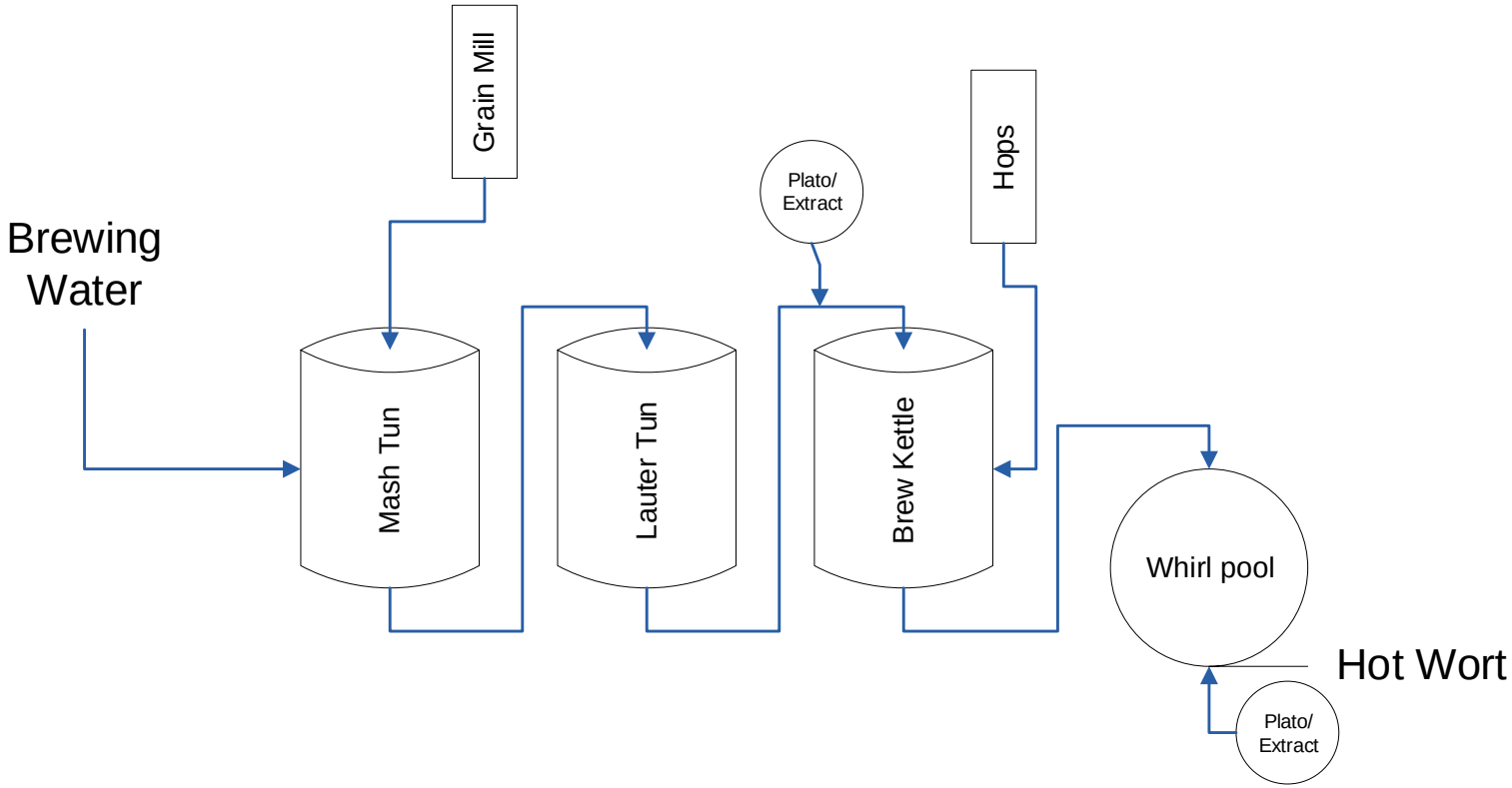
Maselli in the Brewery

Maselli in the Brewery

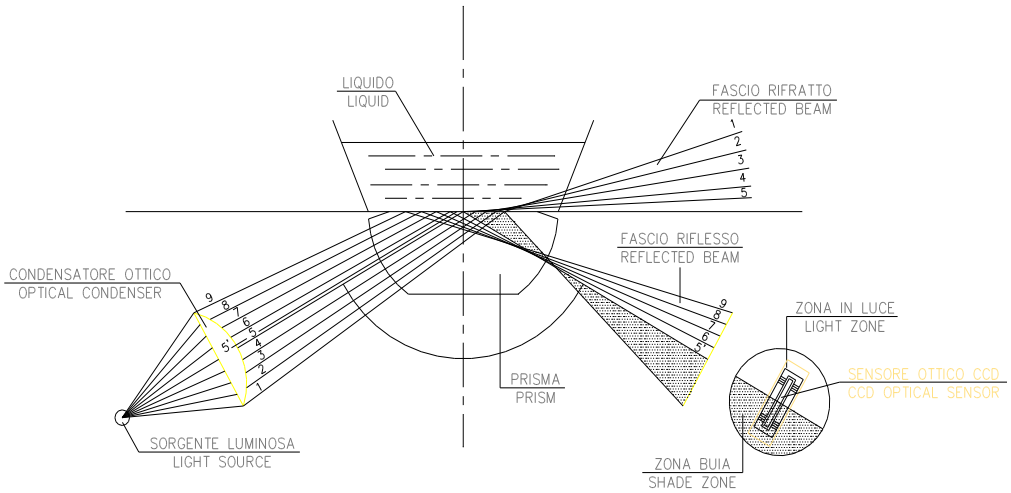


UR24 – Brewing Application

Brewhouse Efficiency - Plato/Extract

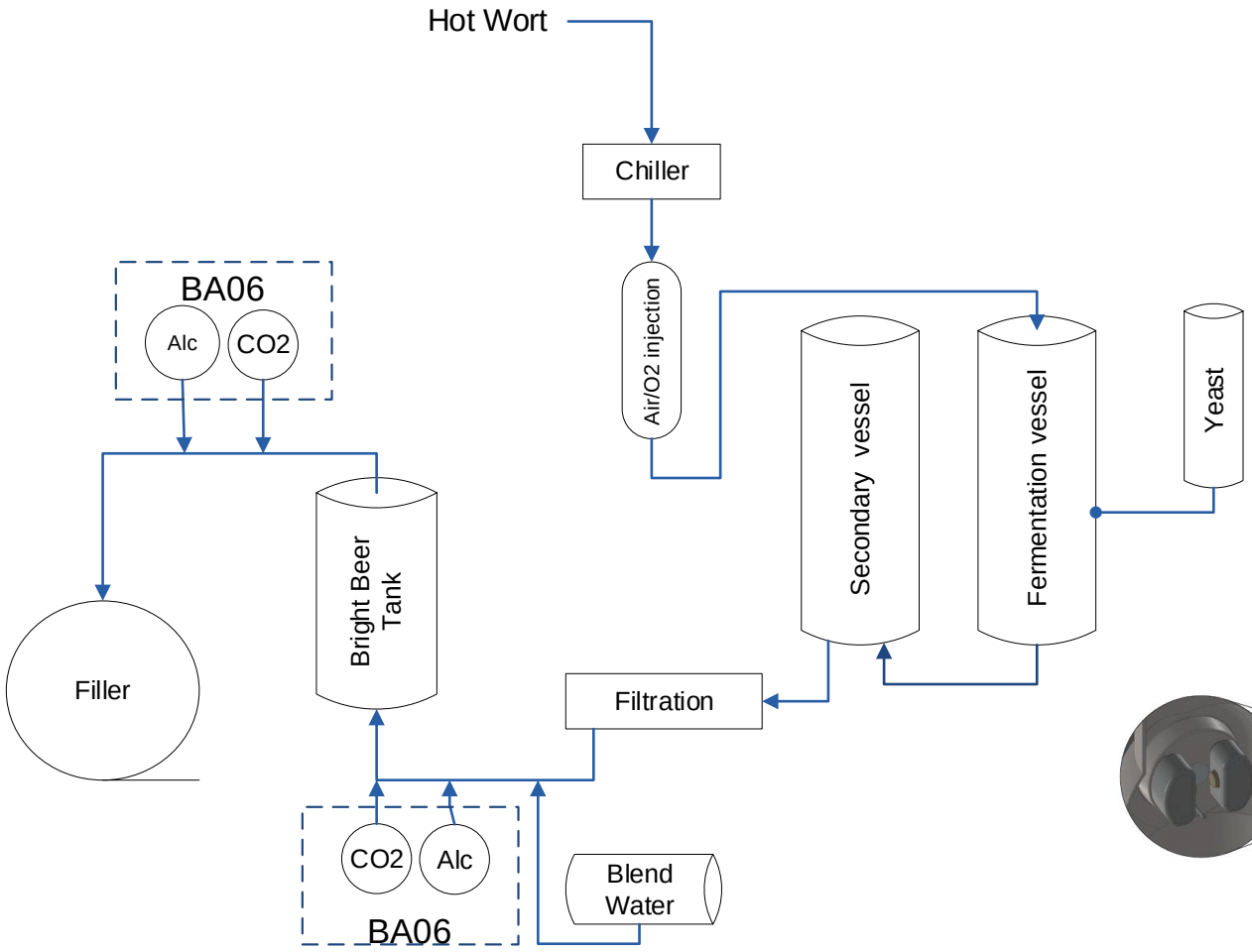


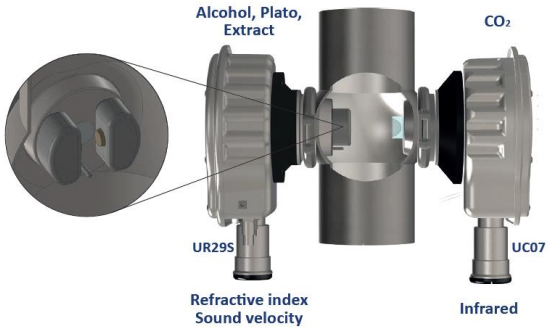
UR24 – Inline Refractometer



- Source of light is delivered to a prism
- The Liquid on the other side of the prism refracts the light
  - The greater the concentration is of the liquid the greater the refraction
- We measure the reflection of the source light with a CCD detector
- The reflected light measured with the CCD detector is used to determine the refractive index of the product
- We use the refractive index to determine concentration with standardized tables developed by the International Commission for Uniform Methods of Sugar Analysis (ICUMSA)

BA06 – Brewing Application





Old BA03 Beer Analyzer

Measurement Scale:

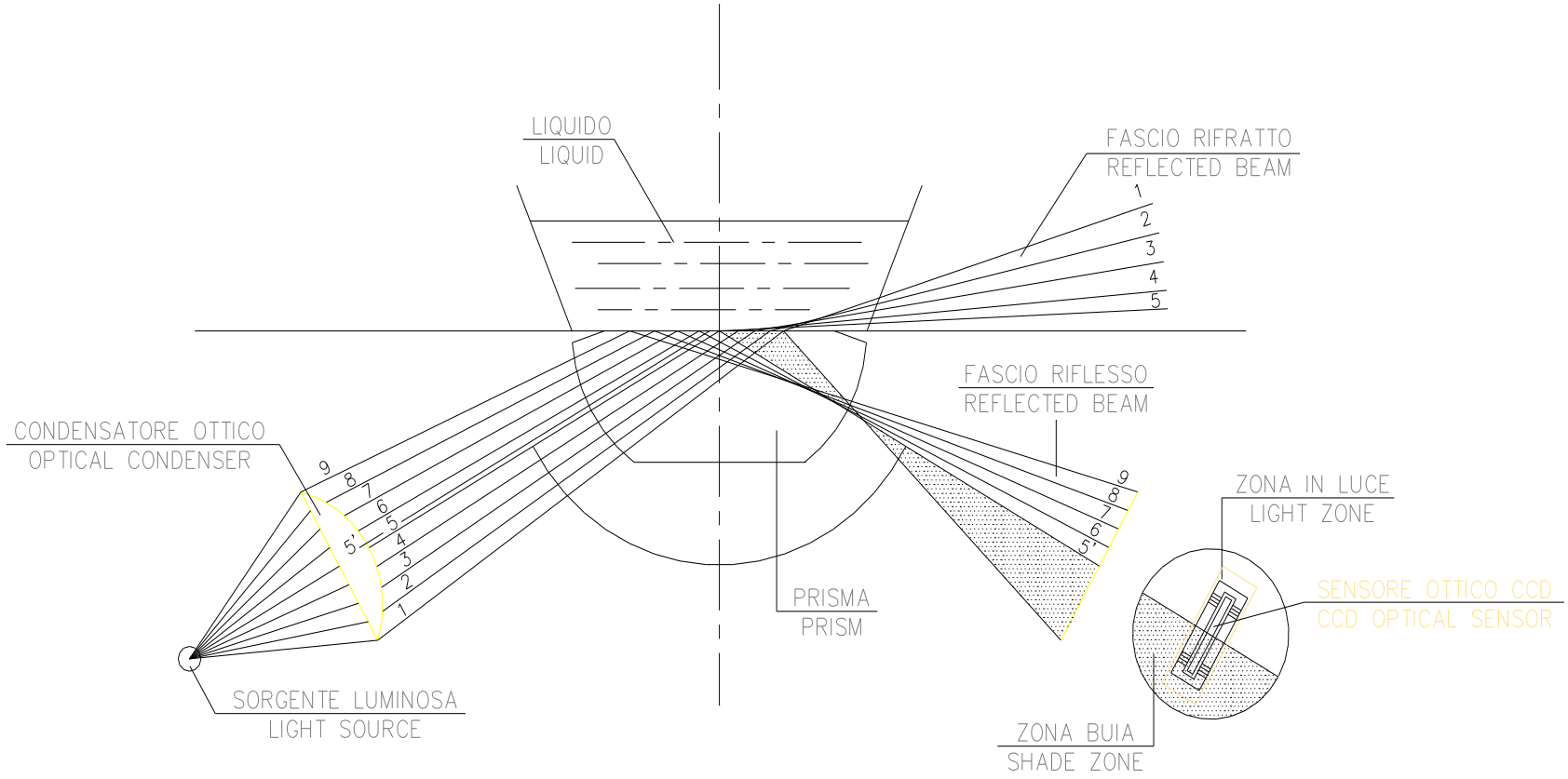
- Alcohol
- ° Plato
- Extract

US01
Sound Velocitymeter

UR29
Refractometer

MP01
Control Panel

UR29S Working Principle



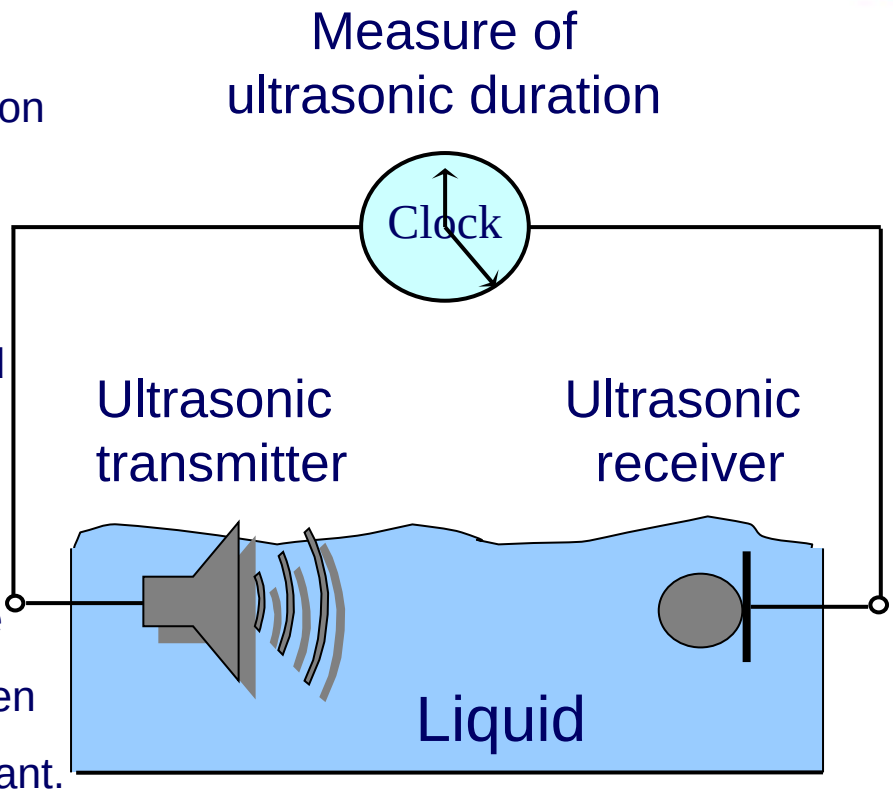
Refractometric side

UR29S Working Principle

The ultrasonic velocity of a liquid depends on the concentration of several components.

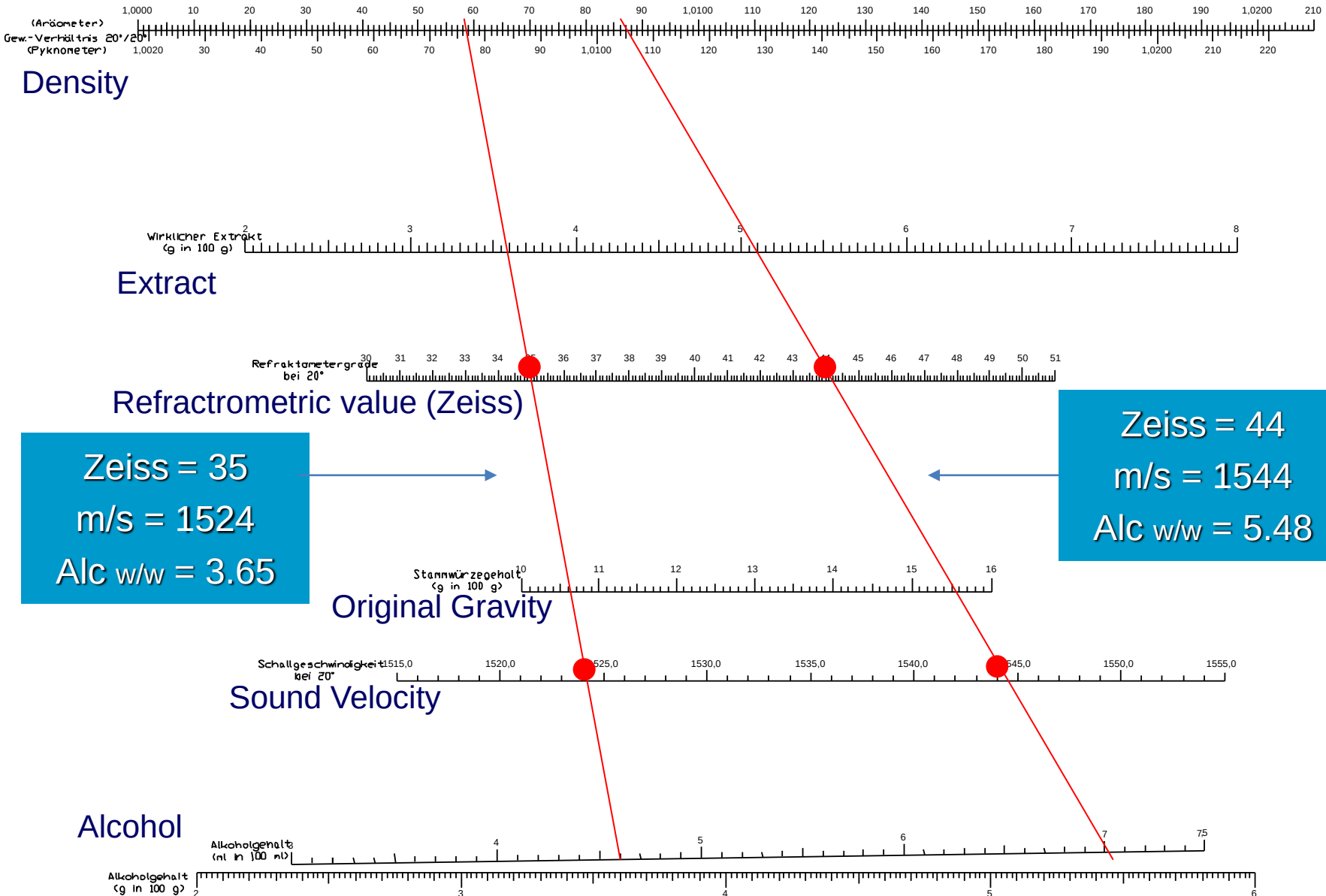
In order to determine the sonic velocity a transmitted pulse is send through the liquid and the time is measured till this pulse is recognized by the receiver.

This time measurement precisely gives the sonic velocity because the distance between ultrasonic transmitter and receiver is constant.

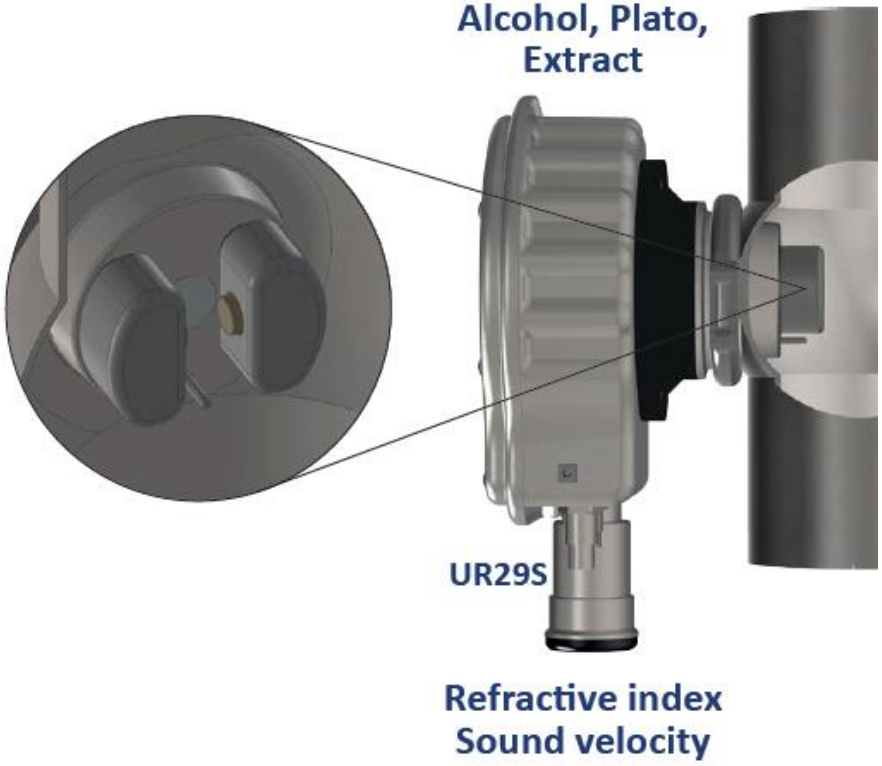


The relation between sonic velocity, temperature and concentration is specific for different fluids and is fully mathematically described inside the controller software.

Beer Normogram



New UR29S Beer Analyzer



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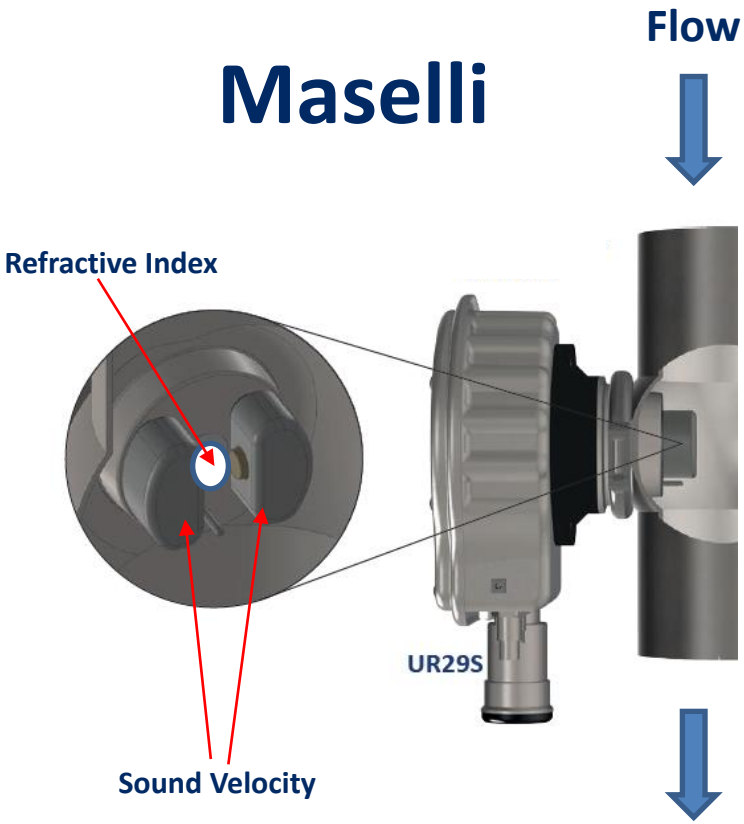
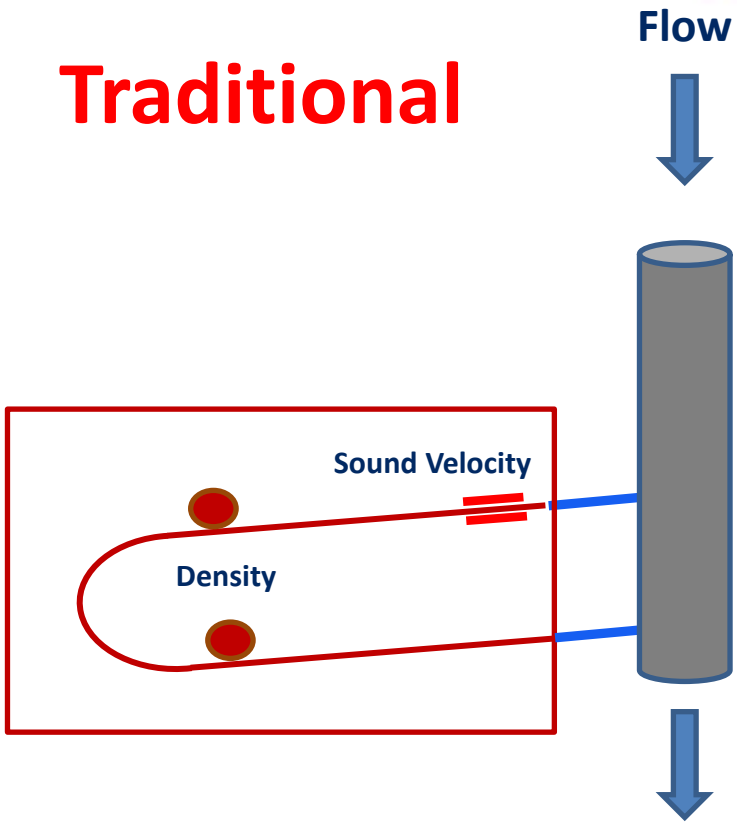
Maselli vs Traditional approach

Maselli

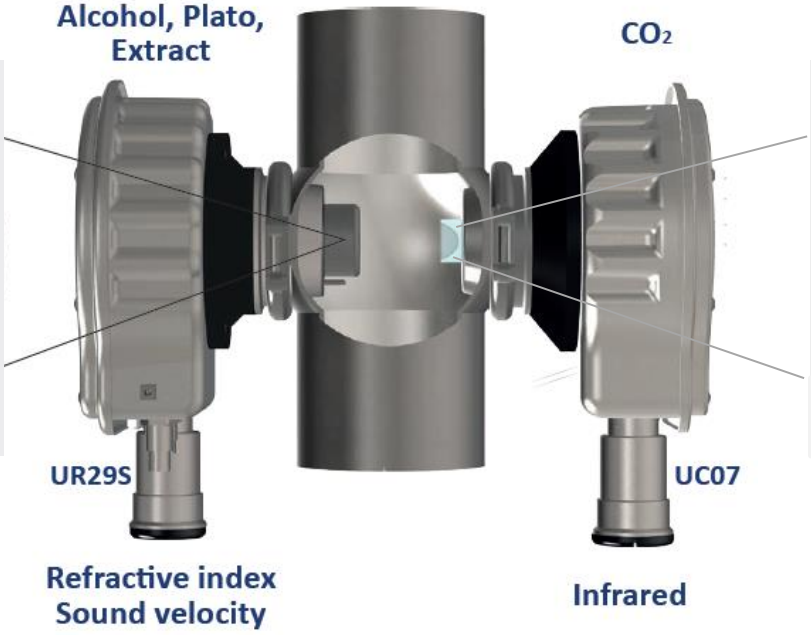


1. 100% in-line installation
2. No moving parts
3. Not affected by fibers / particles
4. Not affected by vibrations / pressure peaks

Traditional



BA06 Layout



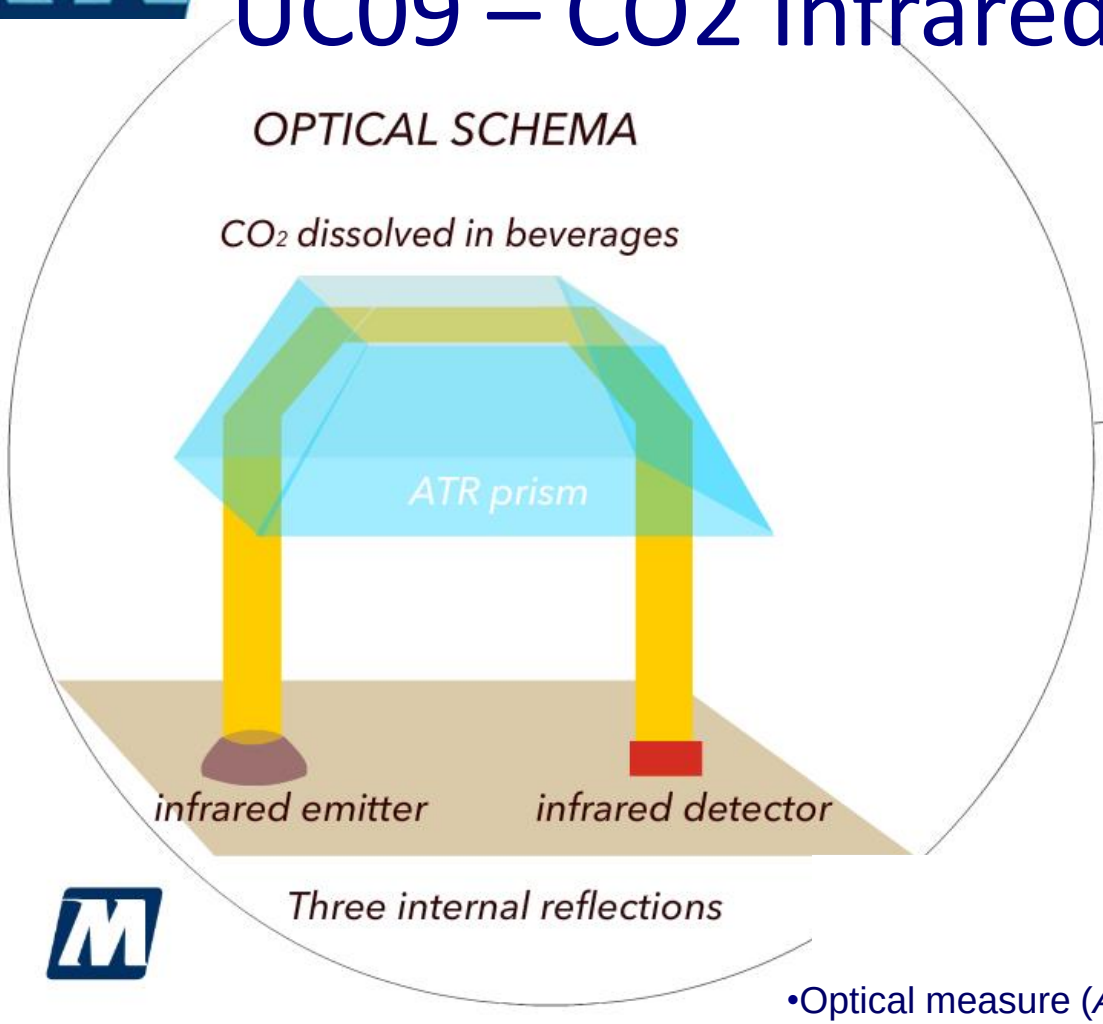
The **UR29S** measures the solid content in water and alcohol by light refraction and sound velocity

The **UC09** measures the CO2 content in liquid (IR)

MP01

Alcohol, ° Plato, Extract, optional CO_2

UC09 – CO2 Infrared Sensor

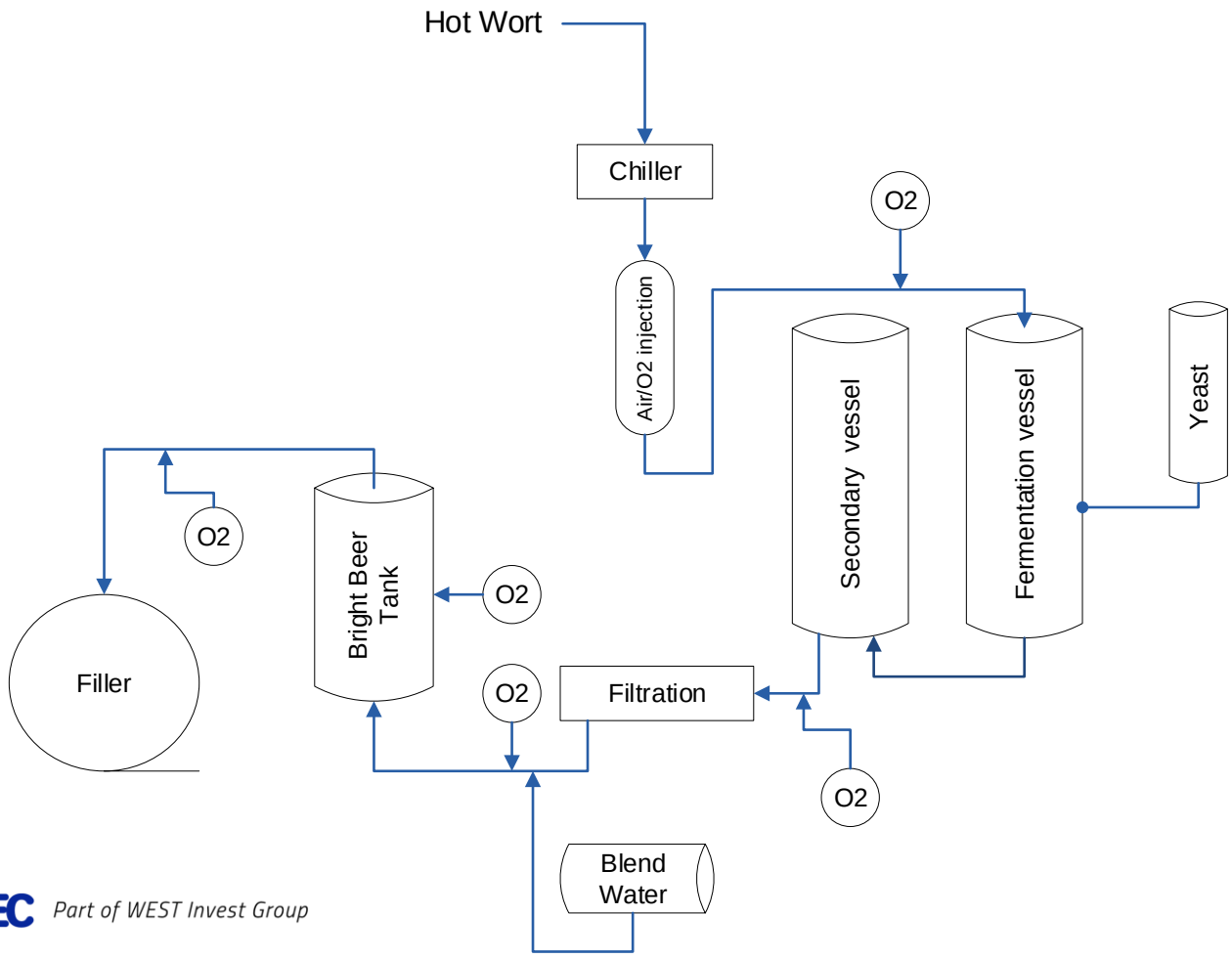


- Optical measure (*Attenuated total reflectance* - ATR)
- Solid state infrared emitter and infrared detector
- On-line installation (no by-pass, no recirculation pump needed)
- No moving parts, no membranes.

BA06: Benefits and Payback

- 100% in-line installation
- No need of by pass or bypass pump
- No risk of contamination of the beer
- Easy installation with 1 single Varivent fitting
- No moving parts
- No maintenance with optical technology
- No need of daily adjustment vs the laboratory
- Very quick response time

UG01 – Brewing Application



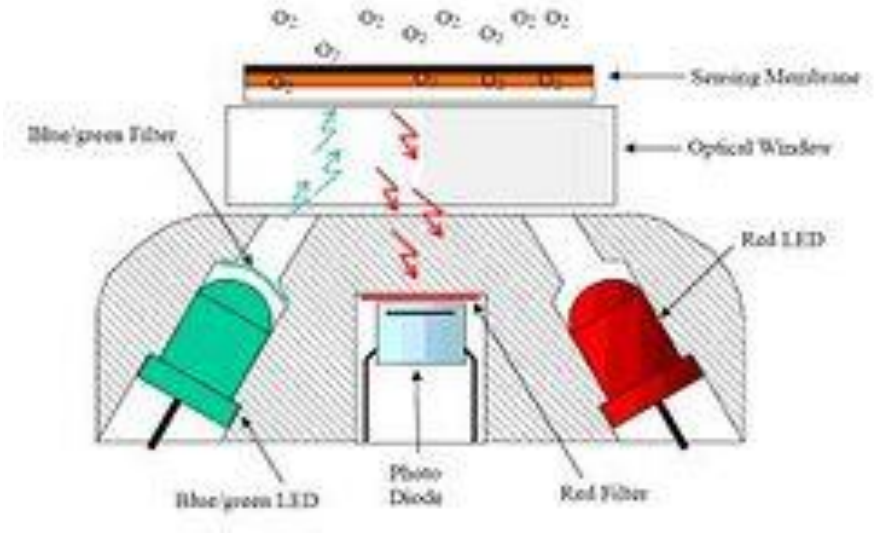
Oxygen option

New!

- 100% in-line installation
- Optical technology (flourescence quencing)
- Robust design
- Easy to maintain
- Upgrade possibility for BA06 or UC09

Working principles

Fluorescence Quenching O2 Sensor → O2 concentration



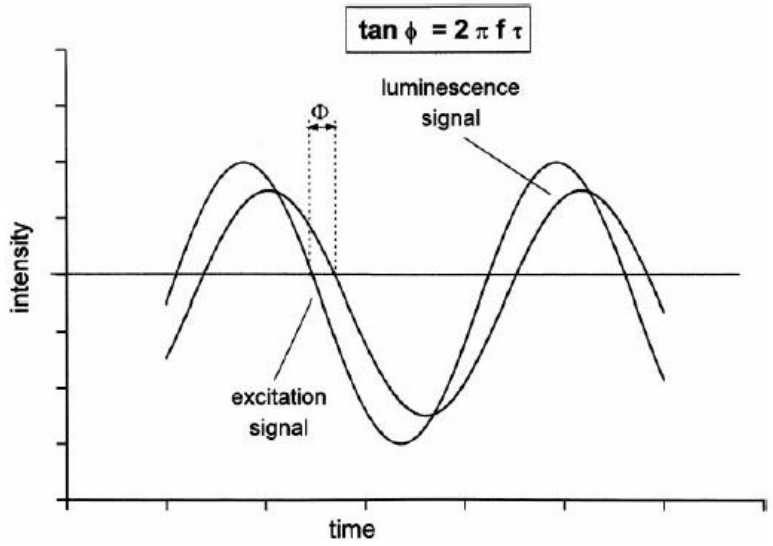


Fig. 1. Principle of phase fluorometric technique.

LP Series - Beer Applications

LP10 Alcohol Analyzer
+
SL02 Sampler

LP20 Portable Beer Analyzer
+
SL01 Sampler

LP20 Portable Beer Analyzer

LP20 Portable Beer Analyzer

Available Versions:

- O2 only
- CO2 only
- CO2/O2
- Alcohol only (not portable)

TP10 - TPO Analyzer