

- L** LABORATORY
- P** PROCESS
- S** SOFTWARE
- A** AUTOMATION

# Purity Analyser

## Sugar Solution

Unique combination of  
Polarimeter and  
Refractometer Measuring Head



# Applications

## Purity Analyser and NIR Polarimetry



### Purity Analyser

#### The market leader for Purity Analyser

The Schmidt + Haensch Purity Analyser is an inherent part in the analysis of the sucrose content. It is applied at payment laboratories of the cane and beet sugar receptions.

The open modular structure of the Schmidt + Haensch instrumentation allows the direct, flexible coupling of different instruments. The Purity Analyser is the coupling of the Refractometer (ATR Serie) to the Saccharomat® (Quartz-Wedge Polarimeter) or the Polartronic (Circular Polarimeter/Saccharimeter).

Both instruments are linked to one electronic controller showing the calculated value %purity of the sugar solution according to "Schmitz-Table" respectively the "Weighing Method" on the same display.

Even directly coupled the flexibility allows an independent use of each single instrument as well as the determination of direct measurements indicated in °Z, °Pol, %Brix according to the ICUMSA methods.

Schmidt + Haensch instruments achieve uncompromisingly precise and highly effective measurement values.

\* Cane/Beet purity is a determination of the level of sucrose present in cane relative to the total level of soluble solids.

### NIR Polarimetry

#### Schmidt + Haensch goes "green"; fast, reliable and chemical free sugar analyzing (Near Infra Red)

The NIR Polarimetry is an official ICUMSA method and a result of an intense cooperation between Schmidt + Haensch and several others leading institutes such PTB (German Standardization Institute), O.I.M.L., (Australian International Organization of Legal Metrology) and SMRI (Sugar Milling Sugar Research Institute). The aim was to implement a new, more enhanced sample preparation procedure where beside the given financial advantages per sample also the elimination of the detrimental effects of the chemical lead clarification was requested.

Within NIR polarimetry, the additional 882 nm wavelengths is being used as a result and is in particular suitable solution for the analysis of dark solutions without the need of any chemical reagents for clarification. Such samples can now directly be measured after only filtering the unsuspended particles.

To benefit fully from the NIR polarimetry, we recommend working with a dual wavelength (VIS & NIR) polarimeter from Schmidt + Haensch in combination with the sample preparation unit "Autofilt". Please prefer the Saccharomat® instead of the NIR circular Polarimeter as an excellent choice for its ability to measure even the darkest solutions.

# System Solutions

## Technologies / Performance



### Saccharomat V® - Real Saccharimeter

#### Worldwide unique quartz-wedge compensated Polarimeter

The quality of the Schmidt + Haensch Polarimeter's are achievements of 160 years' experience, unmatched in their precision and sustainability. In particular the Saccharomat® with its patented and only at Schmidt and Haensch applied unique measurement principles is perfectly designed for the analysis and determination of raw, intermediate and final sugar beet and cane products.

The Saccharomat® quartz-wedge measuring principles guarantees not only highest accuracy but also longest product life and fastest measurement without any need of recalibration over the entire lifetime. Besides of the Purity Analyser, this remarkable instrument is also used as a reference instrument for the payment systems in the sugar cane and beet receptions.

### Polartronic V® Models

#### The standard under the circular Polarimeters/Saccharimeters

Schmidt + Haensch is the only producer of circular polarimeters that guarantee a constant precision over the entire measuring range. Both devices, the Quartz-Wedge Polarimeter as well as the circular sugar Polarimeter contain unique features and have convinced the industries with their superior measuring principles.

The ability of the direct reading of the rotation angle without mechanical transmission is the guarantee for the unmatched precision and fastest reading of the measuring values.

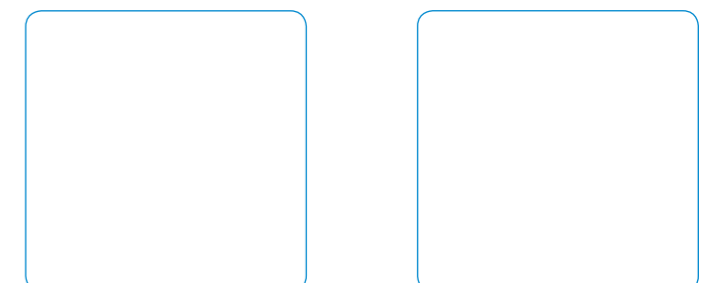
### The quartz-wedge principles

#### Available only at Schmidt + Haensch

This patented and unique measurement principle has been developed by Schmidt and Haensch solely for sucrose measurement and is only available with the Saccharomat®. It works with a quartz-wedge sliding in the optical light path. The instrument measures the path of the quartz-wedge (thickness), compensating the rotation of the sample and displaying the result almost in real-time without further mechanical transmission.

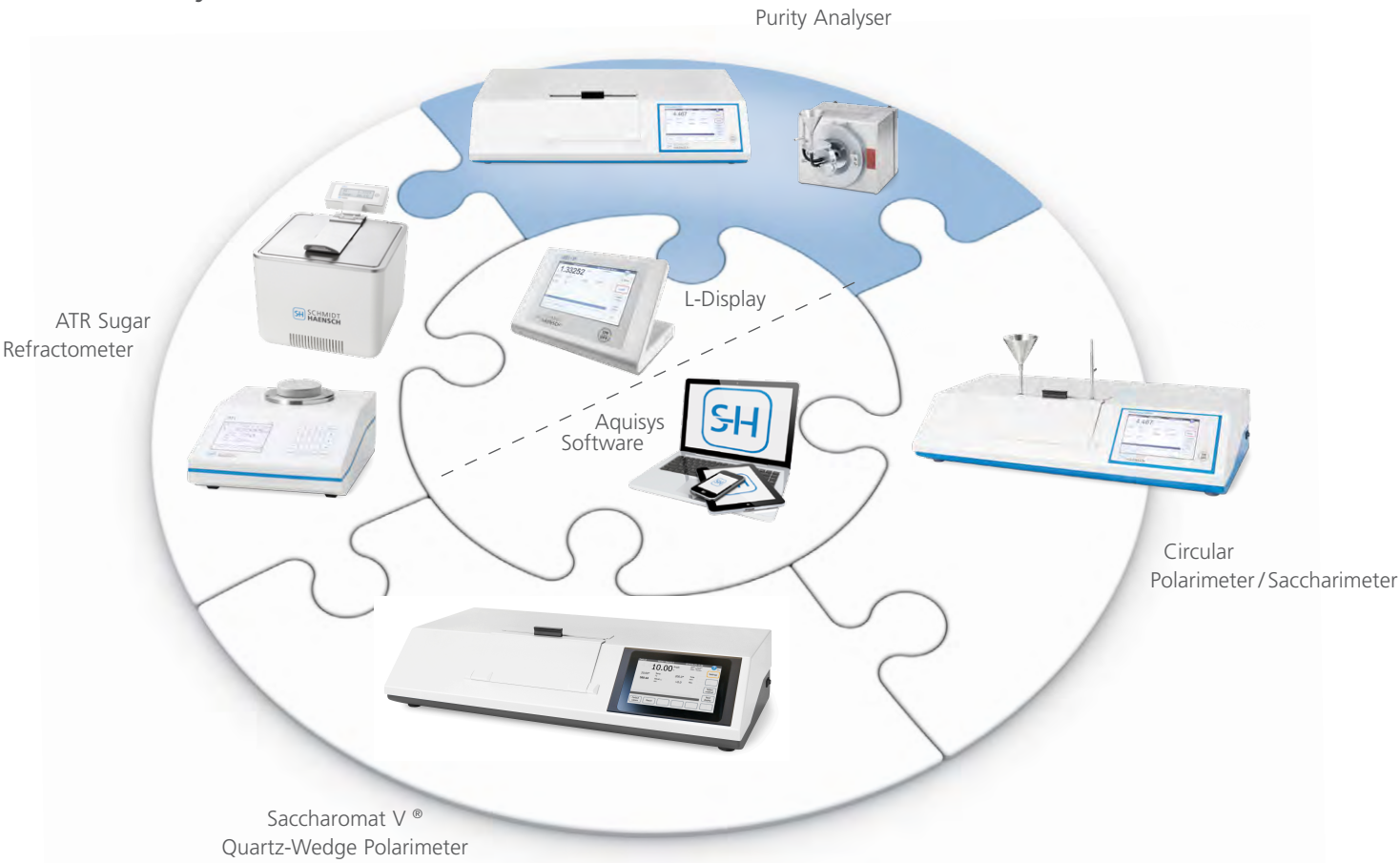
The classical circle polarimeter works with an angular encoder whereas the Quartz-Wedge Polarimeter (Saccharomat®) works with a linear encoding system.

Since the ORD of quartz being identical to the ORD of a sucrose solution, any occurring minor wavelength changes will be compensated directly and have no impact on the results.



# System Combination

## Modularity



### Saccharomat V<sup>®</sup>, the Unique Characteristics

#### Measures calibration free

Unlike the circular Polarimeters which require frequent wavelength calibration, the measurements of the Saccharomat<sup>®</sup> are much less influenced by the aging or variation of the frequency of light used.

#### Measures even darkest solutions

Due to the similar ORD (Optical Rotatory Dispersion) of sucrose and quartz, the Saccharomat<sup>®</sup> is affected 1000 times less by the emitted wavelengths of the light source, resulting in higher light yield and measurement of darker samples.

#### Measures with the same precision along the entire measuring range

Continuous almost real-time measurement without any mechanical transmission and abrasion.

#### Build for the centuries

Thousands of installations worldwide in the roughest environments have proven the advantages of the Saccharomat<sup>®</sup>. The sustainability and long life is a result of the nearly maintenance free working concept of this instrument.

### Autofilt/Autodosage

#### Easy and precise sample preparations to increase the throughput und reduce the cost

##### Autofilt

Sample preparation is crucial for the successful use of the NIR polarimetric methods. The Schmidt + Haensch filtration system "Autofilt" allows easy and fast filtration of turbid and highly colored samples, resulting in increased sample throughput, reducing handling errors, increasing the reliability and managing a better comparability among the samplings.



##### Autodosage

Schmidt + Haensch developed this rapid automated dosage system for the routine and precise laboratory work and to reduce the daily workload for periodic preparation of various diluted solutions in the sugar beet or cane juices analysis. Dosage and dilutions can be done optionally gravimetric (in g) or volumetric (in ml) for up to 3 samples.



**SCHMIDT  
HAENSCH**  
innovators by tradition since 1864

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