

# Saccharomat® & Purity Analyser

## Sugar Polarimeter & Sugar Purity Analyser



**SCHMIDT + HAENSCH**  
Opto-electronic measuring device since 1864

# Saccharomat®

## Unique in the world of Sugar Polarimeters



### Saccharomat® - Worldwide unique quartz-wedge compensated sugar polarimeter

SCHMIDT+HAENSCH is an active member in standardisation organisations. Especially in the ICUMSA our contributions have shaped measuring techniques and procedures essentially. Profound knowledge in research and development are the base for engineering innovative products.

One of these products is the Saccharomat®, a Polarimeter designed for sugar measurement with highest precision and implementing the patented SCHMIDT+HAENSCH principle of quartz wedge compensation. This principle guarantees longest product life and measurements without the need of calibration.

Cost saving features of the Saccharomat® are its low maintenance requirements and extremely reliable performance over its entire long lifetime. As such, it is perfectly suitable for the controlling of frequently repeated processes, e.g. in the reception laboratories of sugar factories.

- The principle of the quartz wedge compensation guarantees a high stability of the measuring values even for highly absorbing (dark) samples
- Measurement of very dark samples after filtration with **AutoFilt Z** without additional clarification with NIR - / NIRW2 models (infrared wavelength)
- Measurement of samples with optical density up to 5.0 in standard solutions (transmission 0.00001%)
- High compensation speed
- Calibration free
- Easy calculation of purity with additional Refractometer measuring head (s. page 4)
- Long life time of the instrument combined with low maintenance costs (low full costs)

### Applications

The Saccharomat® of SCHMIDT+HAENSCH is in use in the most important sugar factories all over the world. It was developed especially for the analysis of raw, intermediate and final products of sugar beet and cane processing.



### Technical Data

<b>Measuring range:</b>	-35 to +105°Z
<b>Resolution:</b>	0.01°Z
<b>Precision:</b>	± 0.02°Z
<b>Light source / Lifetime:</b>	LED / 50,000 h
<b>Wavelengths:</b>	Model 103: 587 / 589 nm Model 101: 882 nm Model 202: 587 / 589 and 882 nm
<b>Polarimeter tubes:</b>	50 / 100 / 200 mm
<b>Operating temperature:</b>	+10°C to +40°C, automatic temperature compensation when using a temperature-tube
<b>Measuring time:</b>	≤ 4 sec. over the entire meas. range
<b>Display:</b>	Graphics-LCD, 16 x 16 characters
<b>Interfaces:</b>	2x RS232, 1x parallel, 1x PS2, 1x USB (opt.)
<b>Dimensions:</b>	733 x 160 x 365 mm (WxHxD)
<b>Weight:</b>	Approx. 28 kg
<b>Standards:</b>	ICUMSA, O.I.M.L., Australian Standard K 157

### The quartz wedge principle

The ORD (optical rotatory dispersion) of a quartz is identical to the ORD of a sucrose solution. The idea to compensate the rotation of a sucrose solution by positioning of a quartz led to the development of the quartz wedge compensation principle.

The Saccharomat® works with a quartz wedge, sliding in the optical light path. Polariser and analyser are fixed at an angle of 90°. The instrument measures the path of the quartz wedge, compensating the rotation of the sample. Instead of the angular encoder of a circle polarimeter, the Saccharomat® works with a linear encoding system. Since the quartz and the sample have an almost identical reaction to slight changes of the wavelength, these are having no impact on the results.



# Purity Analyser

## Sugar Purity Analyser



Direct purity measurement and printout

Indirect purity measurement via software to PC

### Polarimeter

- Saccharomat® 103 | 101 | 202 or Polartronic M 100 | 101 | 202

### Refractometer

- Pure 01 | 02

### Polarimeter

- Polartronic N or M 100 | 101 | 202

### Refractometer

- ATR ST | SW | W1 | W2

### Purity Analyser

The determination of the purity of sugar cane and beet in the sugar industry can be achieved precisely and effectively using an automated laboratory analysing system, the Purity Analyser.

The modular structure of SCHMIDT+HAENSCH's instrument series permits the direct coupling of a ATR measuring head (Refractometer) to a Saccharomat® (Polarimeter). Combined with a common printer, it is possible to print all data relevant to the instrument and the measured values.

### Applications

Purity analysis of raw-, intermediate-, and final products of sugar cane and beet processing, reception control in pharmaceutical- and food industries.

### Precision

Two classes of precision are possible:

### Resolution:

N-series and ATR: 0.05°Z and 0.02 Bx  
M-series/Saccharomat® and Pure: 0.01°Z and 0.01 Bx

- Measurement of sugar concentration and indication in °Z and Brix, calculation of the % of purity of the sugar according to Schmitz-Table respectively the weighting method
- Temperature and Brix value are being corrected separately (applying a temperature tube)
- Automatic setting of ID Nos.
- GLP/GMP documentation, CFR21 Part 11 ready
- Precision and reproducibility of the measured values in accordance with the high requirements of quality control and payment systems

### SCHMIDT+HAENSCH GmbH & Co.

Waldstraße 80/81

D-13403 Berlin

Germany

Phone: +49 30 / 41 70 72-0

Fax: +49 30 / 41 70 72-99

e-mail: sales@schmidt-haensch.de

www.schmidt-haensch.com



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ISO 9001:2000

