HK7

Spectrophotometer

For continues In– Line ICUMSA measurement

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Description:

Continuous, controlled LED illumination (wavelength of 390nm to 720nm) to detect the degree of whiteness/ ICUMSA value of sugar.

The HK7 calculates the ICUMSA value. The calculated ICUMSA value is available as 4- 20mA signal and/ or via serial interface.

Through the modular construction (Sensor and evaluation unit are separate), the sensor can be installed at a difficult accessible places. This ensure the easy handling.

With the easy to use calibration function (calibration button), our customer can take spectra's for the calibration with the calibration button at the measurement place and read the internal stored spectra's with the calibration software.

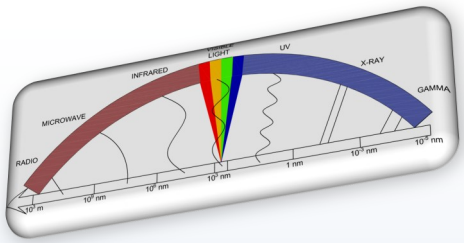
Due to this function and the open calibration system our customers can expand independent an existing calibrations or create new calibrations.

Measurement Design:

The Sugar is moving on a conveyor belt under the sensor system.
The sensor system is located at a **distance from approx.150mm- 200mm** over the product surface. Due to our **state- of- the- art technology** have **distance variation between ± 25mm no influence** on the measurement result. Sugar with higher distance variations as ± 25mm have to be planed by a scraper. For top-quality measurement results the environment has to be dust-free. With the cleaning system of “compressed-air“ the sensor can keep dust- free.

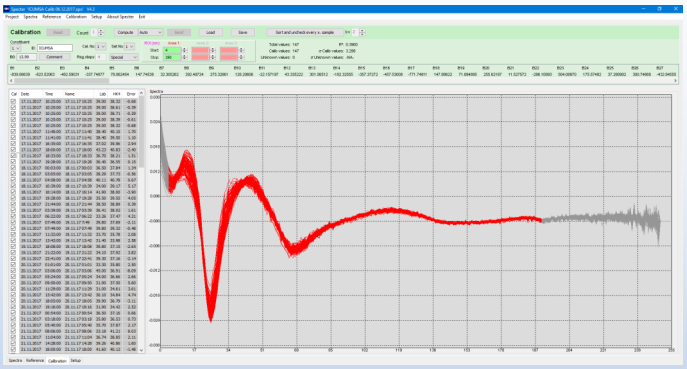
Advantages:

In difference to spectrophotometers from the competition, the HK7 is not operating with Xenon-Flashlight. The controlled LED (Lifetime min. 10 years) illumination gives an improved stability of the measurement.



No moving parts in the optic:

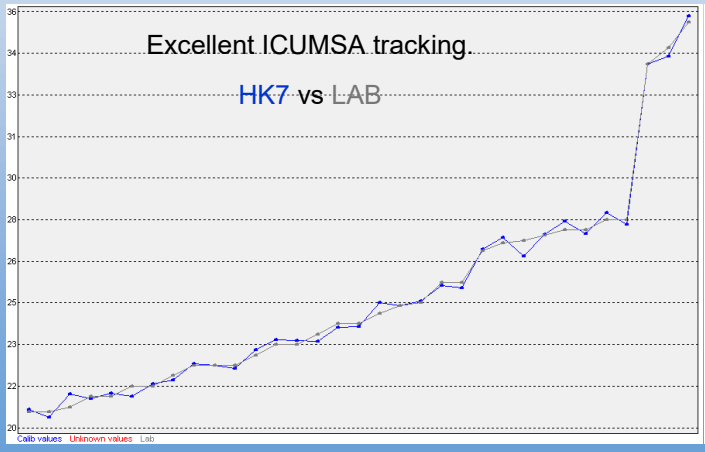
The Harrer & Kassen GmbH uses in his HK7 Spectrometer an visible light detector.

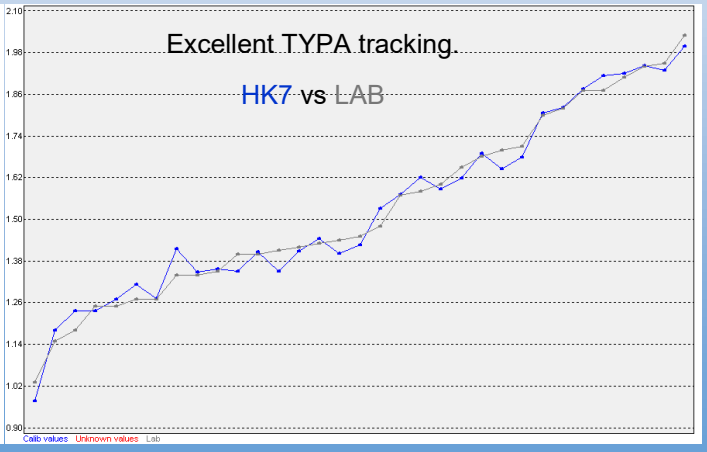


Calibration Software for ICUMSA:

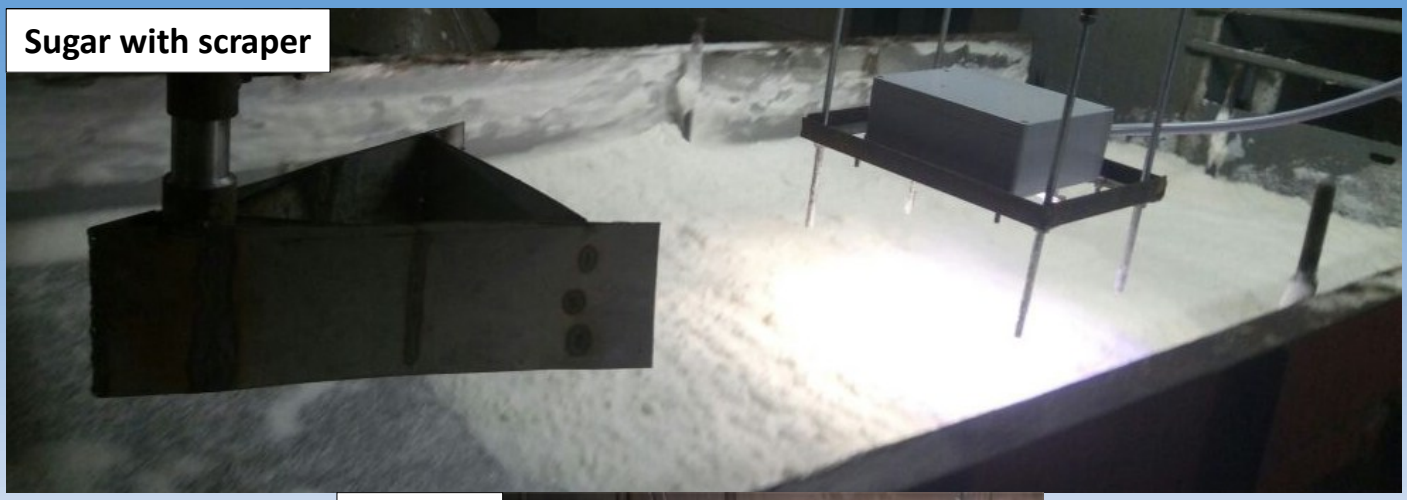
The product will be irradiated with special developed LED’s. The resulting diffuse reflection (the diffuse reflection contains the necessary information of the constituents) is transmitted via a fibre optic to the spectrometer. The spectrometer split the spectra in 256 support points.

Through the splitting of the spectrums, can we select with our calibration software the good middle wavelength rang without the noise.



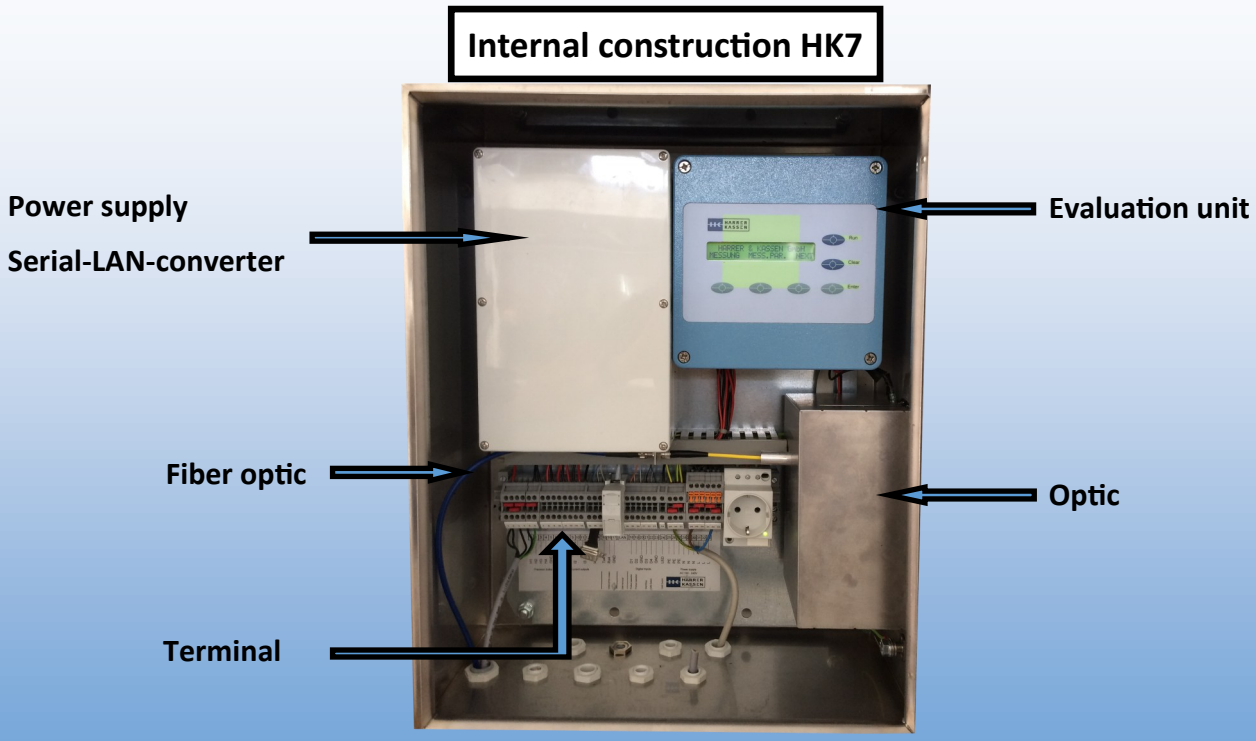


Sugar with scraper



Sugar

Internal construction HK7



Advantages:

- State- of- the- art technology
- Installation at a difficult accessible place is easy to handle with remote control
- Non- destructive measurement
- Easy to use software
- Open system:
  - existing calibration can be expanded
  - new calibrations can be created independent
- 10 Spectra's are evaluated per sec.
- No moving parts in the optic, like filter wheel
- Low maintenance

Customer Benefit:

- Real time measurement
- Continuous monitoring over the whole production
- Production with constant and documentable quality
- Early detection of fail production
- Menu in different languages
- Sensitive data are in a protected menu
- After commissioning the user interface can be locked
- No drift of the measured values through lamp aging
- Distance variations of ± 25mm do not influence the measurement

Technical data evaluation unit:

Housing:	Stainless steal
Size H x W x D:	400 x 499 x 212 mm
Weight:	ca. 20 kg
Protection Type:	IP66 / NEMA 4
Power supply:	85 - 265 V/ AC, optional 24V
2 Analog outputs:	0/4 - 20mA / isolated 1500V
PC- interface:	RS232 or RS485
Digital input:	Ext. Start / Stop
PROFI-BUS-DP:	optional
Operation:	6 in membrane keypad integrated soft keys
Display:	2x 24 Sign LCD, LED– backlight
Environmental temperature:	-20°C - +40°C
Connection:	via fibre optic

PC– requirement:

- 300 MHz clock speed (at least) recommended Pentium III-Processor (or faster)
- Windows 7 (32 und 64 Bit) or higher
- 512 MB RAM (or higher)
- USB interface

Technical data sensor:

Housing:	Aluminum die casting
Size H x W x D:	280 x 230 x 110 mm
Weight:	ca. 4 kg
Protection Type:	IP65 / NEMA 4
Environmental temperature:	-20°C - +40°C

Directives:

The HK7 is CE- conform, according to the followings directives:

- EMC directives 2014/30/EU:
  - generic standards EN 61000-6-2
  - generic standards EN 61000-6-4
- Low- voltage directives 2014/35/EU
- RoHS directives 2011/65/EU

Scope of supply:

The HK7 is supplied with sensor, evaluation unit, calibration button and software.

At the commissioning, the operating personal gets a device instruction / training.