HK7

Spectrophotometer

For continues In– Line colour measurement

HARRER KASSEN

Harrer & Kassen GmbH
Am Heschen 4 - 6
D - 75328 Schömberg - Langenbrand

Tel.: +49 (0)7084/9248-0
Fax: +49 (0)7084/9248-29
www.harrerkassen.com
info@harrerkassen.com

Description:

Colour measurement based on the standard CIELAB. Continuous online-identification of colours and indication of the deviation from the colour-standard.

Colour determination of products with smooth and planar surfaces, no abrasive bulk material.

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.

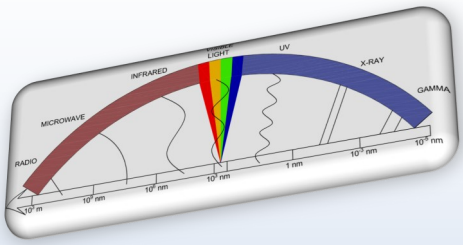
Measurement Design:

The sensor system is located **max. 150mm** over the to be detected product surface. The product surface is approximately smooth and planar. The products (sugar, metals, textiles, food, plastics) are moving on a conveyor belt under the sensor system.

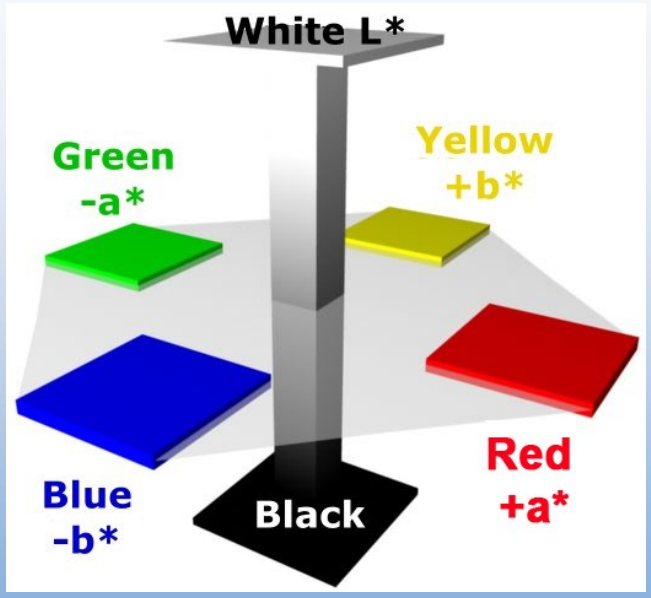
Fine powder products are planed by a scraper.

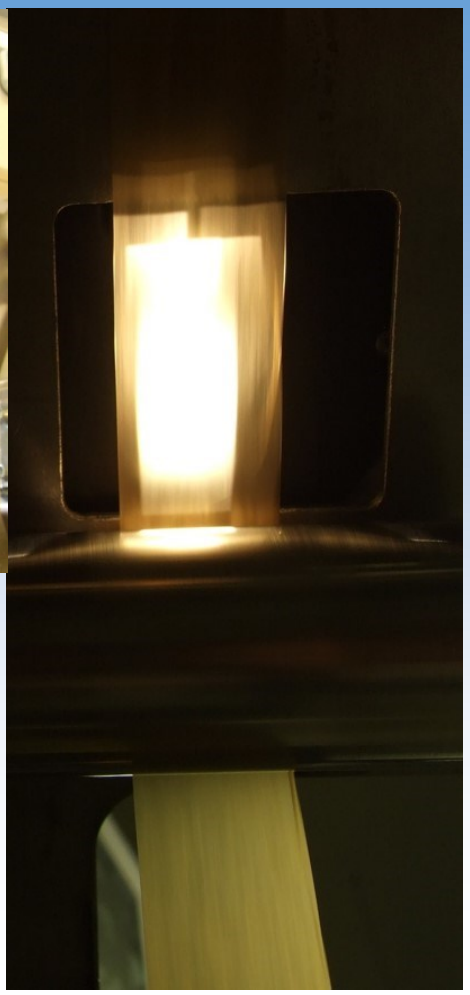
For top-quality measurement results the environment has to be dust-free. With the cleaning system of “compressed-air“ the sensor can keep dust- free.

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.



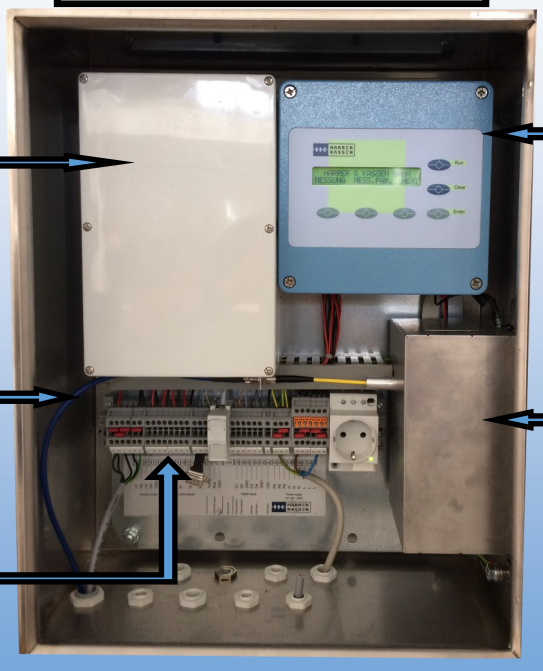
The CIELAB-System is a colour space, which was specified by the International Commission on Illumination CIE (Commission Internationale de l'Éclairage) in the year 1976. It was further derived from the CIE colour system and is based on the CIE “master” space which was introduced in the year 1931. CIELAB system is today the most common colour system.
On the basis of this equipment independent 3D-colour model, colour differences can be identified numerically. The model is impartial and complies nearly the human perceptiveness, by adapting the geometrical distance between two colours in the colour space with the human perception.





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

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/ Net/ Modbus TCP:	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:	120 x 120 x 90mm
Size H x W x D:	120 x 220 x 90mm
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

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.

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