

Spectrophotometer HK7



continuous online colour measurement



Spectrophotometer

range of application

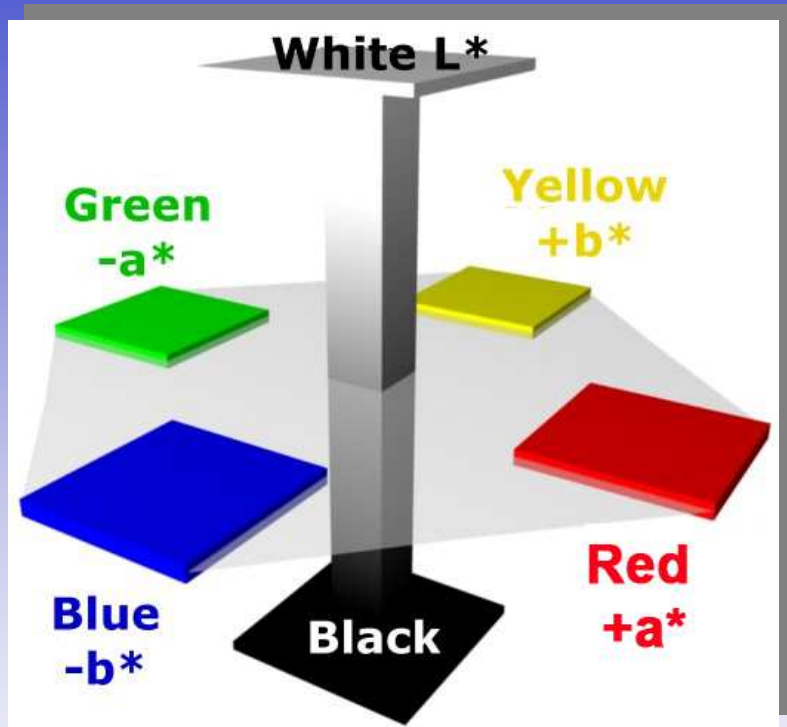
Colour measurement based on the
standard CIELAB.

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.

Spectrophotometer

guideline



The CIELAB-System is a colour space, which was specified by the International Commission on Illumination CIE (Commission Internationale d'Eclairage) 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.

L* ,the light intensity, from 0 = absolute black to 100 = absolute white.

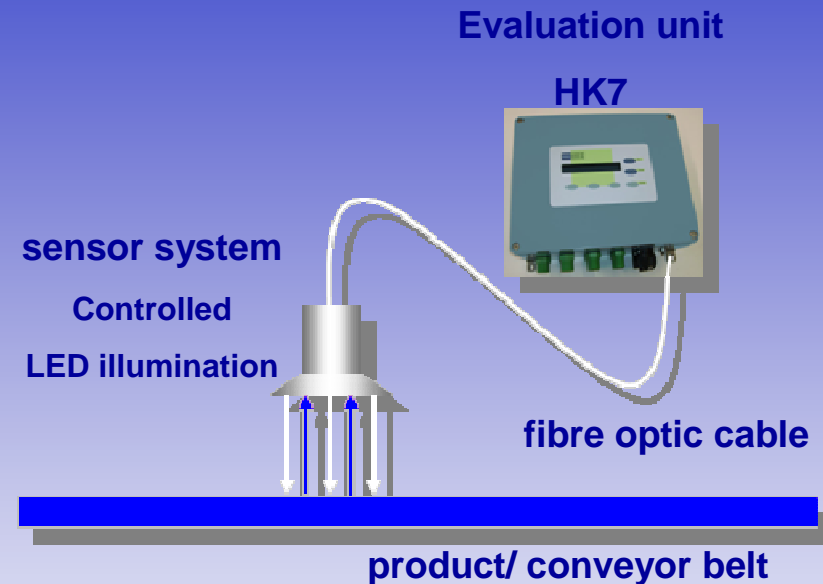
a* describes the red - green axis. Negative values are green, the positives are red.

b* describes the yellow - blue axis. Negative values are blue, the positives are yellow.

Spectrophotometer

funktionality and configuration

- aluminium pressure casting housing
hxwxd: 230x280x110mm
- keypad
- 4 analog outputs 0/4 – 20mA
- RS232 or RS485
- connection sensor system – evaluation
unit: fibre optic cable
- sensor system: LED-illumination with
7 LEDs



Continuous, controlled LED illumination and identification of the product colour in the colour space after CIELAB.

The evaluation results in the visible light sector from 390 – 720 nm. The distance between sensor system and product has to be kept obligatory absolute non-varying.

The colour evaluation, that is the output of the measurement results, occurs in 4 channels: L^* , a^* , b^* or dL^* , da^* , db^* and dE^* .

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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 (metals, textiles, food, plastics) are moving on a conveyor belt under the sensor system. Fine powder products are planed by a scraper.

For the attainment of top-quality measurement results the environment has to be dust-free.

With the option “compressed-air” the measurement can be kept free of dust.

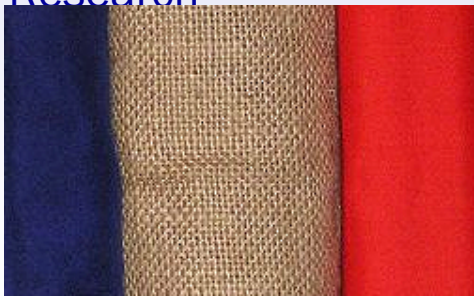
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applications

The range of feasible applications is very large. The material of the product is not relevant, but the surface has to be approximately smooth and planar.



Plastics industry
Food industry
Textile industry
Chemicals industry
Printing industry
Lamination industry
Cosmetics industry
Research



Coating of chip boards
Lacquering of plates
Surfaces of cheese blocks
Textiles, panels, webs
Degree of whiteness, i.e. sugar
Meat processing



Spectrophotometer

product types

HK7-Versions

HK7-1: basic configuration

HK7-2: basic configuration
+ automatical white balance

HK7-3: basic configuration
+ whiteness index
+ triple sensorsystem

HK7-4: basic configuration
+ whiteness index
+ triple sensorsystem
+ automatical white balance



Spectrophotometer

product types

HK7-Versions

HK7-1: basic configuration

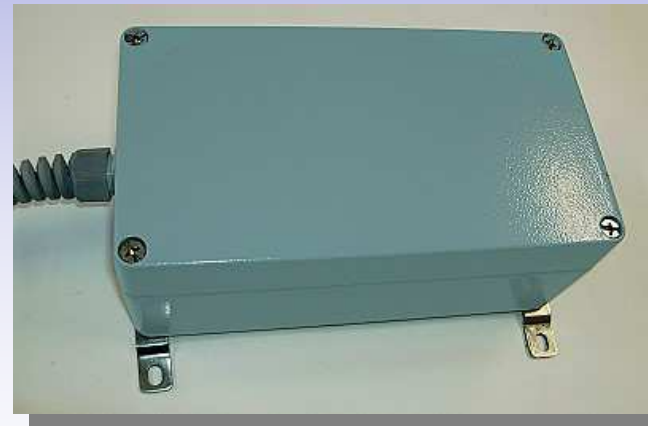


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product types

HK7-Versions

HK7-2: basic configuration
+ automatical white balance



Spectrophotometer

product types

HK7-Versions

- HK7-3: basic configuration
- + whiteness index
 - + triple sensorsystem
 - + distance-lasersensor



Spectrophotometer

product types

HK7-Versions

HK7-4: basic configuration

- + whiteness index
- + triple sensorsystem
- + automatical white balance
- + distance-lasersensor

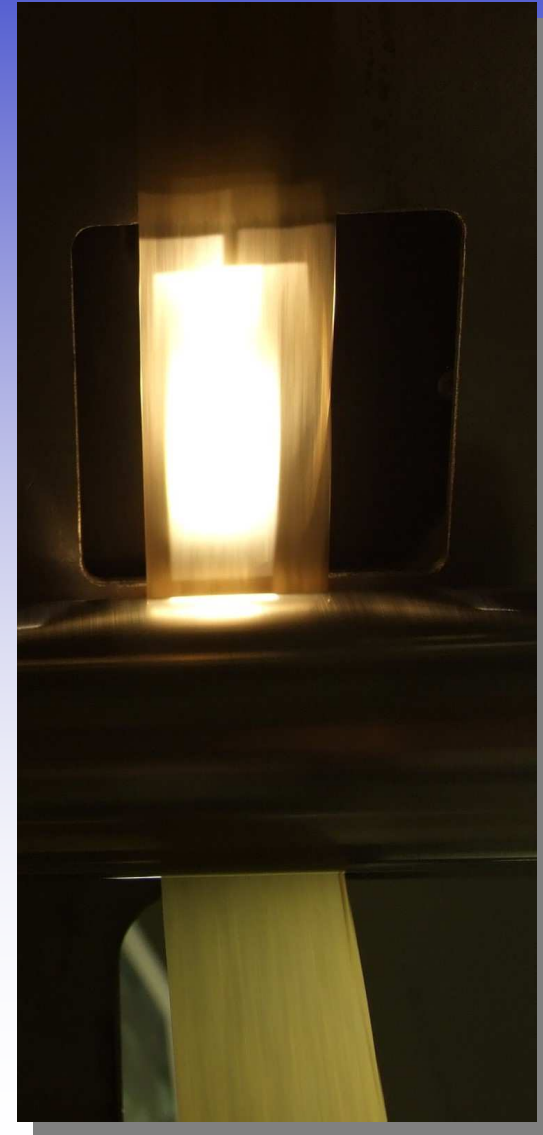


Spectrophotometer

examples

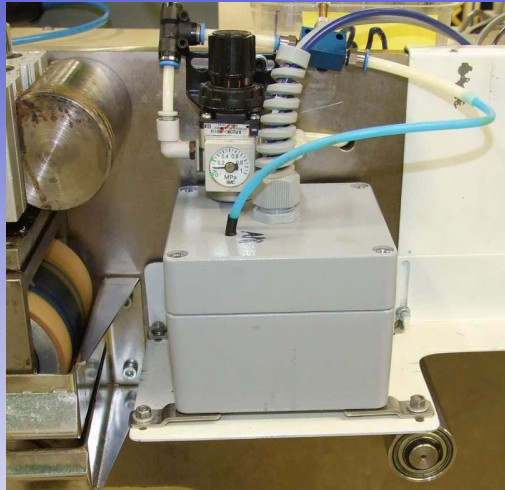


colour measurement of
syntetic sausage casing



Spectrophotometer

examples



colour measurement
of
syntetic sausage
casing

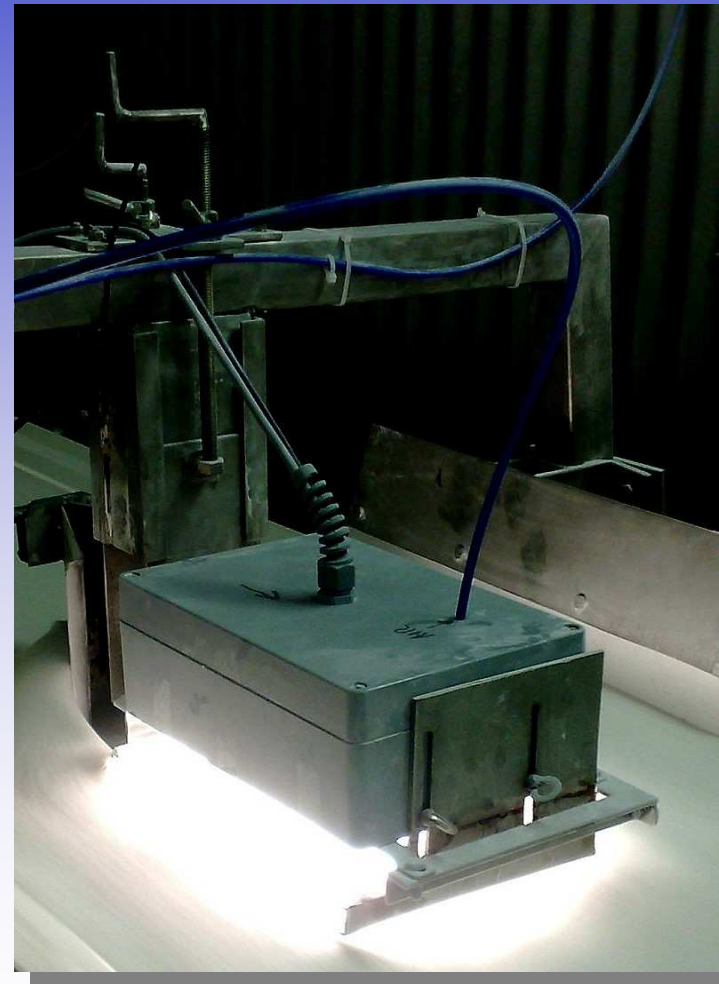


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examples

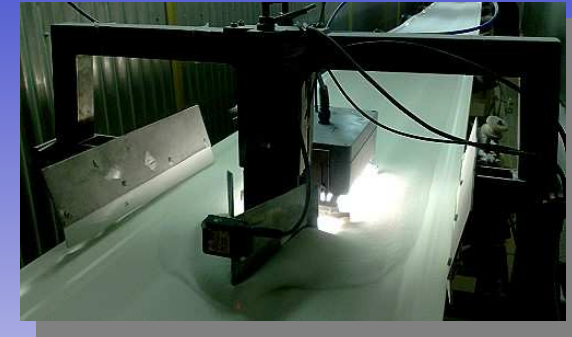
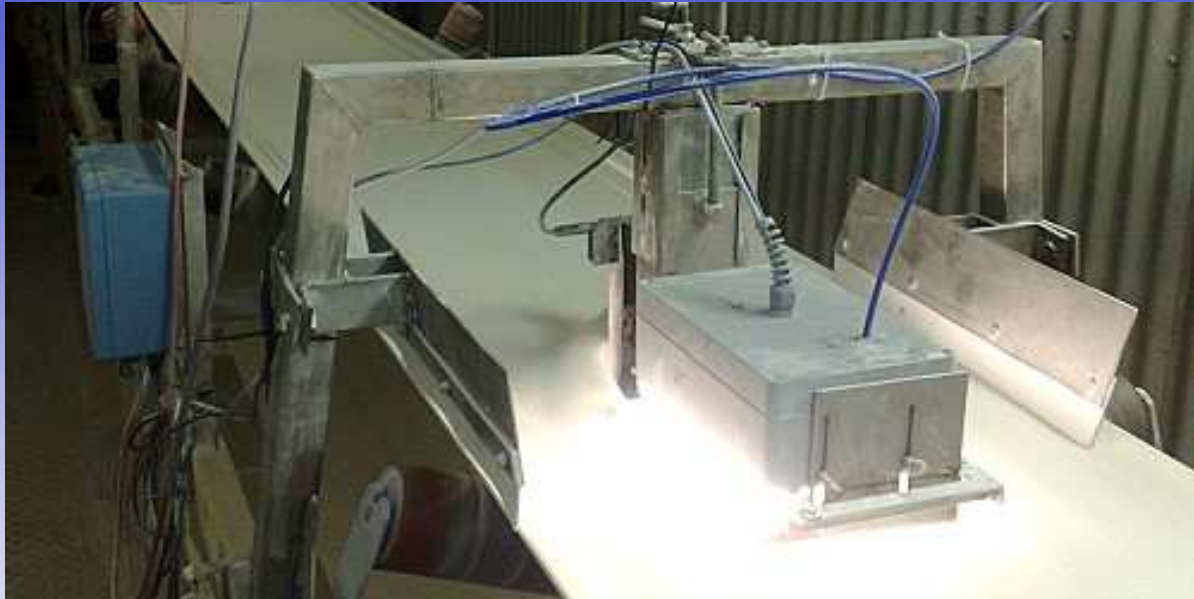


colour measurement
degree of whiteness
sugar



Spectrophotometer

examples



colour
measurement
degree of whiteness
sugar



Spectrophotometer

technical data

Measure geometry	45/90 Spot size at 100mm distance appr. d=60mm
Standard lights	D65, A,C,
Standard observer	2* (1931), 10* (1964)
Colour space	CIEL *a*b*.dE*
Spectral range	390nm – 720nm
Spectral resolution	1,3nm
Reproducibility	dE=0,´1
Gauge head dimensions	
-basic configuration	120 x 120 x 90mm
-automatical white balance	120 x 220 x 90mm
-triple sensorsystem	230 x 280 x 110mm
System size	230 x 280 x 110mm
Indication	Relative values, absolute values or reflectance spectrum in PC
Calibration	With implemented white standard
PC-interfaces	Seriell RS 232 or RS 485
Power supply	85 – 270 VAC
Protection class	IP 65
Environmental temperature	-20° - +40° C
Product temperature	-20° - +70° C

Thank you



for your attention !

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