# HK11

NIR– Laboratory measurement device
For solid and pasty products

HARRER KASSEN

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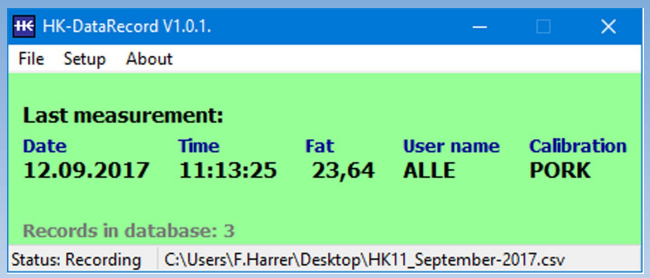
## Description:

The HK11 is an Stand– Alone NIR- (Near- Infrared) laboratory measurement device with state- of- the- art technology. Which can measure one organic component like fat, protein, water, collagen, etc. in solid and pasty products.




Through the simple sample preparation, the light and compact construction, is the HK11 suitable for the use in the laboratory or as AT– Line measurement device.

With the easy to use calibration function, our customer can take spectra's at the device and read the internal stored spectra with the calibration software.

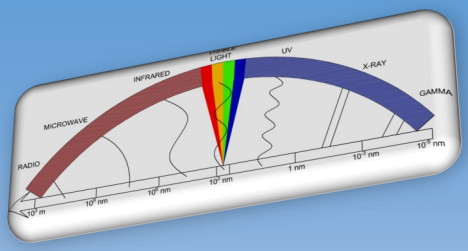
Due to this function, our customers can expand independent or with our help an existing calibrations or create new calibrations.

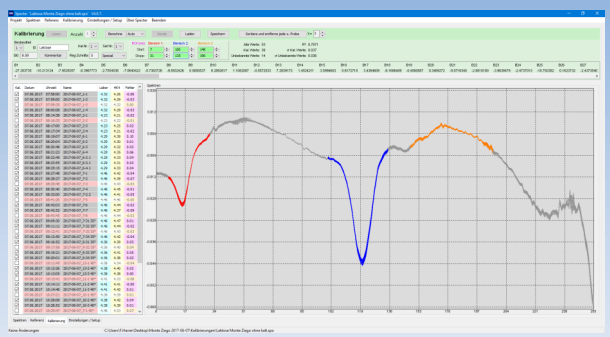
## Advantage:

- Stat–of–the–art NIR- Technology
- No moving parts in the optic, like filter wheel
- No expensive cleaning agents
- Archiving of the measured values in a csv file (can be opened with Excel)
- With 9,5kg is the HK11 a lightweight under the laboratory devices
- Easy to use software:
  - for laboratory operation
  - for calibrations
- Open system:
  - existing calibration can be expanded
  - new calibrations can be created independent
- Fast result (approx. 36sec.)
- Can be connected to an existing laboratory PC
- 10 Spectra's are evaluated per sec.

## No moving parts in the optic:

The Harrer & Kassen GmbH uses in his laboratory measurement devices an NIR (Near- Infrared) Diode- Array detector (Spectrometer) with thermoelectrically cooling, this is necessary for an optimum Signal-to-Noise ration, even under rugged application conditions.



The product will be irradiated with a special developed Halogen lamp. 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 optimum wavelength rang for each component.

## Measurement data:

| | |
|---|---|
| Analysis time: | approx. 36 sec. (adjustable) |
| Sample temperature: | +4°C for Meat (Other production temperature dependent) |
| Measuring equipment: | Petri dishes ( 90, 100, 145mm) |
| Sample volumes: | dependent of petri dishes size |
| Cleaning: | only glass petri dishes |
| Reference measurement: | Reference plate |

## 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

## Scope of supply:

The HK11 is supplied with software, cable and is connected to an existing PC or laptop.

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

## Directives:

The HK11 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

## Technical data:

| | |
|---|---|
| Housing: | ABS plastic / Aluminum |
| Size: | H x W x D 340 x 375 x 255 mm |
| Weight: | approx. 9,5 kg |
| Protection Type: | IP32 |
| Power supply: | 100 - 240 V/AC – 50/60 Hz – max. 200mA |
| Environmental temperature: | -20°C - +30°C |
| Operation: | 4 in membrane keypad integrated soft keys |
| Display: | 2x24 Sign LCD, LED– backlight |
| PC– Interface: | USB |