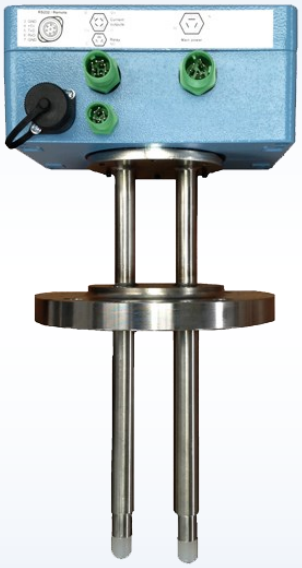
HK6 Series

Microwave measurement devices
Continuous In- Line BRIX measurement

HK6-C

HK6-CLN



HK6-F

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:

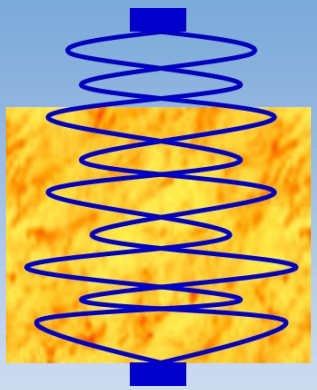
The microwave measurement devices generate an electromagnetic wave of low energy. This signal is coupled via an antenna into the product.

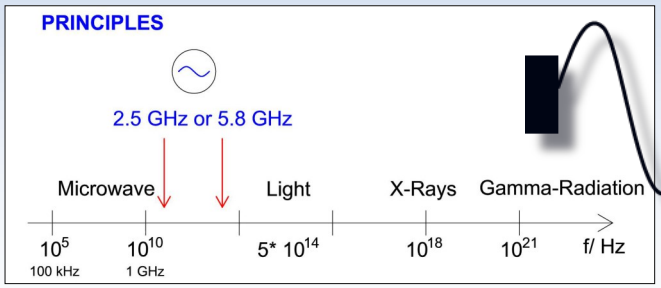
Depending on the dielectric properties of the product the signal propagates in the product. After the signal has passed the product a second antenna receives the signal (Transmission).

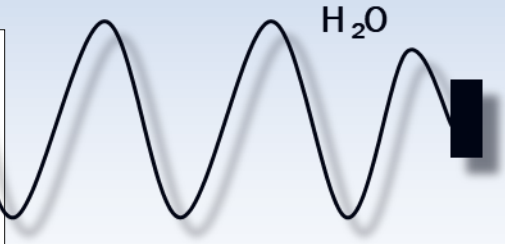
Amplitude and phase shift of the received signal are an expression for the water content or dry matter of the product.

The microwave measurement is very stable and it has a quick response to product changes.

Transmissions signal passes through an in-homogenous product







Conditions for a successful measurement:
The product contains NO METAL between the antennas!

The HK6- CLN is the only compact solution on the market for the continuous measurement of the BRIX content at a continuous cooking pan.

If an instrument whiteout cleaning function is installed at a continuous cooking pan, the antennas are covered with crystalline sugar in a short time.

Through the covered antennas, the measurement result is distorted because covered sugar between the antennas is measured. A correct measurement of the BRIX content is therefore impossible.

A HK6- CLN is equipped with an automatically cleaning function, the antennas are cleaned over the whole production in a periodically interval.

The cleaning function ensures a reliable measurement of the BRIX content.

Advantages:

- State-of-the-art microwave technology
- Installation at a difficult accessible place is easy to handle with remote control
- Vibrations do not effect the measurement results
- Non- destructive measurement
- No moving parts
- Wear- free
- Maintenance- free

Customer Benefit:

- Real time measurement
- Continuous monitoring over the whole production
- Production with constant and documentable quality
- Early detection of fail production
- Easy calibration through one point calibration
- Calibration at the device, without any software
- Menu in different languages
- Sensitive data are in a protected menu
- After commissioning the user interface can be locked

The measurement is contacting, the measured values are available as BRIX, % (only % without constituent name), g/l, %H_2O or TS.

Because of further increasing quality requirements after ISO and EU standards, the industries have an enhanced demand for improved quality control, standardization and In-Line trend observation.

The Harrer & Kassen microwave instrument can be installed at pipelines or vessels in a sugar plant.

<u>But consider:</u>

Install at a place where no air bubbles appear and ambient temperature is below 85°C

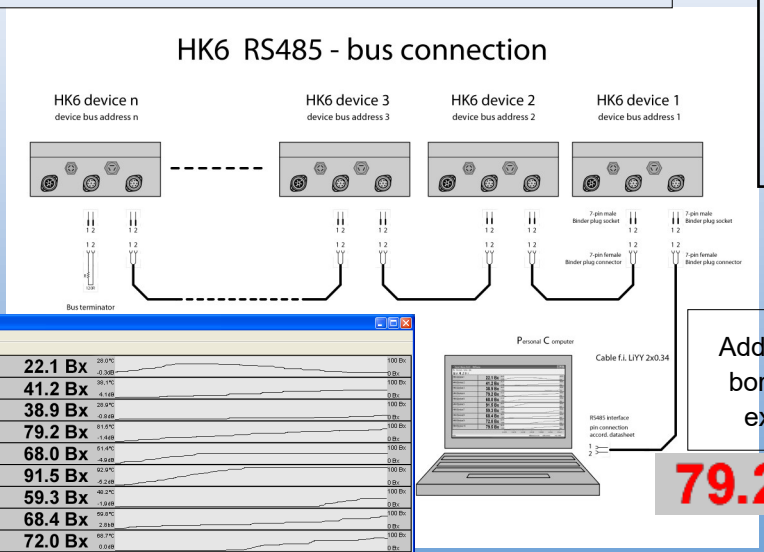
When installing at a pipeline, always install in a vertical pipe after the pump with a pressure >1,5 bar

The microwave instruments are pre- calibrated at delivery.

For a standard Brix measurement just a one point calibration is necessary. The one point calibration has shown an accuracy of 0,5 Brix over the range from 60 to 90 Brix.
0,2 is possible with a multiple point calibration.

A „good“ calibration is based on „good“ laboratory values. I.e. accurate sampling and analysis of the calibration samples.

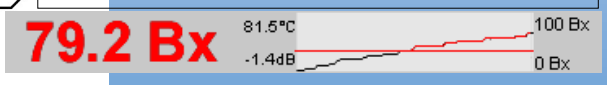
With the HK6 Display software, it is possible to show the measured values of up to 16 devices, which are connected via RS484 bus.



The measurement is not dependent on flow rate.
The measurement is not influenced by changes in particle size and distribution.

The instruments have a true measuring range from 0 to 100 Brix. That makes calibration very easy.

Additionally you can setup freely definable borders. As soon as the measured value exceeds the limit it is displayed in red.



Evaluation unit

Technical data HK6:

Housing:		Aluminum die casting
Size H x W x D:		200 x 140 x 90 mm
Weight	-C/ -C-CLN:	ca. 5 kg / ca. 7 kg
	-F/ -F-CLN:	ca. 6 kg / ca. 8 kg
Protection Type:		IP65 / NEMA 4
Power supply:		100 - 240 V/ AC optional 24V/DC – 50/60 Hz – max. 200mA
PC-interface:		RS232 optional RS485
2 Analog outputs:		0/4 - 20mA / isolated 1500V
Relay contact:		max. 5A / 250V AC (only for -CLN)
PROFI-BUS-DP:		optional (only for HK6-F / -F-CLN)
Temperature sensor:		NTC
Environmental temperature:		-20°C - +85°C

Operation HK6-C / -C-CLN:

Membrane keypad	6 integrated soft keys
Display:	2x24 Sign LCD, LED– backlight

Operation HK6-F / -F-CLN with remote control:

Size H x W x D:	200 x 120 x 64 mm
Membrane keypad:	6 integrated soft keys
Display:	2x 24 Sign LCD, LED– backlight
Connection:	male socket

Directives:

The HK6 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:

All HK6 are supplied with sensors / antennas and evaluation unit.

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

Antennas

Technical data antennas:

Material:		Stainless steel
Size antennas:		Ø 16 x 195 mm
Flange	HK6-C / -F:	DN65 / PN6
	-C-CLN / -F-CLN:	DN65 / PN16
		Any other flange on request
Antenna cover:		Standard: PP up to 120°C
		On request: Teflon up to 170°C
		PEEK up to 250°C
Product temperature:		Standard: >0°C - +120°C