

HK6-C



HK6-CLN





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Continuous In- Line BRIX measurement Microwave measurement devices



### **Description:**

The microwave measurement devices generate an <u>electromagnetic wave of low</u> <u>energy</u>. 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 <u>water</u> <u>content or dry matter</u> of the product.

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



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:	Customer Benefit:
State-of-the-art microwave technology	Real time measurement
Installation at a difficult accessible place is easy to	Continuous monitoring over the whole production
	Production with constant and documentable quality
<ul> <li>Vibrations do not effect the measurement results</li> </ul>	Early detection of fail production
Non- destructive measurement	Easy calibration through one point calibration
No moving parts	Calibration at the device, without any software
Wear- free	Menu in different languages
Maintenance- free	Sensitive data are in a protected menu
	After commissioning the user interface can be locked

Transmissions signal passes through an in-homogenous product



The measurement is contacting, the measured values are available as BRIX, % (only % without constituent name), g/l, %H<sub>2</sub>O 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.

But consider: 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.





# **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 supp	ly:	100 - 240 V/ AC optional 24V/DC – 50/60 Hz – max. 200mA
PC-interface	э:	RS232 optional RS485
2 Analog ou	tputs:	0/4 - 20mA / isolated 1500V
Relay contact:		max. 5A / 250V AC (only for -CLN)
PROFI–Bus/ Net/ Modbus TCP:optional (only for HK6-F / -F-CLN)		
Temperatur	e 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

# 13





## **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

l echnical d	lata antennas:	
Material:		Stainless steel
Size antenn	as:	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 tem	perature:	Standard: >0°C - +120°C