

general catalog of
process instrumentation

HK Instrument Systems



HK-1 Insertion System

MEASURE WITH MICROWAVES

% Concentration

% Total Solids

%H₂O

°Brix

OR

**MEASURE UP TO THREE CONSTITUENTS SIMULTANEOUSLY
WITH NEAR INFRARED INSTRUMENTATION**

HK Instrument Systems, USA, in conjunction with Harrer and Kassen GmbH, Germany, manufacture and distribute industrial and commercial Microwave and Near Infrared Instrumentation for process monitoring and control.



HK-2F WITH
REMOTE KEYPAD

HK — 2F Single Piece Transmitter

HK's Microwave Systems

- Easy to install and calibrate
- Contain NO moving parts for easy maintenance
- Safe for workers and the environment
- Extremely versatile (liquids & solids)
- Proven reliable and accurate

Microwave Systems

- Contacting Systems
- Non-Contacting Systems
- Thin Bed Systems

Applications

- Liquids (solutions & slurries)
- Bulk Materials (belts or chutes)
- Thin Materials (dryer control)

Industries

Applications

Sugar Refining	Measure the °Brix of sucrose and water in vacuum cooking pans, evaporators and pipes
Wastewater Treatment	Measure % Total Solids of Sludge
Dairy Industry	Measure the % moisture of cheese (natural and processed) Measure the %TS of concentrated & sweetened liquid milk
Confectionary	Measure the % moisture of caramel and hard candies
Detergents	Measure the % Concentration of a liquid surfactant, detergent or fabric softener during production or use
Pulp & Paper	Measure pulp stock consistency Measure the % Total Solids of starch in water Measure the Moisture Content of cardboard and other paper products

HK INSTRUMENT'S NEW NEAR INFRARED SYSTEM MEASURE MOISTURE — FAT — PROTEIN — CARBOHYDRATES



HK-4 NIR Processor Unit

Typical Applications

- Ground meat and poultry (beef, pork, chicken)
- Dairy (cheese, butter)
- Grains
- Soy beans (moisture & oil content)
- Ethanol, isopropyl (alcohol content)
- Liquid sugar (glucose, sucrose)
- Paper (moisture, ash)

Equipment Specifications

- **Measuring Range** 0-100%
- **Measuring Spectra** 650-1700 nM
- **Measuring Technique** Reflection and Transmission
- **Installation** Directly to the Pipeline, Belt or Vessel
- **Cables** Fiber Optics (up to 300 feet)
- **Safety** Explosion Proof
- **Response Time** Instant
- **Calibration Curves** 4 in Processor — Unlimited in PC
- **Ambient Humidity** 0-50 C
- **Accuracy** 0-90% RH
- **Precision** +/-0.1%
- **Power Source** 110/220 VAC
- **Light Source** Tungsten Lamp
- **Detector** Linear Image Array, InGas
- **Display Type** LED
- **Analog Output** 4-20 mA for each constituent
- **Communications** Std RS232C, Optional RS485
- **Warranty** One Year Parts & labor
Maintenance Agreements Available

Microwave Transmitter

Operating temperature (ambient)	32 to 140 degrees F
Power requirements	110 vac or 220 vac
Outputs	(HK2) (1) 4-20 mA current output (1) RS-232 serial output (HK1) (2) 4-20 mA current outputs (2) RS-232 serial outputs
Inputs	(HK2) (1) NTC / RTD temperature sensor (HK1) (1) RTD temperature sensor (1) 4-20 mA current input
Enclosure	IP65, NEMA 4 equivalent

Microwave Insertion Sensors

Material of manufacture	Stainless steel with small poly propylene caps on the end
Operating temperature	40 to 300 degrees F (continuous)
Cleaning temperature (max)	400 degrees F (non-continuous)

Microwave Non-Insertion Sensors (3A available)

Material of manufacture	Stainless steel with plastic window
Operating temperature	45 to 240 degrees F

Coaxial Cables

Length	Maximum 6.0 feet Minimum 3.0 feet
Operating temperature	40 to 140 degrees F
Temperature variation	Minimize temperature variations to the cable if possible

Vessel and Pipe Sizes

Pipe diameter	Maximum none Minimum 1-1/2 inch
Vessel diameter	Maximum none Minimum 1-1/2 inch

Process Material Specifications

Liquids / Bulk materials	Maximum conductivity = 20,000 uS Minimum temperature = 45 F Maximum temperature = 230 F
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