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PULP AND PAPER

# KPM KC9 – Optical Consistency Measurement

## KPM Products | Process Measurements



### Robust design in AISI 316 steel & sapphire

The sensor is constructed of a stainless steel measurement cell and sapphire glass lenses to withstand the harsh process environments. The sensor pressure class is PN25.

The display unit and sensor have protection class of IP65 (Nema 4X) and do not need protective housing to stand difficult conditions at the paper mill stock preparation and wet end.

### KC9 Inline Sensors

The KC9 inline sensors can be installed directly to process pipe by using Sandvik NS40 process coupling. The sensor is available with optional retraction system, enabling the sensor maintenance without process stop.

Compact and lightweight design assures that installation locations for optimal performance can be utilized.

The inline consistency sensors are developed to measure single component fiber consistency in liquids from 0 – 14 %.

### KPM Optical consistency transmitters

KPM offers full range of optical consistency transmitters for inline and bypass installations. Optical consistency transmitters are typically the only choice for total consistency range 0-2%.

Variety of sensors utilizing different measuring principles ensures that each application can be covered cost effectively without compromises in measurement accuracy.

### KC9 Bypass sensors

The bypass consistency sensors are developed to measure consistency in liquids from 0 – 5 %. KC9-25 and -50 are suitable for single component fiber consistency and KC9-25 LC for very low consistency applications. KC9-P is ideal for multicomponent stock total consistency measurement. KC9-A includes additional ash consistency measurement which enables accurate monitoring and control of ash content.

The sensors have an application specific measurement gap between lenses, providing best accuracy and low maintenance requirement.

### Remote Display unit for operation

The sensors are pre-calibrated for quick and easy start up. After installation, one-point adjustment is performed against a laboratory test. With multicomponent stock, comprehensive modelling is performed to achieved high measurement precision.

The Display unit has four selectable calibration models for applications with varying furnishes.



The system is easy to use, set up and operate with the display unit.

#### Technical specifications – KC9 Optical Consistency Measurement

Sensor type	KC9 Optical Consistency Transmitter
Applications	KC9-25, KC9-25 LC, KC9-50, KC9-IL and -IL V for clean pulps. KC9-25-K for White and green liquor. KC9-P for total consistency of mixed pulps with fines and fillers. KC9-A for total and ash consistency of mixed pulps with fines and fillers.
Analog outputs	3 x 4–20 mA, Consistency, temperature, ash consistency (KC9-A)
Binary inputs	4 x dry contact (24 VDC supplied by KC9) for Process stop, Grade change (2), Sampler information
Binary output	2 x Closing relays, 230 VAC, 110 VAC or 24 VDC for flushing control. 1 x Dry contact opening/closing relay for system alarm.
Power requirements	86–264 VAC, 50/60Hz $\pm$ 3; 20VA (20W), connected to display unit.

Sensor type	KC9-25	KC9-25 LC	KC9-25 K	KC9-50	KC9-P	KC9-A	KC9-IL & -ILV
Measurement range	Cs 0–2%	Cs 0–0,02%	Cs 0–5%	Cs 0–5%	Cs 0–2%	Cs 0–2% Ash 0–1%	Cs 0–14%
Process temperature	90 °C	60 °C	100 °C	90 °C	60 °C	60 °C	90 °C
Minimum flow velocity	20 l/min	20 l/min	20 l/min	20 l/min	10 l/min	10 l/min	Cs<1% 1m/s Cs>1% 1.5m/s
Pressure class	PN25	PN25	PN25	PN25	PN25	PN25	PN25
Process connection	By-pass 25 mm	By-pass 25 mm	By-pass 25 mm	By-pass 50 mm	By-pass 25 mm	By-pass 25 mm	NS40 saddle



The robust stainless steel sensor measures consistency.

Instrument air	If flushing valve is used, pressure 4 – 8 bar (60 – 120 psi), oil-free					
Process pressure	Minimum 1 bar (15 psi), turbulent flow					
Ambient temperature	Sensor, 0 - 60°C (32 - 140°F); Display Unit = - 10 - 60°C (-14...140°F)					
Interconnect cable	10 m cable from sensor to display Unit, max 5 in series					
Materials	Wetted parts AISI 316, Windows: Sapphire, Display: Polycarbonate					
Conformance	73/23/EEC, 89/336/EEC, EN 61000-6-4:2001, EN 61000-6-2:2001, EN 61010-1:2001					
Enclosure class	IP 65 (Nema 4X)					
Dimensions (LxHxD) & Weight	KC9-2x	128 x 101 x 97 mm (5,0 x 4,0 x 3,8")	Weight: 2,6 kg (5,7 lbs.)			
	KC9-50	203 x 101 x 97 mm (8,0 x 4,0 x 3,8")	Weight: 2,6 kg (5,7 lbs.)			
	KC9-P&-A	128 x 101 x 97 mm (5,0 x 4,0 x 3,8")	Weight: 2,6 kg (5,7 lbs.)			
	KC9-IL	149 x 79 x 79 mm (5,9 x 3,1 x 3,1")	Weight: 2,6 kg (5,7 lbs.)			
	KC9-IL V	283 x 79 x 79 mm (11,1 x 3,1 x 3,1")	Weight: 2,6 kg (5,7 lbs.)			
	Display	323 x 237 x 70 mm (12,7 x 9,3 x 2,8")	Weight: 2,7 kg (6,0 lbs.)			

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