

## Valmet Optical Low Consistency Transmitter





# Valmet LC – Towards a Cleaner Environment and Superior Runnability

As environmental regulations tighten, pulp and paper mills are striving to reduce fresh water consumption and environmental impact by increasingly closing the water system. Better process management and reduced variability also contribute to improved runnability while reducing the impact on the environment.

Better control of the paper machine disc filters and presses reduces longterm variations in the process. Disc filter malfunctions and disturbances, causing MD ash variations, are among the most frequent sources of runnability problems.

On newer high speed paper machines wet end management with on-line measurements and controls are already seen as a necessity. Controls for retention, ash and charge based on Valmet RM3 and Valmet WEM analyzers are standard tools in modern papermaking. However, on some paper machines the wet end control does not necessarily require an extensively automated control system. On-line measurement of the total consistency in headbox and white water is sufficient.

Continuous measurement of effluent also helps to steer and manage the mill's waste water system: process disturbances are detected immediately and corrective action can be taken without undue delay.

All these needs were the guiding forces in the development of the Valmet LC, an optical consistency transmitter to complement our consistency measurement portfolio.





### Valmet LC – the new generation

Valmet LC is an optical consistency transmitter, in a new generation of transmitters from Valmet. It's based on the measurement of light polarization and attenuation, and it replaces the famous smartLC.

Compared to traditional optical consistency measurements, the biggest advantage is that this technique is independent of pulp color and brightness variations.

Ash fluctuations have some impact on measurement accuracy, but even this effect is minimized with the polarization method compared with other optical singlesystem measurements.

The measurement of light polarization is a well known, reliable technique that gives excellent accuracy. For screened pulps the method is suitable for consistencies from 0 to approx. 2.0 % Cs.

The Valmet LC is practically maintenance-free.The windows in the sensor is made of sapphire, and practically unbreakable. During the automatic flushing sequence the selfdiagnostics function routinely checks the transmitter's condition and alerts the maintenance personnel in case contaminant buildup or blockages are detected. This feature ensures high uptime, whatever the process conditions. Calibration is easy with just one lab sample. If needed four different recipes can be calibrated and stored in the transmitter's memory. HART® is standard and PROFIBUS PA is available. For details on installation please see last page.

### Screening

Screening control is an important factor for PM runnability: maintaining the correct feed consistency results in uniform drainage, which in turn improves process operation. Valmet LC is particularly well suited for recycled pulp lines. For mechanical pulps we recommend use of the Valmet OC.

#### **Disc filter**

Reliable disc filter optimization requires accurate consistency and flow management. Valmet LC is the solution for the feed consistency control, as well as measurement of filtrate quality. Reliable measurements and accurate controls contribute to the stabilization of solid content of filtrates in the long circulation loop. This reduces basis weight variations in the machine direction and enables the increasing use of filtrate to replace fresh water in the process.

### Paper mill effluents

Continuous measurement of solids in the mill effluents helps to quickly detect process disturbances that may cause problems in the waste water plant increase the environmental load. Valmet LC measures the consistency of fibrous sludge – and unlike the widely used turbidity measurements, it is independent of color or brightness.

## Headbox and white water application

Low consistency measurements are an essential element in the wet end process management concept. On slower paper machines where the stock contains no ash or the ash percentage is relatively stable, the Valmet LC can be used for total consistency measurement in the short circulation, both headbox and white water.

#### Sensor part

#### Measurement

Measuring range*	0–2.0 % Cs
Repeatability	
- 0.2 to 2.0 % Cs	± 0.005 % Cs
- 0 to 0.2 % Cs	± 0.001 % Cs
Sensitivity	0.001 % Cs
Materials	
Enclosure	.Aluminium
Wetted parts	AISI 316 L
Windows	Sapphire
Process condition	
Temperature	+10–60 °C
Flow	4–30 l/min
Pressure	. max. 10 bar
Environment	
Ambient temp	+5-50 °C
EMC test standards	
Radiated interferenceIE	C 61000-6-2
Interference immunityIE	C 61000-6-4
Weight	6 kg
VibrationIG (10m/s <sup>2</sup>	), 10–200 Hz

### TCU

#### Connection to mill system

Analog output 2 outputs
• 4–20 mA, passive
HART 12-35 VDC
Binary inputs2 inputs
• galvanically isolated
• 12–28 VDC / 10 mA
PROFIBUS PA slave (option)
IEC 61158-2
Connection to PC
DTMHART
PC-connection RS-232
Environment
Ambient temp Max. 50 °C
Weight2 kg
Vibration

\* Please contact Valmet detailed information

### Valmet LC installation





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