Product sheet

TCR-2501

PeakTotal
Total Consistency Transmitter

FEATURES

- **In-line total consistency measurement**
- **Independent of grade and wood species**
- **No increased process pressure needed**
- **Insensitive to vibrations and temperature**
- **Lean design and top functionality**

BENEFITS

- **Tight control through real time results**
- **Increased production**
- **Low installation cost and reduced energy consumption**
- **Long life time and low cost of operation**
- **Low start-up and installation cost**

GENERAL / BACKGROUND

The TCR-2501 PeakTotal is a true total consistency transmitter; it is thus virtually insensitive to variations in filler and fines content as well as changes in fiber properties.

Based on BTG's patented Peak method for optical analysis PeakTotal covers total consistencies in the range of 0.5 to 16%.

The transmitter is mounted in-line direct after the pump in the turbulent flow and provides real time results. The probe is unique low-maintenance probe, without electronic components attached which makes the transmitter insensitive to variations in temperature and vibration.

The sensor electronic employs modern microprocessor technology with advanced signal analysis. It is operated using BTG's electronic platform, the CPM, which ensures capability with present and future communication interface requirements, from analogue output with HART® to field buses.

The PeakTotal offers a number of advanced capabilities and can be applied in most applications from the pulper to the machine chest with good results and fast payback.

As part of the new generation of easier smaller, smarter and lighter product range, the PeakTotal is designed to help you rapidly optimize the paper making process, for significant cost and productivity improvements.

Use QR-code or link for more information
www.btg.com/mybtg/en/instruments/tcr-25x1

MEASURING PRINCIPLE / MEASUREMENT

THE PEAK METHOD, REFLECTION

The TCR-2501 uses the patented Peak method for measuring total consistency of pulp suspensions. This technology is based on the fact that pulp suspensions contain large as well as small particles. A narrow light beam directed through the pulp suspension will be affected by both large and small particles.

If a short time period is studied, in which only a single fiber passes the light beam, the fiber acts almost as a mirror and reflects a large amount of light. This is the “Peak” period and provides valuable information on the fiber content in the pulp suspension.

As the suspension passes the window, a DC-signal is created with information on both large and small particles. Combined, these signals are the basis of a measurement for the total consistency of the pulp suspension.

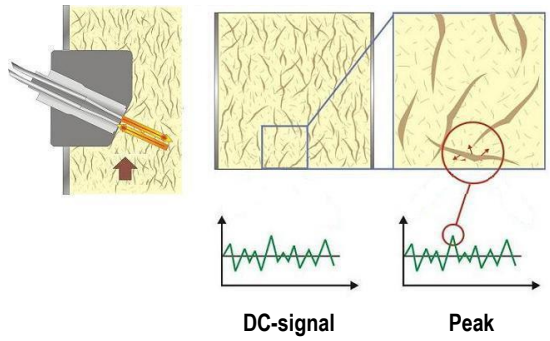

Figure 1: BTG’s patented Peak Method

APPLICATION EXAMPLE

SCREENER CONTROL

True mass flow calculations at both inlet and reject are the pre-requisite for an optimal set of the ratio between inject and reject. The PeakTotal measures total consistency regardless of variations of the fiber and fines fractions, an indispensable requirement for mass flow calculations.

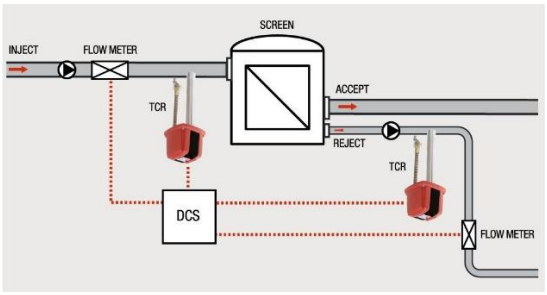

Figure 2: Screen control with PeakTotal

PULPER CONTROL

It is important to control the consistency as early as possible in the process. PeakTotal works well in applications with poor conditions and a lot of impurities due to that it is not going into the pipe and catches strings etc.

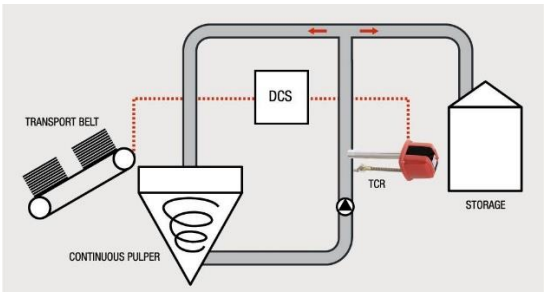

Figure 3: Control of continues pulper

TECHNICAL DATA / SPECIFICATIONS

GENERAL

Type	TCR-2501 In-line smart optical total consistency transmitter for pulp suspensions
Manufacturer	BTG Instruments AB, Säffle, Sweden
Measuring principle	Light reflection and scattering using BTG's patented Peak-method. Performed by light reflection of NIR, 880 nm
Measuring range	0.5 - 16 % pulp consistency
Repeatability	± 0.002 %Cs

PROCESS SPECIFICATIONS

Process pressure	PN16 (16 bar at 20°C [230 psi at 68°F])
Media temperature	Max. 100°C [212°F] Min. 5°C [41°F]
Max. ambient temperature	Probe: 80°C [176°F] Electronics: 50°C [122°F]
Flow velocity	1.3 - 5 m/s
Process pH	SS version: 4 - 11 Titanium version: 0 - 9
Material:	
Wetted parts	SS, EN 1.4404,equiv. to ASTM 316L Titanium grade 2
Weld-in stud	SS, EN 1.4404, equiv. to ASTM 316L Titanium grade 2 254 SMO Epoxi
Electronics box	Painted aluminum
Weight:	
Transmitter	Stainless steel: 3.1 kg [6.8 lb] Titanium: 2.8 kg [6.2 lb]
Sluice valve	Stainless steel: 4.0 kg [8.8 lb] Titanium: 5.3 kg [11.7 lb]
Sensor electronics box	0.3 Kg [0.7 lb]
Communication platform (CPM)	For information about the CPM, including input and output signals, see the CPM product sheet PS2026
Functions:	
Output signal	Total consistency in % or mg/l
Calibration sets	Four separate calibration sets, individually programmable, and externally controllable
Alarm function	Provides alarm signal on LED intensity deviation and high electronics temperature
User interface	See Communication platform
Serial port	RS485
Mounting:	
Min pipe diameter	100 mm [4"]
Electrical connection	100 - 240 ±10% VAC, 50/60 Hz. Connected in CPM
Power consumption	Max 50 VA, a 2A slow blow fuse must be used

SAFETY & DIRECTIVES

Safety and protection class

Product safety	CE, C-tick, ETL
Protective rating	Equivalent to IP65, NEMA 4x

EU-directives

Designed in accordance with relevant CE standards.

Quality Assurance

Quality-assured in accordance with ISO 9001.

YOUR LOCAL BTG OFFICE

Use QR-code or link for more information
www.btg.com/en/contact/sales-service-network

DIMENSION DRAWINGS

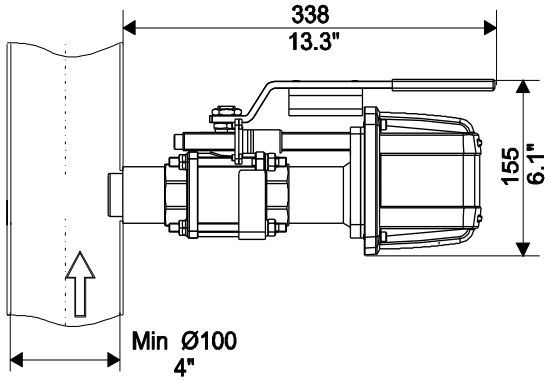

Figure 4: TCR-2501 Probe

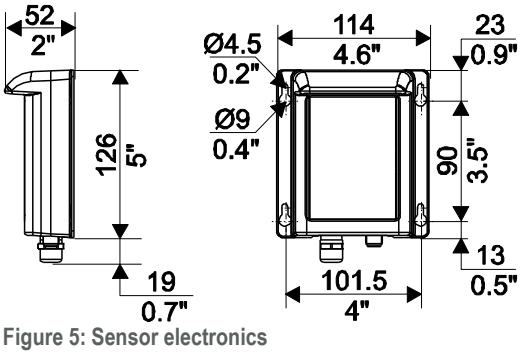

Figure 5: Sensor electronics