

## Product sheet

### TCT-2531

PeakOFT

#### FEATURES

- Open 1-inch sensor special design for waste water applications in open channels
- Lean design and top functionality
- Automatic cleaning
- Provide continuous measurement

#### BENEFITS

- Prevents plugging
- Low start-up and installation cost
- High accuracy long term stability
- Can be used both for monitoring and control

#### GENERAL / BACKGROUND

BTG's TCT-2531 is an open flow through sensor designed to measure total consistency in open channel applications or in a pressurized line.

It measures the total solids using the peak-method and can because of that deliver an accurate total consistency value independently of variation in fiber, fines or ash.

The pulp brightness or color does not affect the measurement.

The system is installed at the outlet of an immersion pump (supplied by the customer) according to fig 2 on page 2, or directly on a pressurized pipe (minimum 1.5 bar [22 psi]).

The sensor is completely open and two small fiber optics are located on one side of the sensor. The fibers are placed in a stainless steel frame that protects and holds it in place.

The single-point measurement system allows flexibility of installation and simple handling of the instrument.



The sensor electronics employs modern microprocessor technology with advanced signal analysis.

It is operated using BTG's CPM (communication platform), which ensures compatibility with present and future communication interface requirements, from analogue output with HART® to field buses.

As part of the new generation of easier smaller, smarter and lighter BTG instruments, the TCT-2531 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/tct-2531](http://www.btg.com/mybtg/en/instruments/tct-2531)

### MEASURING PRINCIPLE / MEASUREMENT

The TCT-2531 employs the patented Peak Method for measuring total consistency of pulp suspensions. This technology is based on the fact that suspensions contain both large and small particles. Large particles are typically the fibers and small particles are the fillers and fines.

The large particles form a relatively transparent network, within which the small particles move freely. A narrow light beam directed through the suspension is generally affected by both the large and small particles.

Close study of a certain volume of suspension shows that the number of small particles in the suspension is great and relatively constant over time. On the other hand, the number of large particles is small and varies significantly over time.

If a short time period is studied, in which only a single fiber passes the light gap, the fiber covers the light. On the other hand when no fiber is in the gap a lot of light comes through. This is the "Peak" period and provides valuable information on the fine/ash content in the pulp suspension. As the suspension passes the gap, a DC-signal is created with information on both large and small particles.

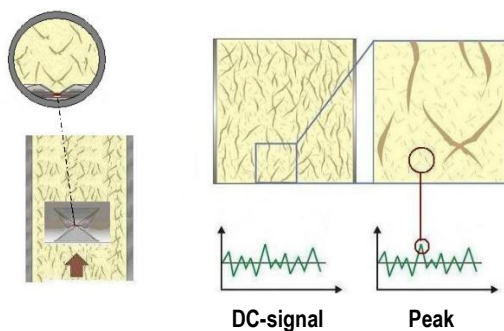


Figure 1: BTG's patented Peak Method

### APPLICATION EXAMPLE

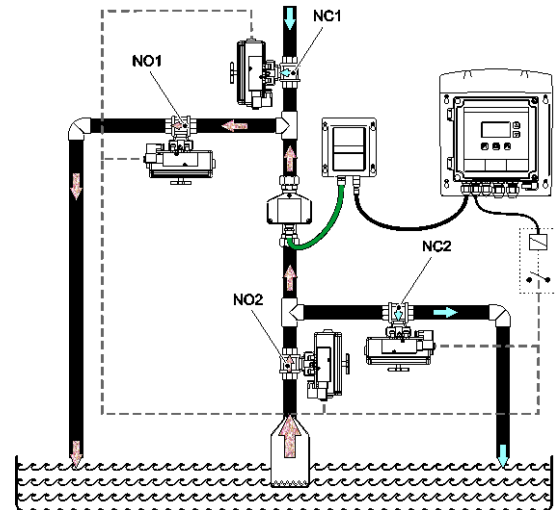


Figure 2: Typical installation of a TCT-2531 with immersion pump.

The valves NO1 and NO2 are normally open for pulp flow. The valves NC1 and NC2 are normally closed. A 24 V DC control signal to a relay changes the valves for cleaning water to the flow through sensor.

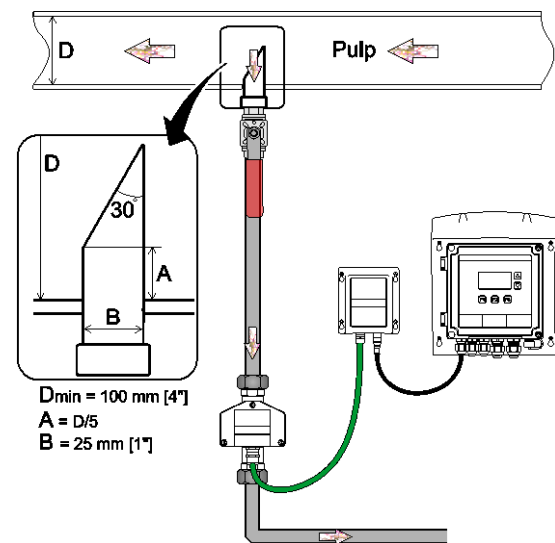


Figure 3: Installation of a TCT-2531 directly on pipe.

## TECHNICAL DATA / SPECIFICATIONS

### GENERAL

<b>Type</b>	TCT-2531 bypass solution with a smart optical total consistency sensor for pulp suspensions and waste water.
<b>Manufacturer</b>	BTG Instruments AB, Säffle, Sweden
<b>Measuring principle</b>	Light transmission and scattering using BTG's patented Peak Method. Performed by light transmission of NIR, 880 nm.
<b>Measuring range</b>	0.01 to 0.8 % total consistency

### PROCESS SPECIFICATIONS

Pressure rating	PN10 (10 bar at 20°C, 145 psi at 68°F)
Minimum pressure	1.5 bar [22 psi]
Flow velocity	Independent of process pressure
Media temperature	Max. 100 °C [212 °F] Min. 5°C [41°F]
Max. ambient temperature	50°C [122°F]
Process pH	4 – 9
Sample flow	50 – 80 l/min [13 – 21 gal/min] (stable)
Water consumption	20-30 l/min [5.3 – 7.9 gal/min] during cleaning
<b>Repeatability</b>	± 0.002% Cs
<b>Material:</b>	
Wetted parts	Stainless steel, EN 1.4404, equiv. to ASTM 316L
Sensor electronics box	Painted aluminum

### Mounting:

Sample feed and outlet line	1" outer thread, The inner diameter of the hose must not be below 20 mm [0.8"].
-----------------------------	--

### Electrical connection

100 - 240 ±10% VAC, 50/60 Hz.

### Power consumption

Connected in CPM  
Max 50 VA, a 2A fuse is recommended

### 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 low and high consistency level, unstable signal
User interface	See Communication platform (CPM)
Serial port	RS485

### 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.

#### Optional:

Wall bracket	With 1" nipples
--------------	-----------------

### YOUR LOCAL BTG OFFICE



Use QR-code or link for more information

[www.btg.com/en/contact/sales-service-network](http://www.btg.com/en/contact/sales-service-network)

**DIMENSION DRAWINGS**

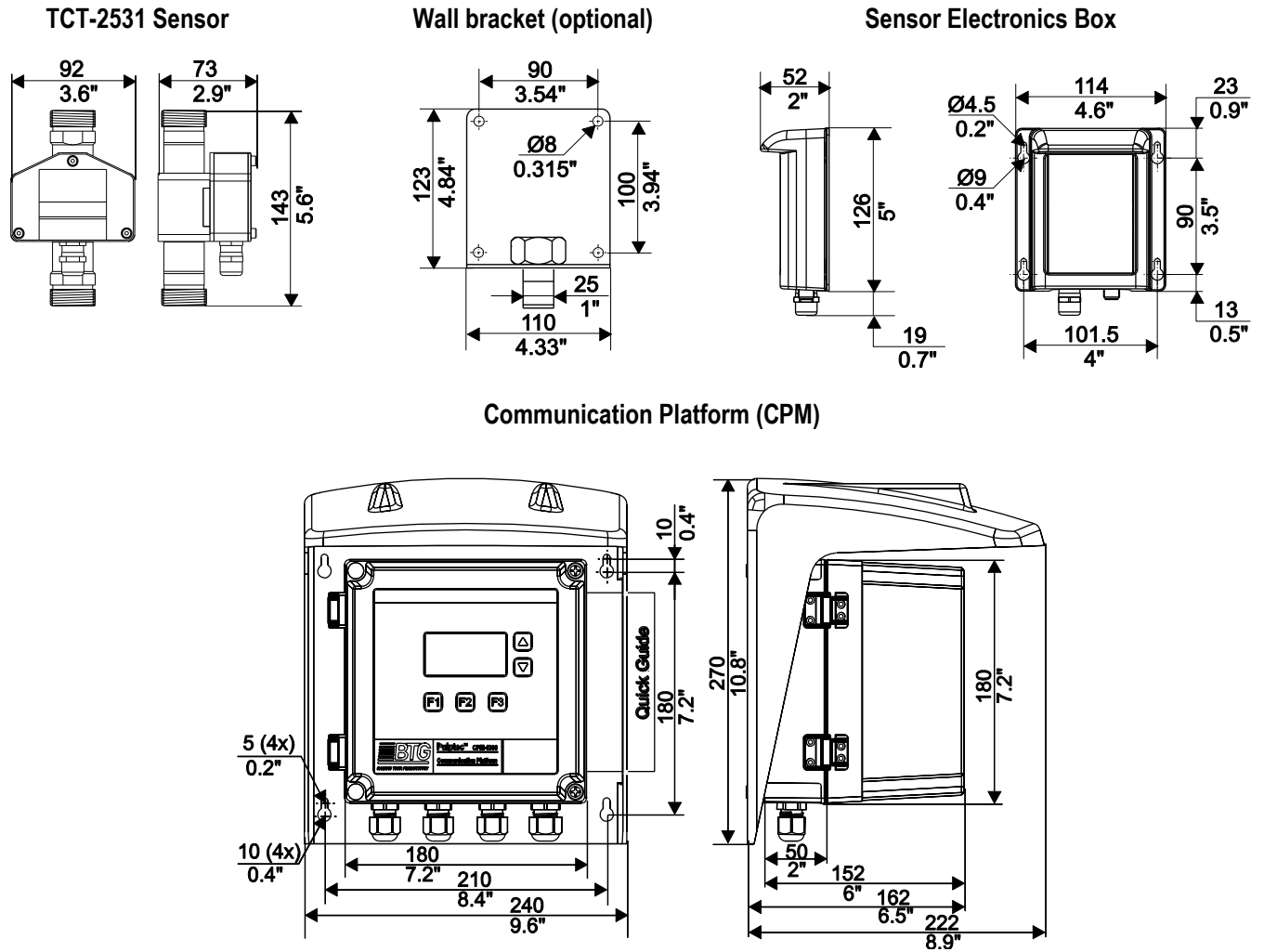


Figure 4: Dimensions