

## Product sheet

### BLT-5500 / BLT-5510

#### Bleach Load Transmitter

#### FEATURES

- Measures Bleach Load and Brightness
- One state-of-the-art communication platform
- Mounting studs in SS, Ti, SMO and FRP
- Low weight and lean design

#### BENEFITS

- Reduce chemical consumption
- Maximum installation flexibility
- Safe and easy handling with low maintenance
- Low start-up and installation cost



#### GENERAL / BACKGROUND

The purpose of the BLT is to measure the total bleach load, or chemical demand of the pulp stream going into the bleach plant stages. The BLT uses UV-VIS light sources to measure both the fiber lignin and the lignin dissolved in the liquid phase of the pulp stream. The BLT provides an in-line continuous measurement of the total lignin content of the pulp stream thus giving the total bleach load of the pulp. Furthermore the BLT is simultaneously measuring the pulp brightness. Using the multiple light sources it is also possible to calibrate the BLT to measure the conventional fiber kappa number provided that the pulp is well washed.

Neither the standard laboratory kappa test nor the result from a traditional online kappa analyzer addresses any lignin carry over in the filtrate coming with pulp stream. The ability to measure total bleach load allows for a more accurate control of the chemical charge thus reducing the cost for chemical without risking too low pulp brightness.

The BLT measurement can be combined with other variables and inputs from other process measurements, such as pulp flow velocity, consistency or pH.

The BLT-55 series comprises the BLT-5500 and BLT-5510 Bleach Load Transmitters.

The transmitters are installed in-line without any special bypass arrangement and provide continuous real time results. All feature a unique low-maintenance probe. The location of the sensor should be prior to the addition of chemicals in a chlorine dioxide stage.

The BLTs are operated using BTG's electronic platform, the CPM, which ensures capability with present and future communication interface requirements, from analog output with HART® to field buses.

As part of the new generation of an easier, smaller, smarter and lighter product range, the BLT-55 series is designed to help you rapidly optimize the pulp bleaching process for significant cost and productivity improvements, with no or little maintenance need.



Use QR-code or link for more information

[www.btg.com/mybtg/en/instruments/blt-55x0](http://www.btg.com/mybtg/en/instruments/blt-55x0)

### MEASURING PRINCIPLE / MEASUREMENT

Pulp properties are measured at different wavelengths (blue, green, red, or UV) by a group of LEDs. LEDs are ideal light sources due to their longevity and monochromatic output.

The BLT-55s measure lignin via the use of these LEDs.

In the transmitters wavelengths can be combined to find the optimum lab correlation in a specific application. Light from the LEDs is directed into the process stream via flexible transmitting fiber optics. It passes through the probe window and is diffused by the pulp or other medium. The scattered light is then collected by receiving fiber optics and conducted to a photo detector.

Optical feedback and software control routines are based on BTG's proven 4-Beam™ Principle.

Because they minimize drift due to temperature or aging of optical components, continuous compensation can be made for process temperature changes as well as for inevitable degradation of signal sources and detectors. These active equalization techniques provide the required signal stability.

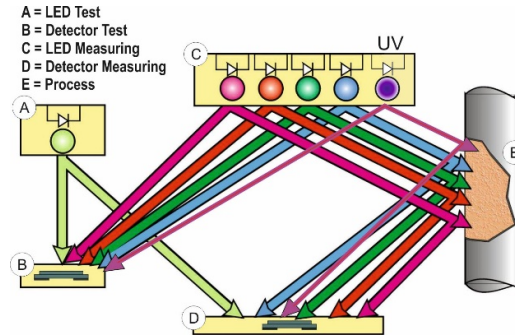


Figure 1: Measuring principle

### APPLICATION EXAMPLE

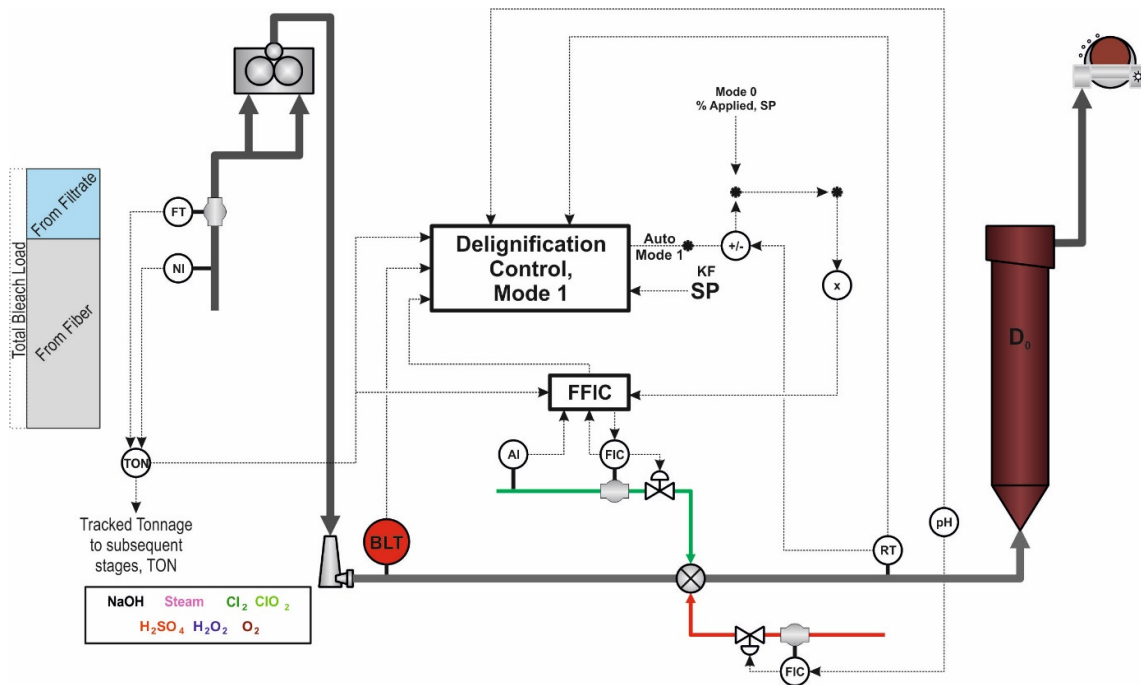


Figure 2: Bleaching control

## TECHNICAL DATA / SPECIFICATIONS

### GENERAL

<b>Type</b>	BLT-55 series bleach load transmitters
<b>Manufacturer</b>	BTG Instruments AB, Säffle Sweden
<b>Measuring principle</b>	Reflectance with BTG's patented 4-Beam™ Principle
<b>Measuring range</b>	Total Kappa 2-30 Brightness 5-96% ISO
<b>Repeatability</b>	$\sigma = 0.3$ Kappa $\sigma = 0.3\%$ ISO

### PROCESS SPECIFICATIONS

Process pressure	PN25 (25 bar at 20 °C [362 psi at 68 °F])
Minimum flow velocity	1 m/s [3.3 ft/s]
Media temperature	Max. 120 °C [248 °F] Min. 5 °C [41 °F]
Max. ambient temperature	Probe: 80 °C [176 °F] Electronics: 50 °C [122 °F]
<b>Material:</b>	
Wetted parts	Stainless steel EN1.4404 (AISI316L) with EPDM O-rings Titanium grade 2 with Kalrez O-rings 254SMO with Kalrez O-rings (only BLT-5500)
Weld-in stud	SS, EN 1.4404, equiv. to ASTM 316L Titanium grade 2 254SMO Epoxi (Only for PN16)
Window	Sapphire

### Weight:

BLT-5500 probe	Stainless steel: 3.7 kg [8.2 lb] Titanium: 3.1 kg [6.8 lb] 254SMO: 3.7 kg [8.2 lb]
BLT-5510 probe	Stainless steel: 4.2 kg [9.3 lb] Titanium: 3.6 kg [7.9 lb]

Sluice valve	Stainless steel: 4.5 kg [9.9 lb] Titanium: 5.3 kg [11.7 lb]
<b>Communication platform (CPM)</b>	For information about the CPM, including input and output signals, see the CPM product sheet PS2026

### Functions:

Analog output signals	5 x 4-20 mA. (6 x 4-20 mA with SMAR-unit)
Calibration sets	Four separate calibration sets, individually programmable, and externally controllable
Alarm function	Provides alarm signal
User interface	See Communication platform (CPM)
Serial port	RS485

### Mounting:

Min pipe diameter	100 mm [4"]
Electrical connection	100-240 $\pm 10\%$ V AC, 50/60 Hz. Connected in CPM
Power consumption	Max 50 VA, a 2 A slow blow fuse must be used

### Optional:

SMAR-unit	Up to 6 x 4-20 mA Analog output signals
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### SAFETY & DIRECTIVES

#### Safety and protection class

Product safety	CE, C-tick, ETLc, CRN
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



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

**DIMENSION DRAWINGS**

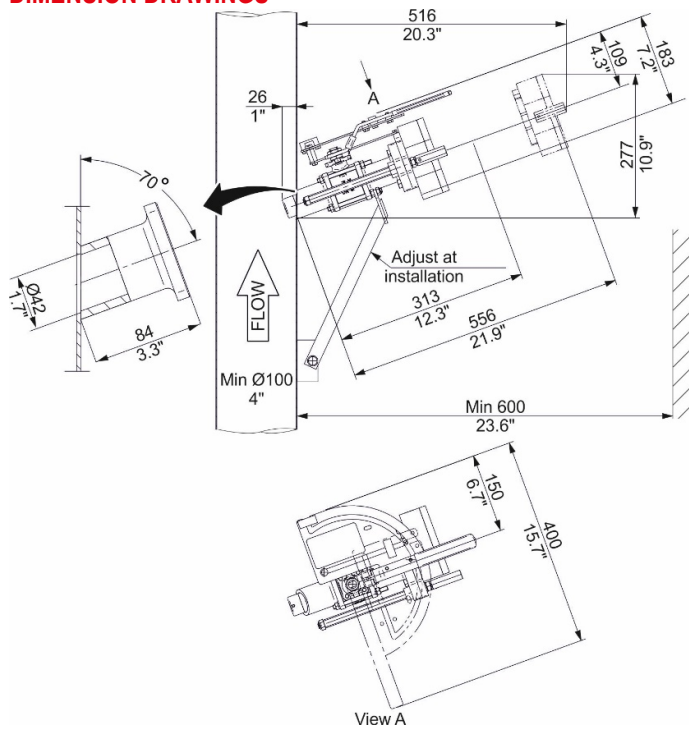


Figure 3: BLT-5500 Bleach Load Transmitter, standard

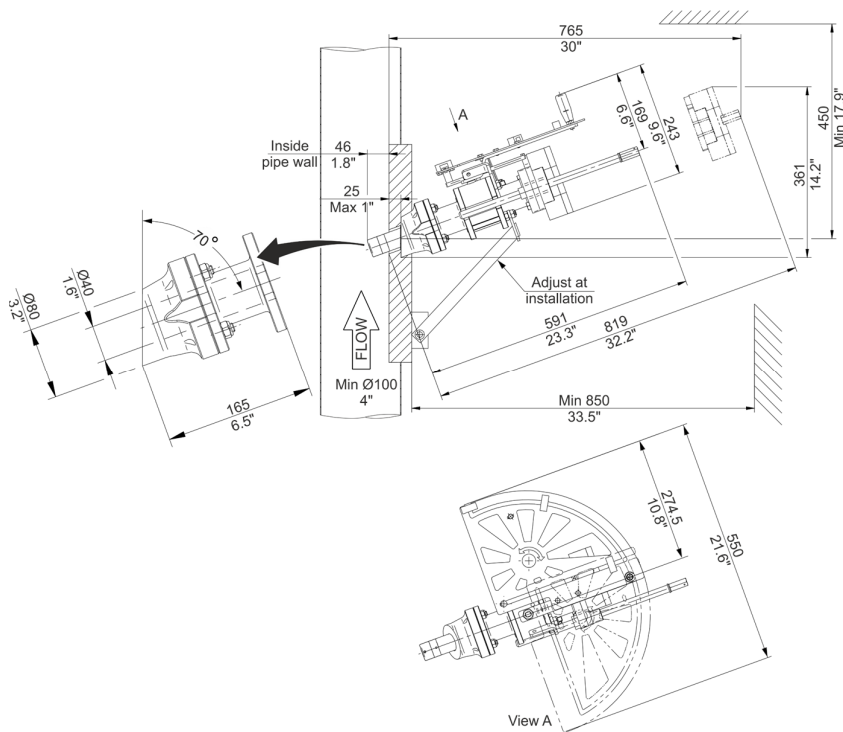


Figure 4: BLT-5510 Bleach Load Transmitter, long