Product sheet

RT-5500

Residual Chemical Transmitter

FEATURES

- **Measures residual ClO_2 and Cl_2 for process control of bleaching stages**
- **Integrated conductivity measurement**
- **Lean design, low-weight and top functionality**
- **State-of-the-art communication platform**
- **Mounting studs in SS, Ti, 254SMO and FRP/Epoxi**

BENEFITS

- **Reduces process variability and chemical cost**
- **Highest measuring accuracy**
- **Easy handling and installation**
- **Low start-up and installation cost**
- **Maximum installation flexibility**

GENERAL / BACKGROUND

The RT-55 series comprises the RT-5500 and RT-5510 residual transmitters. The transmitters are designed for monitoring of residual chlorine dioxide and residual chlorine in pulp bleaching, as part of an overall process control strategy. The RT-5500 can calculate a compensated residual signal taking into account input from other process measurements such as conductivity, temperature and pH.

The two transmitters differ from each other by their length of the sensor probe (see the dimensions section on page 3). The RT-5500 is available in the standard length for normal process piping. The RT-5510 has a longer sensor probe suitable for installation in towers, standpipes and retrofit in existing applications with longer weld in studs.

The transmitters are installed in-line without any special bypass arrangement and provide continuous real time results. The transmitters are mounted through a ball valve assembly to a weld-in or FRP/Epoxi stud and are fitted with a retraction mechanism for online removal of the sensor.

The RT-5500 is operated using BTG's communication platform, the CPM, which ensures capability with present and future communication interface requirements, from analog output with HART® to field buses.

Communication can also be done via a PC for viewing results and/or calibrating the unit.

As part of the new generation of an easier, smaller, smarter and lighter product range, the RT-5500 is designed to help you rapidly optimize the pulp process, for significant cost and productivity improvements.

Use QR-code or link for more information
www.btg.com/mybtg/en/instruments/rt-55x0

MEASURING PRINCIPLE / MEASUREMENT

The RT-5500 uses the voltametric polarographic measuring principle to determine concentration of chemical residuals. The current measured is directly proportional to the chemical concentration, based on the applied potential. A silver reference electrode is used to provide highest measurement accuracy. The platinum electrodes are also used for conductivity measurement. The electrodes are cleaned in an automatic cleaning cycle.

Due to its integrated probe retraction system, rugged design, exclusive metal materials and solid state electronics, the RT-5500 is easy and safe to install, handle, insert, remove and calibrate. It requires a minimum of maintenance and has a long economic lifetime. High accuracy and repeatability ensures consistent operation even in the harshest conditions.

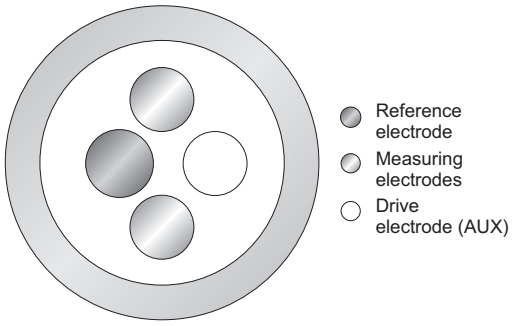

Figure 2: RT-5500 probe electrode configuration

APPLICATION EXAMPLE

BLEACHING CONTROL

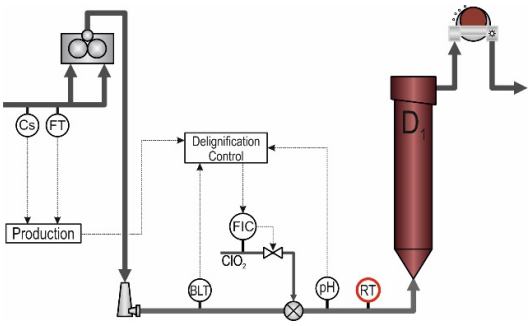

Figure 1: D_1 stage bleaching control with BLT-5500 for brightness and total bleach load, and RT-5500 for chemical residuals

TECHNICAL DATA / SPECIFICATIONS

GENERAL

Type	In-line residual chemical transmitter
Manufacturer	BTG Instruments AB, Säffle, Sweden
Measuring principle	Voltammetry
Measuring range	Chlorine dioxide (ClO_2): 0.05 – 1.5 g/l Chlorine (Cl_2): 0.05 – 4 g/l
Repeatability	σ = 1% relative
Conductivity	1 – 100 mS, intermittent signal
Temperature measurement	Process temp. accuracy: ±1°C [1.8°F] Internal temp. accuracy: ±1°C [1.8°F]

PROCESS SPECIFICATIONS

Process pressure	PN25 (25 bar at 20°C [362 psi at 68°F])
Conductivity limit	Min. 3 mS/cm
Media temperature	Max. 120°C [248°F] Min. 0 ºC [32 ºC]
Max ambient temperature	Probe: 70 ºC [158°F]
Storage temperature	-20 – 80ºC [-4 – 176°F]
pH	Chlorine dioxide (ClO_2): 2 – 5 Chlorine (Cl_2): 1 – 4
Material:	
Wetted parts	Titanium grade 2 with Kalrez O-rings Stainless steel EN1.4404 (AISI316L) with EPDM O-rings
Weld-in stud	SS, EN 1.4404, equiv. to ASTM 316L Titanium grade 2 254SMO Epoxi (Only for PN16)
Weight:	
RT-5500 probe	Titanium: 3.1 Kg [6.8 lb] Stainless steel: 3.7 Kg [8.2 lb]
RT-5510 probe	Titanium: 3.6 Kg [7.9 lb]
Sluice valve	Titanium: 5.3 kg [11.7 lb] Stainless steel: 4.5 kg [9.9 lb]
Communication platform (CPM)	For information about the CPM, including input and output signals, see the CPM product sheet PS2026
Functions:	
Output signals	Residual in g/l, mg/l or % Conductivity in mS/cm Media temperature in ºC or °F
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 ±10% VAC, 50/60 Hz. Connected in CPM
Power consumption	Max 50 VA, a 2 A 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.

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DIMENSION DRAWINGS

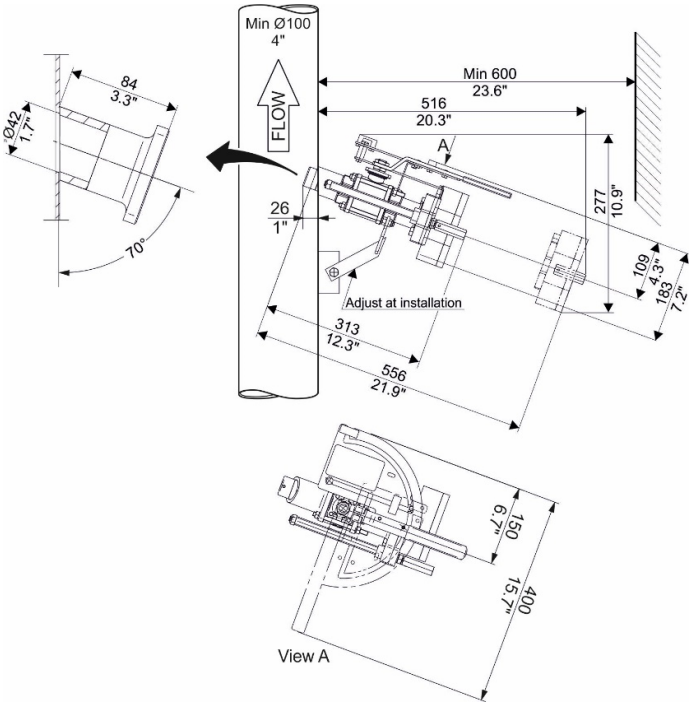

Figure 3: RT-5500 Residual Transmitter, standard probe length

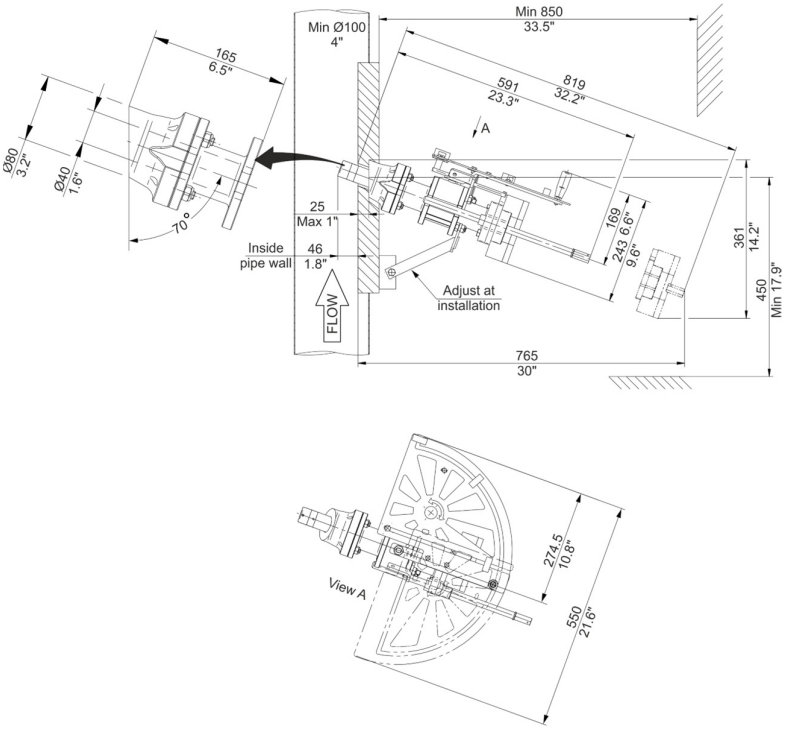

Figure 4: RT-5510 Residual Transmitter, long probe