

Measuring Water Quality at Water Purification Plants

Industry: Water supply

Product: Turbidity analyzer

Introduction

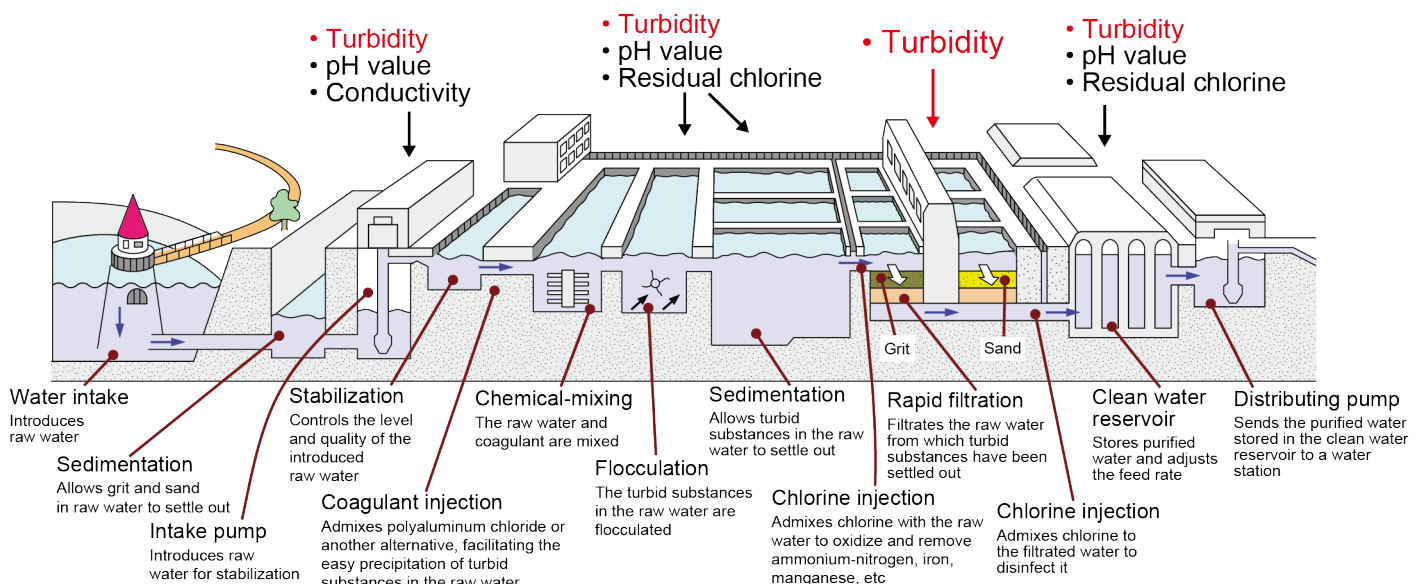
Improving potable water quality, safety, and sustainability of the drinking water supply are our mission for the future. To achieve them, measuring water quality accurately and contentiously are very important. The measurement of turbidity in potable water facility and distribution line is a vital component of ensuring safe and clean drinking water.

FLXA402T/TB820D right angle scattered light turbidity analyzer is used to control and monitoring drinking water quality. WHO says in "Guidelines for drinking-water quality" that "to ensure effectiveness of disinfection, turbidity should be no more than 1NTU and preferably much lower. Large, well-run municipal supplies should be able to achieve less than 0.5 NTU before disinfection at all times and should be able to average 0.2 NTU or less."

FLXA402T/TB820D can measure from 0-2 NTU to 0-500 NTU with excellent accuracy and have been contributed to healthy life. To achieve continuous measurement, FLXA402T/TB820D equipped useful functions, for example diagnostics, automatic cleaning and automatic zero calibration. These functions help to improve water quality control.

Expected Benefits

- Measures low turbidity levels both continuously and accurately
- Reduces operating cost
- Eliminates the need for manual cleaning
- Keeps the initial cost of equipment replacement to a minimum
- Multiple sensor input to a converter is available (Turbidity, Residual chlorine, pH and Conductivity)



Process Overview

The potable tap water distributed to individual households is originally produced from raw water taken from rivers or underground springs. At water purification plants, chemicals are injected into the raw water to produce flocs that serve to absorb hazardous substances in the raw water and allow them to be deposited and filtered out. Chlorine is then added as a disinfectant to the treated water. A variety of water quality measuring instruments, including turbidity analyzers, residual chlorine analyzers, and pH meters, are used in water purification plants. This application note focuses on turbidity analyzers, which are used to verify that filtration systems are operating in excellent condition. The FLXA402T/TB820D turbidity analyzer continuously measures post-filtration turbidity in order to achieve the required turbidity control value of 0.1 mg/L.

Solution Details

Measurement system

Right angle scattered light turbidity analyzer

Model: FLXA402T-A-B-□□-TB-□□-N□-WR-N-□-N-NN-NN
TB820D-□□-□□-□□-NN-CT-NN/D□

Main components:

Turbidity detector, converter, pressurized head tank Primary product specifications:

Measuring range: 0-0.2 to 0-500 NTU

0-0.2 to 0-700 FNU/NTU

Output signal: 4-20 mA DC, Modbus TP/IP, Modbus RTU (RS-485)

Installation location: indoors

Zero turbidity filters (to be purchased separately)

Filter assembly 1 micron: P/N K9008ZD

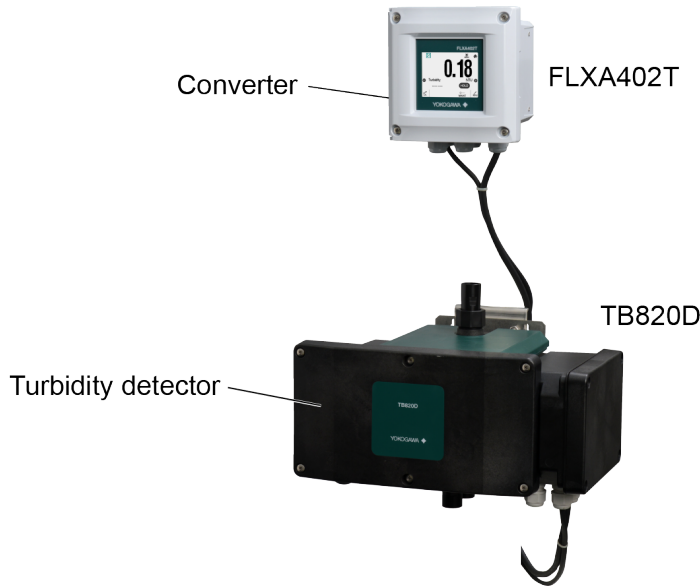
Filter assembly 0.2 micron: P/N K9726EH

Utilities for FLXA402T/TB820D

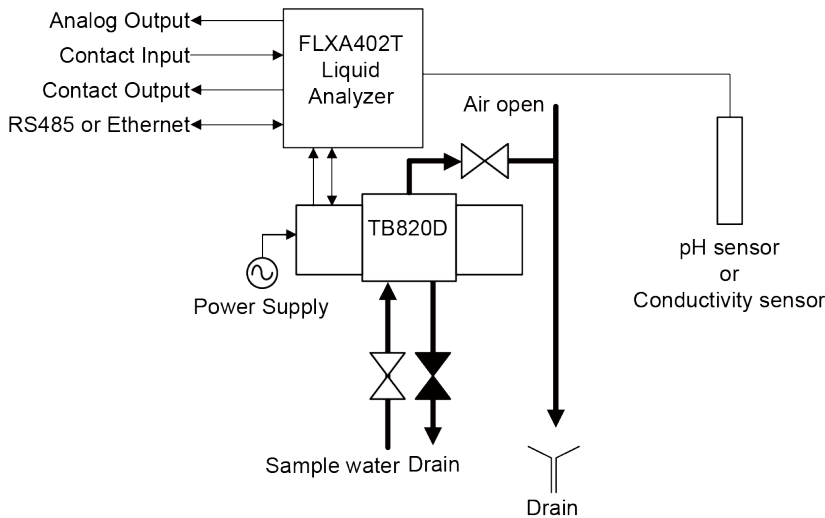
Power supply: 100-240 V AC, 50/60 Hz Power
 consumption: Approximately 120 VA

Note on installation

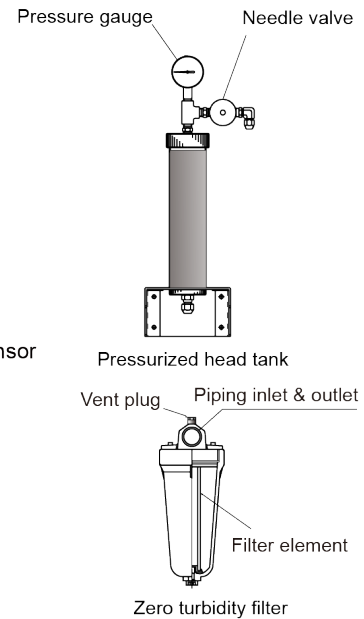
This turbidity analyzer uses a pressurized head tank to eliminate air bubbles, which are a major error factor in the measurement of low turbidity levels.



System configuration example:



Optional parts:



Trademarks

Co-innovating tomorrow, OpreX and all product names of Yokogawa Electric Corporation in this bulletin are either trademarks or registered trademarks of Yokogawa Electric Corporation. All other company brand or product names in this bulletin are trademarks or registered trademarks of their respective holders.

YOKOGAWA ELECTRIC CORPORATION
 World Headquarters

9-32, Nakacho 2-chome, Musashino-shi, Tokyo 180-8750, JAPAN

<http://www.yokogawa.com/an/>



YOKOGAWA CORPORATION OF AMERICA
 YOKOGAWA EUROPE B.V.
 YOKOGAWA ENGINEERING ASIA PTE. LTD.
 YOKOGAWA CHINA CO., LTD.
 YOKOGAWA MIDDLE EAST & AFRICA B.S.C.(c)

<http://www.yokogawa.com/us/>
<http://www.yokogawa.com/eu/>
<http://www.yokogawa.com/sg/>
<http://www.yokogawa.com/cn/>
<http://www.yokogawa.com/bh/>

Subject to change without notice.

All Rights Reserved, Copyright © 2022, Yokogawa Electric Corporation