APPLICATION NOTE

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Measuring Water Quality at Water Purification Plants

Industry: Water supply
Product: Turbidimeter

Introduction

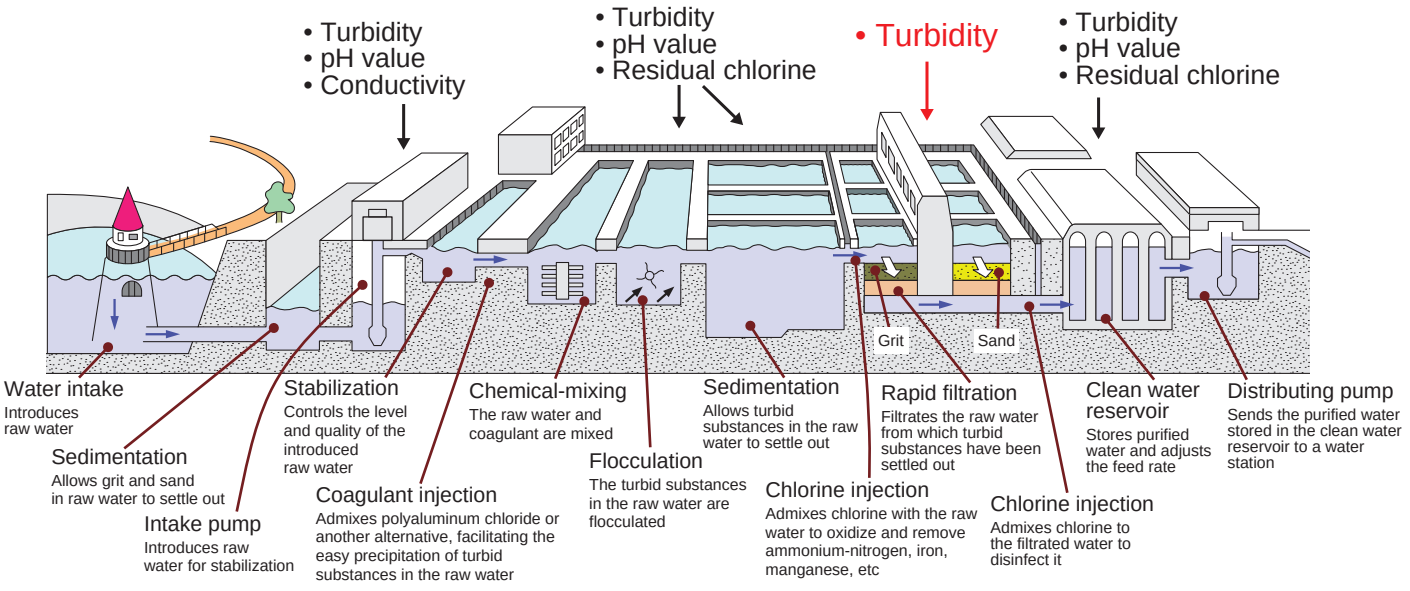
Japan's Potable Water Quality Standard was fully revised in 2004, increasing the number of water quality standard items for which tests are required has increased to 50. As items necessary for water quality management, the authority has specified an additional 27 complementary parameters to set the targets for water quality management. Furthermore, it has been decided that officially prescribed methods, including automated metrology, are to be used as methods for testing these water quality standard items. This decision has been made to meet the demand for increasingly stringent water quality control against newly emerging problems such as cryptosporidium and by-products produced as a result of chlorine treatment, as well as for rationalizing and facilitating water quality control.
The TB750G right angle scattered light turbidimeter is used to control water quality using the complementary parameters' standard value of 1 mg/l, and to control the turbidity of filtrated water at a level less than 0.1 mg/l as an anti-cryptosporidium measure. The TB750G turbidimeter measures low turbidity levels and is designed to prevent measurement errors caused by air bubbles. The TB750G can support the application specified as "Constant Turbidity Monitoring at the Outlet of a Leaching Pond" in the "Guidelines in Japan for Provisional Measures against Cryptosporidium in Tap Water" (1997).

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

Process Overview

The portable 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 turbidimeters, residual chlorine analyzers, and pH meters, are used in water purification plants. This application note focuses on turbidimeters, which are used to verify that filtration systems are operating in excellent condition. The TB750G turbidimeter continuously measures post-filtration turbidity in order to achieve the required turbidity control value of 0.1 mg/l.



AN 10E01R01-01E http://www.yokogawa.com/an/index.htm

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Solution Details

Measurement system

Right angle scattered light turbidimeter

Model: TB750G-NTU-ST-N❑-NNNN-1-NN/D1

Main components:

Turbidity detector, converter, pressurized head tank

Primary product specifications:

Measuring range: 0 – 0.2 NTU to 0 – 100 NTU

Output signal: 4 – 20 mA DC

Installation location: indoors

Zero turbidity filters (to be purchased separately)

Filter assembly 1 micron: P/N K9411UA

Filter assembly 0.2 micron: P/N K9726EF

Utilities for TB750G

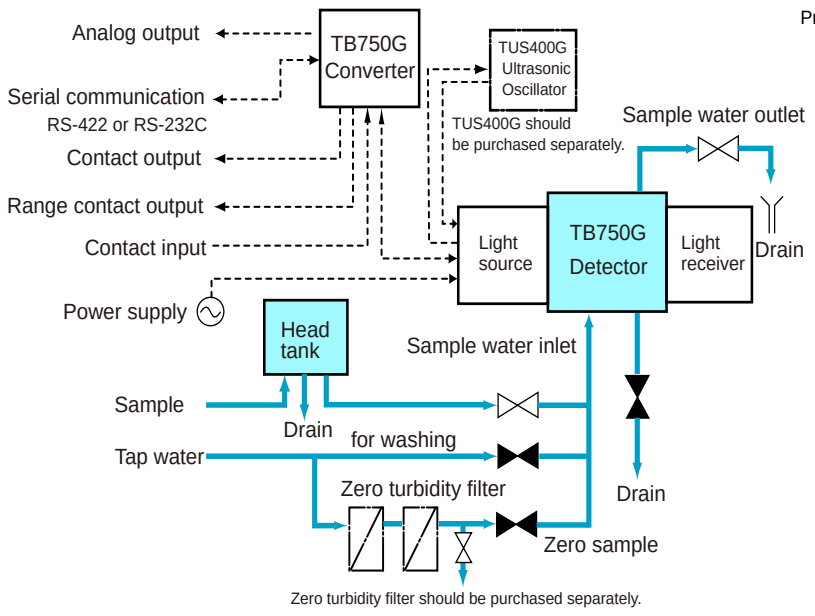
Power supply: 100 – 240 V AC –15%/+10%, 50/60 Hz

Power consumption: Approximately 50 VA

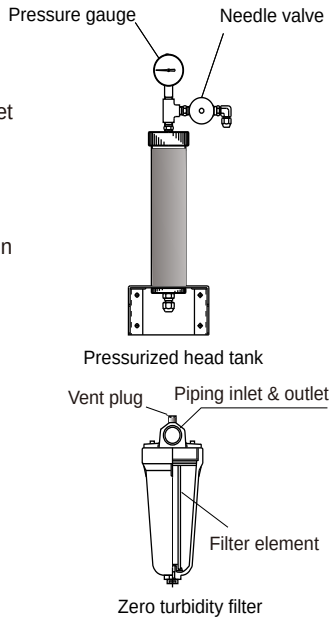
Note on installation

This turbidimeter 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:



3rd Ed: Jan.2011(YK)
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