

Three Channel Monitoring & Control

Background

WWTP (Waste Water Treatment Plants) have a growing need for accurate and reliable monitoring of effluent parameters, before & after treatment.

BPC provides a reliable & cost effective analytical & control system for all ETP's

- Monitoring effluent streams in **three locations** simultaneously (Inlet, process & Treated effluent)
- The system consists of three main elements:
 - a. **Automated Sampling System** designed to meet specific effluent streams
 - b. **On line analyzers** that measure a variety of parameters (Flow, pH, Temp., TOC, DO, OUR, TN, TP, Turbidity, Alkalinity, TDS, Sulfides and more...)
 - c. **Closed Loop Control:** BPC system Closes the loop via PLC automating the process including:
 1. pH adjustment
 2. Chemical dosing at multiple process points
 3. DO (Dissolved Oxygen) control for bioreactors
 4. Online OUR (Oxygen Uptake Ratio) in bioreactors & chemical oxidation
 5. Flow control (as applicable)
- **Visibility:** Process performance is clearly displayed in multiple locations
- **Central control:** all data and statuses are synchronized with the plant main control unit

Fig. 1: sampling, online analyzing & control system

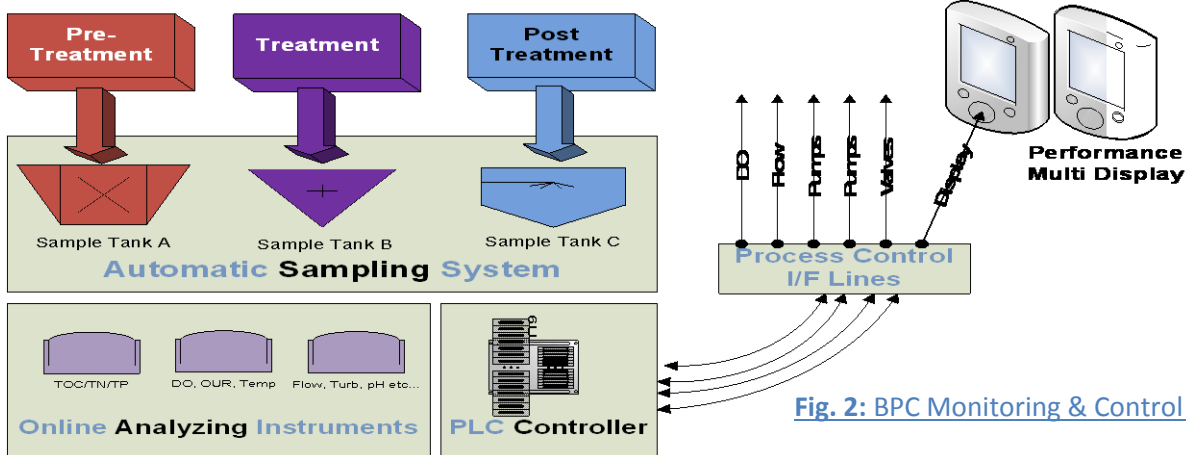


Fig. 2: BPC Monitoring & Control System



Reliable monitoring & control results, with stable quality & lower OPEX

Available configurations:

Three different configurations are available:

1. **Basic Module**
2. **Advanced Control Module**
3. **Optional I/F**

Note: customers can start with basic module and gradually expand to the maximum capabilities at its own speed.

Detailed description:

Basic Module; consists of three main elements:

1. Three channel sampling system, each sampling is customized to meet
 - a. The effluent stream characteristics (inlet, In-Process, or treated)
 - b. The desired sampling mode (online, accumulating, average or other)
2. An array of Analyzers (TOC, COD, DO, TN, TP, Temp, pH, Alkalinity, & more)
3. *Local & Remote Display monitors*

Customized solutions:

BPC's monitoring & Control system is designed in a modular way that enables specific customizations for each individual ETP, according to its needs & setup.

BPC customized monitoring & Control system is delivered after factory integration & testing

Fig. 3: sampling, online analyzing & control system



Advanced control Module; The closed loop control & automated dosing:

Analyzed parameters are fed to a PLC utilizing BPC proprietary algorithms to produce the control lines for:

- ✓ *Chemical dosing automation required for: pH adjustment, Nutrients accurate injection bioreactors & Chemicals in the pretreatment or post treatment (DAF or clarifier)*
- ✓ *Balance the DO (Dissolved Oxygen) level in bioreactors (Blower control)*
- ✓ *Adjust the Flow control*
- ✓ *Optimize chemical consumption (dosing adjusted according with flow & contamination characteristics)*
- ✓ *Provide process performance management reports– consumption etc.*

Optional - Interface to the plant control system

BPC offers an optional interface module that will synchronize all data and control lines to & from the main plant control system. For uniform operations of the plant under one control