

System Requirement Specifications for Online Effluent Quality Monitoring System for Outlet of ETP with RO of OPGC-2

Requirements

Complete set of 1 number of effluent analyser (Insitu Type) with the following description

Supply of user Friendly System that will Operate and analyze the waste water in every minutes of time interval without any additional requirement of reagents or chemicals. The system may be maintenance free with low calibration requirements and it should use less consumables. The system is to be Online multi-parametric pH/ COD /BOD / TSS Analyzer Supplied with a compatible Controller that has the capability to handle at least 4 Sensors to accommodate the currently required parameters and further upgradable to accommodate any additional sensors (Nitrate, ORP, Turbidity, Ammonium, Conductivity, TDS, Dissolved Oxygen, Phosphate, Nitrite, Sludge Level etc) for atleast 12 more parameters that may be required for monitoring in future which may be directed by Central and State Pollution Control Board (CPCB & SPCB). It must have an isolated output of 4 to 20 mili Amp and also desirable to provide RS-232/485/modbus output.

Specifications of Multiparameter Controller

- Should have the latest features of highly advanced Multiparameter Controller having capability of handling atleast **4** sensors in a single controller configuration and more as and when required.
- Should have the capability to be operated as Controller (having programmability feature) or just a terminal (that can display the data).
- Display should be with improved reading precision through special backlit graphic display
- Easy User Intuitive operating keys: including keys for functions such as: Measurement, calibration, set/system settings, additional keys for: confirmation/switching menu O.K. (OK), Escape (ESC) etc.
- Internal integrated Datalogger with minimum data memory of to store at least 1 year data which may be extended if required.
- The Controller should be able to power all the sensors and terminals or accessories attached to it without having the need of any additional power sources in the system for increased protection against lightening and possible electromagnetic interference. However additional power provision to be supplied in the panel for RTDAS (Real time data acquisition system).
- The system should start automatically after the power is restored to the system (in case of power failure).

- UPS of Microteck / Luminous of 1 KVA with 4 hours backup. Vendor has to coordinate for service of UPS in case of requirement.
- The Sensors connected to the system shall be automatically detected and initialized.
- Minimum guarantee of 2 years and extended guarantee up to 5 years. Any problem in any analyser/data logger/ controller/ electrical system to be taken care by vendor during guarantee.
- No extra system configuration should be needed during replacement of sensors if required.
- The system should have Service mode for cleaning/calibration/maintenance activities.
- It should be possible to download the data via the USB interface an extremely fast data exchange to USB memory stick.
- In case the sensor requires auto cleaning, a portable compressor of at least 1CFM (Cubic foot per minute=28.317 Liters volume of air approx) capacity to be provided preferably of ELGI make. With operational pressure of 3 Kg pressure.
- The controller should have the capability to store the sensor configurations and calibrations.
- The supplier should provide the software / firmware updates on free of cost basis when they are available (Genuine/licensed softwares).
- Data Output to CPCB/SPCB Server: The System should have the capability to transmit the required data to CPCB/SPCB Server through Vendor existing in Odisha.
- In addition to above, the system should have provision to output data via 4-20 mA, Modbus, Profibus, RS 232, LAN, GPRS, GSM compatible signals in future with addition of respective module as and when required within the plant premises.
- The system should be able to operate both on AC Power (100-240 AC) or 24V DC as per plant requirements.
- Ambient Conditions Operating temperature: 0 °C ... +55 °C
- Housing Material – Non corrosive e.g. Acrylonitrile-Styrene-Acryloesterpolymer or better (The panel box for controller)
- Protection Rating IP 65-68 (Ingress protection).
- Integrated Lightning Protection: According to EN 61326 enhanced overvoltage protection for the entire system, implemented in each component

Specifications of Sensors:-

Spectrometry Sensor for Detection of BOD, COD and TSS

- **Measurement Principle:** Measurement of full wave lengths spectra (UV-VIS Spectrometry) from 200 – 720 nm / TOC with NDIR technology (For extractive type analyser)
- The Sensor should not use any reagents and spare parts like WIPERS and should be easy to use and operate without any running costs.

- Multiparameter probe ideal for monitoring of BOD, COD and TSS in Waste water. pH sensor can be additional.
- **Direct in-situ measurement in outlet of waste water treatment plant. In case of extractive type it should be TOC type with NDIR technology.**
- The sensor should come preferably with efficient integrated ultrasonic/ air purging cleaning facility for self-cleaning of sensor automatically during operation.
- The MoC of the sensor should be stainless steel/Titanium or better.
- The Sensor should have integrated shock protection facility.
- The sensor should be applicable for use in corrosive media as well.
- The sensor should be completely reagent free for operation.
- The Sensor cable supplied along with the sensor has to be of 15 Meters of length.
- Protection type : IP 68 for both Sensor and Cable

Specifications:

- Measurement Principle: UV Vis Spectrometry (200-720 nm)
- Accuracy in Standard Solutions: ± 5 % of the measured value plus
- Following measuring ranges are required as minimum:
 - ✓ COD: 0-800 mg/l
 - ✓ BOD: 0-500 mg/l
 - ✓ TSS : 0-900 mg/l

Ambient Conditions: Operating temperature: 0 °C to +45 °C;

pH Sensor: -

- Integrated temperature measurement and compensation should be provided in the pH sensor.
- Sensor check function to detect broken glass of the pH electrode.
- The pH sensor should have galvanically separated input.
- Calibration history should be stored automatically in the sensor.
- Sensor calibration can be done in the laboratory or field.
- The pH combination electrodes should require very little maintenance and there should be no electrolyte replacement
- The sensor should come preferably with efficient integrated ultrasonic cleaning facility or also additional air cleaning facility.

Technical Specifications:

- Measuring Range : pH from 0.00 to 14.00.
- Signal Output : 4 to 20 mili amp.
- Protection type : IP 68 for both Sensor and Cable.
- Sensor Check function should be available in the pH sensor.
- Transient Voltage Protection should be integrated in the sensor.
- The Sensor cable supplied along with the sensor has to be at least of 15 Meters of length.
