

WATER SUPPLIES DEPARTMENT
STANDARD SPECIFICATION EM-02-05
CHLORINE RESIDUAL ANALYZER

1. **GENERAL**

The chlorine residual analyzer shall be capable of continuously measuring either free or total chlorine residual in the sampled water. All parts of the analyzer in contact with the sampled water shall be resistant to corrosion caused by chlorinated water and the chemical reagents used for measurement.

2. **DESIGN**

The chlorine residual analyzer shall use colorimetric DPD chemistry (N,N-diethyl-p-phenylenediamine) to continuously measure either free or total residual chlorine, depending on the type of reagents installed in the instrument. The analyzer shall be designed for low maintenance and capable of continuous, unattended operation for at least 30 days.

A controller shall be provided in the analyzer to regulate the chlorination process. The analyzer shall include self-testing diagnostics and a front-panel LCD/LED display to show measurement readings and system status. One 4-20 mA analogue output signal for the measurement, one adjustable signal limit alarm ranging from 0% to 100% of the measuring range, and one equipment failure alarm shall be provided for remote monitoring and alarm annunciation. Digital communication format such as Modbus or Profibus protocol etc. shall be provided subject to the market availability and application environment.

The analyzer shall meet the following requirements:

Measuring range	:	0-10 mg/litre (free or total residual chlorine)
Accuracy	:	better than $\pm 5\%$ of span from 0-5 mg/litre and $\pm 10\%$ of span from 5-10 mg/litre
Lower limit of detection	:	0.05 mg/litre
Cycle time	:	less than 3 minutes
Operating temperature	:	5-40°C
Enclosure rating	:	IP65 with corrosion-resistant material
Analogue output signal	:	4-20 mA, capable of driving a 500 ohm load
Alarm output contacts	:	Volt-free contact rated at 2A 220V a.c.

Supply voltage : 220V 50Hz a.c.

3. ACCESSORIES

Where associated instruments such as sample water inlet strainer, water flow regulator valve, water gauge, chemical solution feeder and reservoir, etc. are specified in the Particular Specification, these instruments, together with the analyzer, shall be housed in a freestanding, floor mounted stainless steel panel.

Unless otherwise specified in the Particular Specification, the following accessories and consumables, sufficient for continuous operation for one year, shall be provided with the analyzer :-

- (a) Chemicals
- (b) Installation kit
- (c) Maintenance kit

- End of this Specification -