

Complies with US EPA procedures

Multi-parameter Water Quality Analyzer **U-50 series**

## Low-Flow Ground-water Sampling and Monitoring



### 1. Abstract

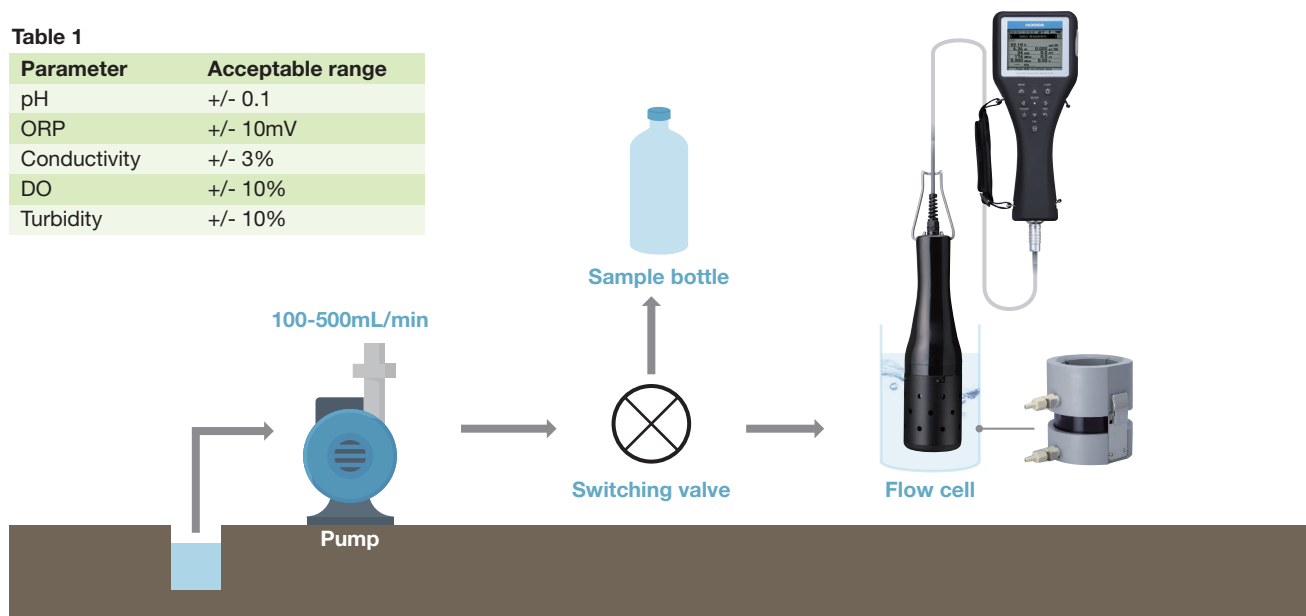
US EPA Office of Research and Development, Office of Solid Waste and Emergency Response, published a document entitled "Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures" which is intended to provide background information on the development of low-flow sampling procedures and its application under a variety of hydrogeologic settings.

### 2. Low-Flow Ground-water Sampling and Monitoring

Low-flow purging, whether using portable or dedicated systems, should be done using pump-intake located in the middle or slightly above the middle of the screened interval. Flow rates on the order of 0.1 - 0.5 L/min are typically used, however this is dependent on site-specific hydrogeology. Well purging three casing volumes prior to sampling is recommended for in-line water quality measurement device to establish the stabilization time for the parameters (e.g. ,pH, ORP\*, DO\*, turbidity) on a well-specific basis to obtain samples of water flowing through the geologic formations in the screened interval. Parameters should be continuously monitored during the purging and taking the measurement result on every three to five minutes. Once all parameters get within the acceptable range (table 1), reading value shall be deemed stabilized and go on to the monitoring. The most vital parameters are Conductivity, DO, and Turbidity. However, these parameters require longer time to stabilize. The HORIBA U-50 series solves this issue by equipping an ultra-sensitive turbidity sensor and a stable DO sensor which are made especially for low-flow range, making HORIBA U-50 series your best choice for low-flow ground water sampling and monitoring.

Table 1

Parameter	Acceptable range
pH	+/- 0.1
ORP	+/- 10mV
Conductivity	+/- 3%
DO	+/- 10%
Turbidity	+/- 10%



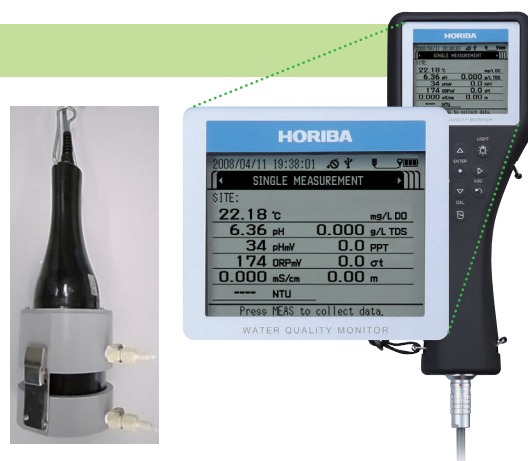
\*ORP : Oxidation Reduction Potential  
\*DO : Dissolved Oxygen

## HORIBA U-50 series

HORIBA U-50 series, multi-parameter water quality analyzer, measures up to 11 parameters such as pH, ORP, conductivity, DO, turbidity, temperature, TDS\*, salinity and seawater specific gravity etc.

This analyzer and flow cell U-50FC is the best combination for the low-flow ground-water sampling and monitoring. It enables easy and quick continuous, simultaneous water quality measurement for all your ground-water monitoring work.

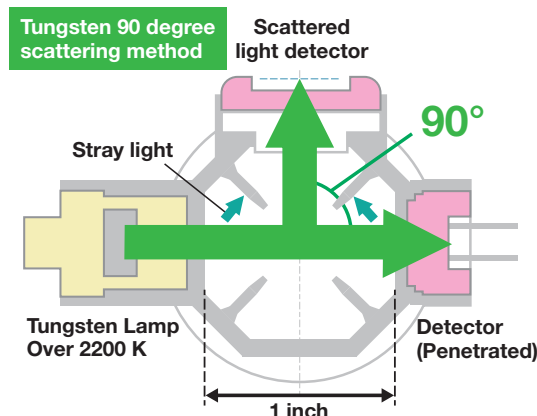
\*TDS : Total Dissolved Solids



## Ultra-sensitive turbidity sensor

Ultra-sensitive turbidity sensor on the model U-53 complies with EPA method 180.1 "Determination of Turbidity by Nephelometry".

U-53 employs the mechanic of Tungsten 90 degree scattering method and cleaning wiper on the light source and detector. It shows significant precision and linearity in the turbidity measurement specifically in low range turbidly water.

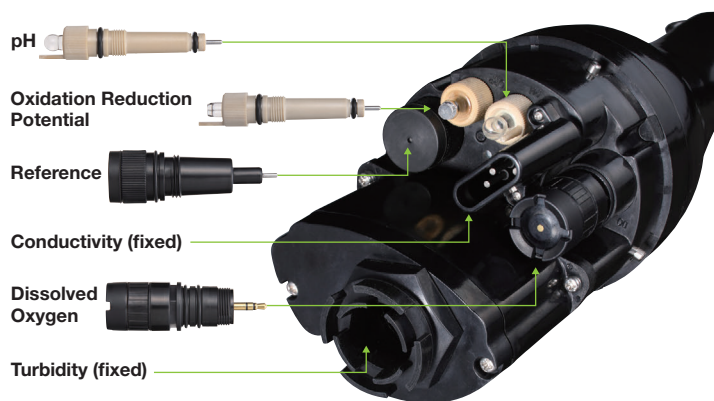


## Key features of U-50 series

- One-Hand operation for control unit.
- All 11 parameters are displayed on the LCD screen.
- Simultaneous ONE-POINT calibration for multi parameters. [pH, DO, conductivity, turbidity and depth]
- Module sensors can be replaced individually. [pH, ORP, reference, DO]

## Reference

1. US EPA Low-Flow (Minimal Drawdown) Ground-water Sampling Procedures
2. US EPA Method 180.1 Determination of Turbidity by Nephelometry



The HORIBA Group adopts IMS (Integrated Management System) which integrates Quality Management System ISO9001, Environmental Management System ISO14001, and Occupational Health and Safety Management System OHSAS18001. We have now integrated Business Continuity Management System ISO22301 in order to provide our products and services in a stable manner, even in emergencies.



**Please read the operation manual before using this product to assure safe and proper handling of the product.**

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