

## Total Nitrogen Analyzer

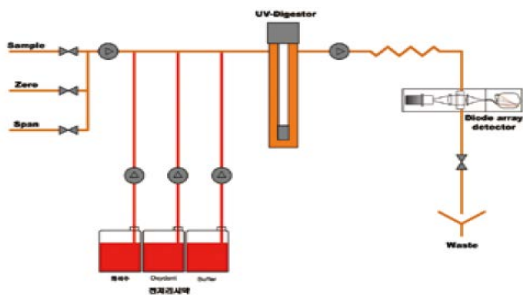
## Moni TN

- ❖ Nitrogen occurs as inorganic ammonia, nitrate, nitrite and organically bounded nitrogen in natural water. All nitrogen should be converted as one specific nitrogen such as  $\text{NH}_4$  or  $\text{NO}_3$  before measurement.
- ❖ Moni TN uses UV oxidation under  $90^\circ\text{C}$ . After the digestion, all nitrogen is converted as nitrate for measurement.
- ❖ Oxidized sample flow to measuring cell and its absorbance measured by spectrophotometer in UV wavelength(200~400nm) range. Or sample passed through reduction column or reagent and react with color reagent to measure its color absorbance (NEDD method)
- ❖ Total Nitrogen is an important role in sewage waste water treatment to monitor its effluent quality and process efficiency. In river and sea water, TN is well known pollutant in eutrophication.
- ❖ UV spectroscopy is well adapted method in river, lake and waste water measurement. Also it is cost effective and simple method. However, Cd-Cu reduction is used for the measurement of sea water which contains interference in UV photometer. Also reduction method is more sensitive method.



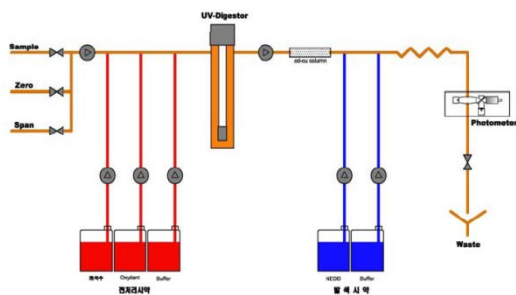
### ● TN Photometry

- ❖ TN1 : UV Absorbance(Direct Spectroscopy)



Digested sample flow to measuring cell and measured By spectro-photometrically.

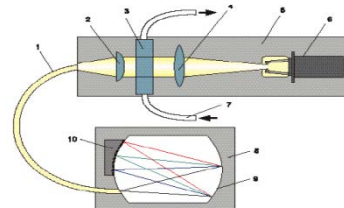
- ❖ TN2 : Absorbance(Colorimetric method)



Digested sample flow to reduction column(or reagent) to change as nitrite and colored by NEDD and measured by photometrically.

### ● Multi or single wavelength

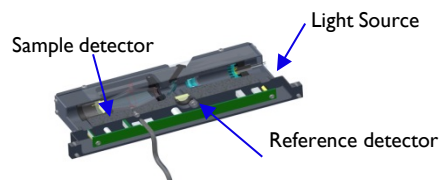
- ❖ Multi wavelength Diode array Spectrophotometer



200-710nm  
2nm Resolution  
Diode array detector  
No moving part

- Main and sub wavelength could be selected to measure correctly.
- Not only TN, we can measure  $\text{NH}_4$ ,  $\text{NO}_3$  also.
- Other spectrometry parameter could be possible

- ❖ Dual beam Detector



- Dual beam optic using reference beam and Sample beam technology. Light intensity is automatically compensated.
- Using line spectrum LED(645nm), Nitrate is measured accurately and precisely.
- None moving part reactor and long life LED works based on sleep and working mode. So it minimize the power consumption.

### ● Product Specification

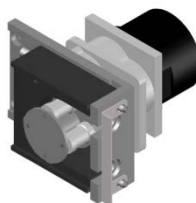
Measuring Method	UV Spectrometry(Direct spectroscopy), Reduction and Colorimetry
Measuring Parameter	Total Nitrogen, Nitrate or Ammonia(As option)
Measuring Range	0~1.0/ 0~5.0/ 0~50.0/0~100 mg/L (range selectable)
Accuracy/Repeatability	Lower than $\pm 3\%$
Detection Limit	0.1mg/L(Direct, 0.002 mg/L(at 460nm)
Analysis interval/Channel	30min(TN), 15minNO <sub>3</sub> -N),TP and NO <sub>3</sub> -N(30min) / Expandable up to 6channel
Detector system	Diode array spectrometer or 460nm Dual Beam Photometer
Control system	PCI04,AMD 500 MHz
Display	Touch Screen , LCD
Communication	4~20mA DC, RS232, LAN, USB, Modem(optional)
Voltage	Free voltage, Power consumption can be minimized by selecting sleeping and working mode
Calibration	Automatic, Manual, random setting of calibration interval, 2Point calibration
Measuring interval	Cyclic
Size and Protection	1170x600x400(HxWxD) & IP65, IP54, IP21
Additional Function	Waste separation,Additional heating system

### ● UV Reactor design



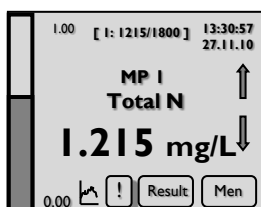
- Non personalized digestion
- K<sub>2</sub>S<sub>2</sub>O<sub>8</sub> reaction in sulfuric acid
- Continuous air bubble maximize mixing efficiency and energize the UV reaction to sample by sample circulating.
- Mirrored reactor gives maximum UV efficiency.
- Temperature controlled at 90-95 °C and it minimize the sample lost during digestion.
- UV detector function monitor UV lamp and reactor status.

### ● Pump design



- Minimized pulsation 4roller pump gives stable chemical and sample transportation to give measurement stability.
- Speed controlled motor minimize number of sample pump tube by using same size.
- One-touch tube replacement possible
- Bi-directional pumping give injection and discharge also.
- Dual or 3 channel head acceptable.
- Sealed electronics to protect leakage.

### ● Controller / Display & Software



- PCI04 586 Pentium or higher
- Touch Screen Display: Graphic and Numerical Display
- Data saving by using internal memory.
- Remote control by RS232, LAN, Modem
- 4(Max. 12ea) Relay contacts
- External sensor and Analyzer interface by CAN Bus
- Filtration control and external pump control possible
- USB download and Upgrade possible
- Standard protocol by each countries.
- Diagnostics program
- Option: Modem (GPRS)