

MICROMAC TN & TP ON LINE ANALYZER FOR NITROGEN AND PHOSPHORUS TOTAL MONITORING IN WATER



MICROMAC TN & TP is a microprocessor controlled On Line analyzer specifically designed for automatic Total Nitrogen and Total Phosphorus monitoring on several types of water matrix.

✓ ROBUST AND RELIABLE

Designed for industrial and Environmental On Line applications Micromac TP&TN ensures the highest level of robustness in the electronics, mechanics and hydraulics components. Complete separation between electronics and hydraulics plus a simple and efficient LFA * hydraulics allows easy maintenance and long terms reliable operations.

** LFA: Loop Flow Analysis patent pending*

✓ EASY TO INSTAL

The analyzer is delivered after a long and successful series of factory tests ready for installation and setup; it is provided with a complete set of spares for start up. To start a monitoring session is sufficient to connect reagents, sample line, waste line and power supply.

✓ AUTOMATIC CALIBRATION

When the Calibration Time interval expires the analyzer performs a Calibration Cycle, storing and checking the new calibrant O. D. If new O.D. exceeds selected limits, an alarm contacts is closed.

✓ SAMPLE DILUTION

Sample can be analyzed as it is or after automatic dilution. Automatic dilution is factory adjusted for high range applications.

✓ MEASURING INTERVAL

User selectable; between two measurements the analyzer remains in stand by mode, without reagents consumption.

✓ FEATURES/BENEFITS

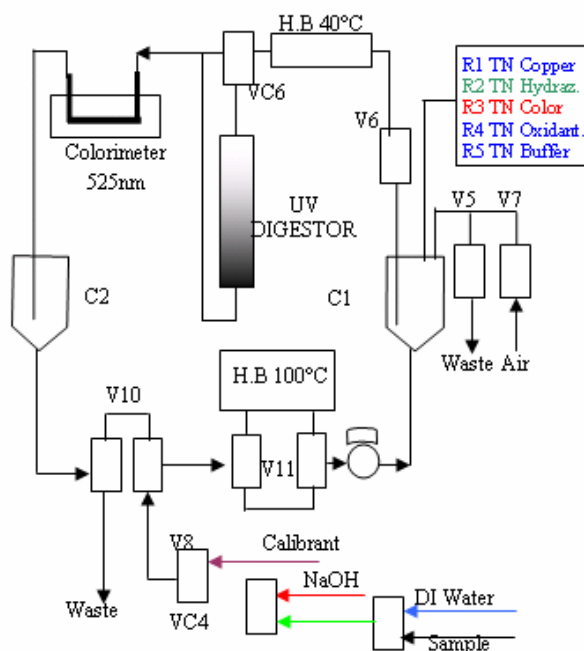
- Fully automatic operation
- Long autonomy; low maintenance and operating cost
- Low reagents consumption;
- Easy operation; plug in analyzer, no special training is required
- Electronics and hydraulics separated
- Serial interface for local o remote PC connection
- The results of the analysis are displayed in the same moment, after 1hour.



Nitrogen Total & Phosphorus Total measuring principle and hydraulic diagram

The sample after proper filtration is pumped inside the LFA reactor, where after injection of H₂SO₄ is trapped inside the high temp heating bath for inorganic P hydrolysis. During the hydrolysis time, the analyzer runs a complete TN test on the same sample, by adding the oxidation reagents and passing through a UV digestion step, to convert Nitrogen into Nitrate by UV radiation in persulfate alkaline medium. The nitrates formed are then reduced to nitrites by hydrazine in alkaline solution, where copper is used as catalyst; the nitrites react with sulphanilamide and naphthylethylendiamine in acid solution, to form a pink colored compound measurable at 550 nm.

The reactor is washed and then the analyzer opens the heating bath and adds in the digested sample a proper oxidant to convert all the organic forms of phosphorus into orthophosphate, by the double action of potassium persulphate and UV radiation in acid environment. The orthophosphate formed reacts with molybdate to form phosphomolybdate, which is finally reduced to blue molybdenum by ascorbic acid. The coloured complex is read at 660 or 880 nm.



Technical Specifications

	TP	TN
MEASURING PRINCIPLE	Colorimetric, acid hydrolysis and UV digestion	Colorimetric, UV digestion to NO ₃ , hydrazine reduction, NED+SAN
MEASURING RANGE	0/3/5/10 ppm as P, other ranges available on request	0-5/10/20/50 ppm as N, other ranges on request
COLORIMETER	dual beam, silicon detector	
MEASURING TYPE	cyclic	
MEASURING INTERVAL	programmable	
MEASURING TIME	60 minutes	
OUTPUT SIGNALS	4-20 mA, separated for each parameter	
INPUT SIGNALS	n. 1 analysis, n. 1 calibration; digital contacts	
ALARMS	n. 1 High Limit, n. 1 General, n. 1 Calibration; potential free contacts	
SAMPLE AND WASTE DELIVERY	pressure free	
SAMPLE TEMPERATURE	10° - 30 °C	
REAGENTS REPLACEMENT	3/4 weeks depending on the operating temperature	
OPERATING TEMPERATURE	10 °C - 30 °C	
PROTECTION	IP 55	
HARDWARE	PC104 industrial standard, Integrated keyboard and graphics display, RS232	
POWER SUPPLY	12 V DC external power supply included; 4W Standby; 50 W (mean) analysis	
WEIGHT /DIMENSION	33 Kg without reagents / 800x450x300 mm(hxwx d)	

Subject to change without notice



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