

## MICROMAC MP4 NUTRIENTS

### ON LINE ANALYZER FOR AMMONIA, PHOSPHATE, NITRATE & NITRITE MONITORING IN WATER



**MICROMAC C MP4 NUTRIENTS** is a microprocessor controlled On Line analyzer specifically designed for automatic Total Phosphorous and Ammonia monitoring on several types of water matrix.

#### ✓ ROBUST AND RELIABLE

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

\* LFA: Loop Flow Analysis patent pending

#### ✓ EASY TO INSTALL

The analyzer is delivered after a long and successful series of factory tests ready for installation and setup; it is provided with complete set of spares for start up. To start monitoring is enough to connect reagent, 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 AND BENEFITS

- Fully automatic operation
- Long autonomy; low maintenance, low operating cost
- Low reagents consumption; short preparation time; low disposable costs
- Easy operation; plug in analyzer, no special training is required
- Electronics and hydraulics completely separated
- Serial interface for local o remote PC connection (option)

## Measuring principle and hydraulic diagram

### Ammonia:

Method: either Salicylate or Phenate. Measuring wavelength: 630 or 660nm

### Nitrate+Nitrite:

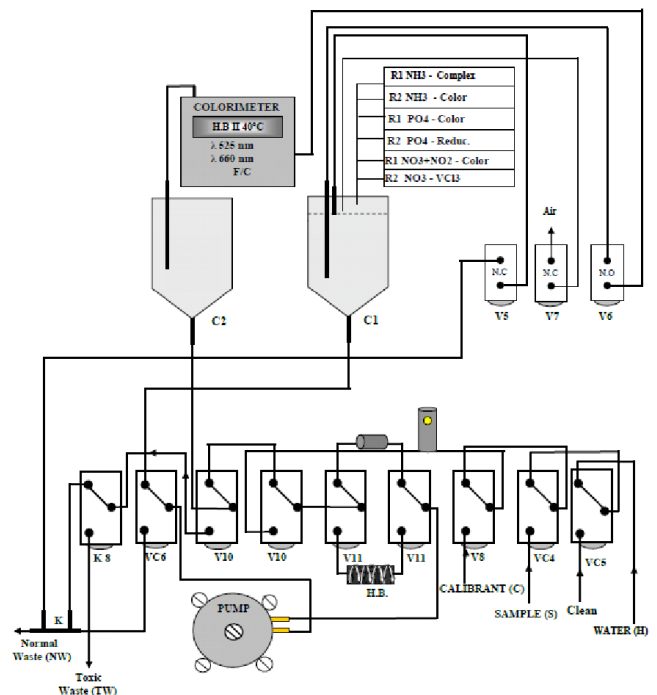
Nitrate- Nitrite reduction by VCl3 then colorimetric reaction with with sulfanilamide and naphthylethyldiamine in acid solution. Measuring wavelength: 525nm

### Phosphate:

Molybdate and Ascorbic Acid, measuring wavelength: 660nm

### Nitrite:

Colorimetric reaction with with sulfanilamide and naphthylethyldiamine in acid solution. Measuring wavelength: 525nm



## Technical Specifications

**MEASURING PRINCIPLE:** Colorimetric; **NH<sub>3</sub>**:, phenate or salicylate method, 2 reagents for water and waste water, 3 reagents for seawater. **NO<sub>x</sub>**: VCl<sub>3</sub> reduction to NO<sub>2</sub>, NED+SAA. **PO<sub>4</sub>**: Molybdate/Ascorbic Acid. **NO<sub>2</sub>**: NED+SAA.

**COLORIMETER:** dual beam, silicon detector

**MEASUREMENT TYPE:** Sequential

**MEASURING INTERVAL:** programmable

**MEASURING TIME:** 30/-35 minutes depending on the range

**MEASURING RANGE:** N-NO<sub>x</sub>: 0-5/10/20/50/100/200mg/L; N-NH<sub>3</sub>: 0-0.5/1.0/2/5/10/20/50mg/L; P-PO<sub>4</sub>: 0-1/2/5/10/20; N-NO<sub>2</sub>: 0- 1/2/5/10mg/L. Alternative ranges available on request

**DETECTION LIMIT:** typically better 3-5% of the full scale, calculated as for EPA p. 136 appendix B

**REPEATABILITY/ACCURACY:** better than 5%

**OUTPUT SIGNAL:** n. 2 set of 4-20 mA **INPUT SIGNALS:** 1 Analysis, n. 1 calibration; digital contacts

**ALARMS:** n. 2 sets of: n. 1 High Limit, n. 1 General, n. 1 Calibration; potential free contacts

**SAMPLE AND WASTE DELIVERY:** pressure free; **SAMPLE TEMPERATURE:** 10 °C - 30 °C

**REAGENTS REPLACEMENT:** 3/4 weeks depending on the operating temperature

**PROTECTION:** IP55

**HARDWARE:** PC104 industrial standard, Integrated keyboard and graphics display, RS232 option

**POWER SUPPLY:** 12 V DC external power supply included; 14W Standby; 50-60 W (mean) analysis

**WEIGHT:** 33 Kg without reagents; **DIMENSION:** 800x420x280 mm(hxwx d)

Subject to change without notice

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