# Specifications

## Model TNPC-4110C On-line Total Nitrogen/Phosphorus Analyzer

| **Types of measurement:** | Total Nitrogen and Total Phosphorus  
Items can be measured individually or simultaneously. |
|----------------------------|-------------------------------------------------|
| **Measurement principle:** | TN: Catalytic thermal decomposition - Chemiluminescence  
TP: UV oxidative decomposition – molybdenum blue absorption  
TOC: Catalytic combustion oxidation – CO₂ detection utilizing a non dispersive infrared detector |
| **Measurement range:** | TN: From 0 to 2/5/10/20/50/100/200/500/1000/2000/4000 mg N/L  
TP: From 0 to 0.5/1/2/5/10/20/50/100 mg P/L  
TOC: From 0 to 2/5/10/20/50/100/200/500/1000/2000/5000/10000-20000 mg C/L |
| **Measurement Cycle:** | Selectable 1/2/3/4/6/12/24 Hours |
| **Reproducibility:** | TN: Within ±2% full scale (more than 5 mg N/L)  
Within ±4% full scale (2 mg N/L full scale)  
TP: Within ±3% full scale (up to 20 mg P/L)  
Within ±5% full scale (more than 50 mg P/L)  
TOC: Within ±2% full scale |
| **Measurement/delivery of sample/reagents:** | Automatic dilution in the syringe with the syringe pump |
| **Auto-calibration:** | Automatic calibration at set times/cycles |
| **Load Calculation function:** | Load calculation is possible through multiplication with the flow rate input signal. |
| **Multi-stream switching:** | Max. 3 flow-lines possible with optional Suspended Solids Sample Pretreatment Unit |
| **Display:** | Backlit LCD, 40 characters/line x 14 lines |
| **Data recorder:** | Thermal printer is included as standard, 42 characters, chart width 110 mm |
| **Analog output:** | Choose from 0 -1 VDC, 4 - 20 mA DC or 0 - 16 mA DC (Normal: 2 outputs; Maximum: 10 outputs) |
| **Digital output:** | RS-422 or RS-232C |
| **Alarm output:** | Warning, system stop error, abnormal concentration error (choose two from upper limit, lower limit, upper/upper limit or lower/lower) |
Event signals: Ready for measurement, operating on-line, measuring, measurement complete, calibrating, regenerating catalyst, stopped, data output trigger, sampling active flow line, and power off.

Input signals: Start calibration, start sample measurement, stop measurement and reset alarm.

Air Source: Compressed air or oxygen, at 250 - 300 kPa supply pressure for Sample Pretreatment unit.

Sample conditions: Flow rates:

- With the Sample Flow Line Set (optional) approx. 3 L/min
- With the Back Wash Strainer Sample Pretreatment Unit (optional) approx. 3 L/min
- With the Single Stream Suspended Solids Sample Pretreatment Unit approx. 1 L/min
- With the Multi-Stream Suspended Solids Sample Pretreatment Unit approx. 10 L/min

Temperature: 1 - 40 ºC

Other: Use a Suspended Solids Sample Pretreatment Unit when samples include suspended solids. This requires a tap water connection (at 300 kPa or greater) for rinsing at the sampling and pretreatment sections.

Power supply: AC 100/120V±10 % 8A (breaker capacity), 50 - 60 Hz

Ambient temperature: 0 - 40 ºC

Exterior dimensions: Refer to the Exterior Dimensions Diagram

Weight: Approx. 70 kg