TOC EVOLUTION Online TOC Analysers

Description

The **TOC Evolution** from SERES is designed for automatic and continuous monitoring of a **True Total Organic Carbon** in a wide range of applications including Environmental Monitoring and Industrial Process Control.

The **TOC Evolution** features an innovative, powerful and multifunctional UV oxidation reactor enabling accurate monitoring of **Volatile Organic Compounds** (VOC), **Non-Purgeable Organic Carbons** (NPOC) and **Total Inorganic Carbons** (TIC) in any type of water.

Applications

**Control of industrial process:** Water Treatment Plant (urban and industrial), effluents and influents continuous monitoring, compliance with environmental regulations and guidelines.

**Drinking and Surface water:** Alert stations and environmental monitoring.

**Water treatment:** Pure water production, demineralised water plant, condensate water, steam production, etc....

**Oil & Gas:** refineries, oil exploration.

Key functions for enhanced monitoring

- **Exclusive Features**
  - Compact enclosure easy to install, operate and maintain
  - Low operation cost
  - Quick response time and high analytical performances
  - User programmable sampling sequences
  - Reliable and accurate TOC monitoring solutions

- **True TOC Monitoring**
  - Volatile Organic Compounds (VOC)
  - Non-Purgeable Organic Carbons (NPOC)
  - Total Inorganic Carbons (TIC)

- **Options**
  - Total Phosphorus (TP)
  - Total Nitrogen (TN) and/or Dissolved Organic Carbon (DOC)
### Technical Specifications

**CONSTRUCTION & ENVIRONMENT**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall cabinet</td>
<td>Stainless steel: 900 x 600 x 300 mm (W x H x D) - ATEX version available.</td>
</tr>
<tr>
<td>Weight &amp; Material</td>
<td>60 kg approx.</td>
</tr>
<tr>
<td>Environment &amp; Protection</td>
<td>Installation in safe and sheltered area, away from corrosive atmosphere. IP55.</td>
</tr>
<tr>
<td>Ambient T°</td>
<td>5 to 40°C and less than 25°C for the reagents</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>5 to 85% without condensation</td>
</tr>
</tbody>
</table>

**ELECTRICAL UTILITIES**

| Power supply              | 110 - 240 VAC 50 / 60 Hz                                                     |
| Consumption               | Typical 150 VA - Maximum 330 VA                                              |

**ANALYSIS**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>TOC (NPOC), optional VOC (for True TOC) and TIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>From 0-10mg/l to 0-5g/l (user selectable)</td>
</tr>
<tr>
<td>Optional parameters</td>
<td>TN, TP and correlation of DCO</td>
</tr>
<tr>
<td>Method</td>
<td>Oxidation UV reactor combined with NDIR</td>
</tr>
<tr>
<td>LOD</td>
<td>0.1&lt;LOD&lt;0.5mg/l</td>
</tr>
<tr>
<td>Precision</td>
<td>+/- 3%</td>
</tr>
<tr>
<td>Repeatability</td>
<td>+/- 3%</td>
</tr>
<tr>
<td>Cycle duration</td>
<td>Less than 6 min</td>
</tr>
<tr>
<td>Analysis interval</td>
<td>User programmable</td>
</tr>
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**CONNECTIVITY, ALARMS & COMMUNICATION**

| User interface            | Colour LCD display, 5.7", 160 x 230 mm, touch-screen                      |
| Data storage and retrieval| Data storage in analyser memory                                             |
| Input / Output & Communication | 4 - 20 mA, dry contact - JBus/Modbus RS232/ProfiBus/Profibus Hart          |
| Alarms                    | Thresholds per stream (HI-LO), sample & analyser failure                   |
| Remote control            | JBus/ModBus protocol or dry contact: end of cycle stop                     |

**SAMPLING**

| Preparation               | Filtration if needed / Dilution, depending on application                   |
| Sample inlet              | Flow : min 30 l/h - optimum 46 l/h (4 l/h with water saving)               |
| Pressure                  | 0.1 to 3 bar maximum                                                       |
| Temperature               | 5 to 45°C                                                                  |
| Hydraulics                | Sample : Inlet 1/4" BSP F / Outlet soft tubing D INT 9                     |
| Wastage                   | soft tubing D INT 12                                                        |
| Sample feed               | Peristaltic Pump                                                           |

**OPERATION**

| Zero                      | Automatic at end of each measurement cycle - Built-in Zero Air filtration unit. |
| Calibration               | 6 monthly calibration required                                              |
| Cleaning                  | Mechanical wiper on option, if needed                                        |

User interface: smart & intuitive touchscreen interface allowing analyser controls and status reports.


Enhanced NDIR detection: Integral optical system for accurate, continuous and online IR measurement.

JBus/ModBus module: retrieval data / steering

Low Operating cost: Minimum reagents’ consumption

Multi-stream: 1 to 6 channels multiplexer
SERES Environnement (FRANCE) is one of the major actors in the field of online analysis dedicated to Water Quality Monitoring in the industry and the environment. Outstanding experience, attentiveness, innovative and effective solutions are the strengths of SERES while meeting everyday challenges with Environment Organizations, Water production & treatment, Oil & Gas, Petrochemical industry, Refineries, Power stations, Paper mills, Metal, food and other industries, Oil rigs, Tankers, Etc. ...

Environmental Compliance & Online Process Analysis

AquaGas Pty Ltd is supporting the global industrial community with high performance Environmental & Process Monitoring Systems (Continuous Emissions Monitoring Systems, Air Quality Monitoring Systems, Online process analysers, Water Quality Monitoring Systems) specifically designed and built to meet your application requirements.

With extensive expertise and diverse technical skills acquired around the globe, AquaGas Pty Ltd designs, installs, and supports innovative technical solutions, which respond to the requirements of environmental regulations in terms of pollution monitoring and environmental impact assessment. AquaGas Pty Ltd Systems and Services are available in Australia, New-Zealand and New Caledonia.

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- Arkema
- Asahi Glass
- De Nora
- Total
- Samsung
- Coca Cola
- Lafarge
- Mitsubishi
- Petro Bras
- Alstom...

### APPLICATIONS

#### Drinking water
Quality control at all stages: treatment, storage, distribution

#### Surface water
Study and design of surface water monitoring stations

#### Waste water
Monitoring of industrial or urban waste water

#### Process water
Quality control of process water

#### Oil & Water
Oil in Water Detection & Water in Oil storage tanks

### PARAMETERS

- TOTAL CHLORINE
- FREE CHLORINE
- MORPHOLINE
- PHOSPHATES
- AMMONIA
- HYDRAZINE
- COLOUR
- PHENOLS
- SILICA...

### CERTIFICATIONS

- AQUA GAS QUALITY MANAGEMENT SYSTEM ISO 9001:2008 CERTIFIED
- Ex
- IMO INTERNATIONAL MARITIME ORGANIZATION
- BUREAU VERITAS L.C.I.E

### HARDNESS
- THT
- TA
- TAC...

### CHLORIDES
- CYANIDES
- FLUORIDES
- SULFIDES
- ARSENIC
- SULFATES...