

# Spectral-8

A new standard in reagentless monitoring from clean water to the harshest industrial environments



## Real-time optical measurement of BOD, COD, TOC, NO<sub>3</sub> and many others ...

Whether for process control, compliance monitoring or early warning of quality issues, up to date water quality information is critical. It is therefore surprising that the most common solution remains the collection of grab samples, which provides intermittent information and with substantial delay. The alternative, bringing the lab to the field using wet chemical analysers, comes at very high costs.

#### The Spectral-8 offers the solution

The Spectral-8 UV/Vis spectrometer is an optical instrument for the continuous measurement of multiple parameter directly in the medium. Using full spectral information, it determines organics (COD, BOD, TOC, UV254), nitrate, turbidity, suspended solids, and many more, with a single device. Advanced algorithms provide accurate and reliable readings, and eliminate interferences (e.g. turbidity).



#### **Applications**

- Wastewater treatment plants (influent, effluent, process control)
- Industrial application (process water, wastewater treatment)
- Wastewater collection systems (load monitoring, corrosion protection)
- Water reclamation, reuse and irrigation
- Environmental monitoring (surface water monitoring)
- Aquaculture and fish farming
- Landfill leachate monitoring
- Drinking water (source monitoring, process control, early warning of contaminations)
- Ground water management
- more...



#### Real-time results, directly from the process

- Real time sensor
- In-situ installation (no sampling or sample pretreatment)
- 100% optical (no reagents, long term stable, simple to use)
- Small size sensor probe (allows in-situ and in-pipe installations)
- Minimal operating costs (no consumables, automatic cleaning, minimal maintenance)

#### **Highly robust**

- Suited for high temperature applications (0...110 °C)
- Available in both stainless steel and titanium, quartz windows
- Full spectral measurement for high specificity and compensation

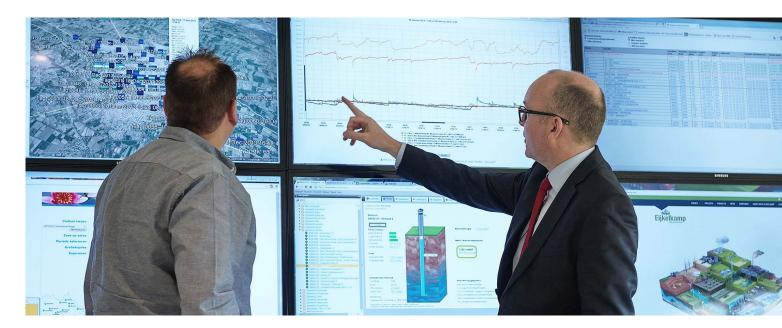
#### **Unparalleled flexibility**

- Multiple parameters from one device
- Software supports development of own parameters and virtual sensors
- Variable path length measurement range can be adjusted to the matrix
- Standard ATEX certification class III (ATEX class II optional)
- Wide range of communication interfaces
- Controller with full PLC functionality



#### **Smart sensoring solution**

Fully integrated in the Eijkelkamp Web Portal for online visualization of measurement results and integration with your other monitoring solutions. Supports remote calibration and device configuration.



#### **Available parameters**

| Parameter                        | Measurement range* | Parameter                    | Measurement range* |
|----------------------------------|--------------------|------------------------------|--------------------|
| Biological Oxygen Demand (BODeq) | 02000 mg/l         | Turbidity                    | 02000 NTU          |
| Chemical Oxygen Demand (CODeq)   | 012000 mg/l        | Total Suspended Solids (TSS) | 015000 mg/l        |
| Nitrate (NO <sub>3</sub> -N)     | 0100 mg/l          | Colour                       | 0100 Hazen         |
| Total Organic Carbon (TOCeq)     | 05000 mg/l         | Ozone                        | 010 mg/l           |
| Dissolved Organic Carbon (DOCeq) | 03000 mg/l         | Phenol                       | 020 mg/l           |
| SAC254/UV254                     | 02500 Abs/m        | Fingerprint Alarm            |                    |

\* dependent on application, indicative ranges only

### **Technical specifications**

| General                      |  |  |
|------------------------------|--|--|
| Measuring principle          | UV/Vis absorption spectroscopy                                     |  |
| Wave lengths                 | Full scanning between 200710 nm                                    |  |
| Light source                 | Xenon flash lamp   |  |
| Detector                     | 256 pixel diode array, ~2 nm/pixel                                 |  |
| Minimal measurement interval | 10 sec.  |  |
| Measuring path length        | 0.520 mm (freely selectable)                                       |  |
| Accuracy standard solution   | All parameters: +/- 1.9% + 1/OPL (OPL = optical path length in mm) |  |

| GDT-Pro Control (control system of spectrometer) |   |  |
|--|---|--|
| Dimensions (L x W x H)                           | 280 x 170 x 90 mm   |  |
| Operating temperature                            | -20+45 °C air temperature   |  |
| Storage temperature                              | -10+50 °C air temperature   |  |
| Weight   | Approx. 2.6 kg  |  |
| IP protection class                              | IP65  |  |
| Power supply                                     | 110230 V AC (5060Hz) or 24 V DC   |  |
| Power consumption (nominal)                      | 10 W  |  |
| Data storage                                     | 512 MB or 2 GB circular memory  |  |
| Virtual parameters                               | 20 (up to 100 optional)   |  |
| Interfaces                                       | 1x RS232/RS485 (MODBUS RTU), 1x CAN,<br>1x Ethernet 10/100 Mbit, 1x USB, 2x pulse<br>input, 2x 4-20mA output, 2x relay output,<br>GPRS/UMTS modem |  |



| Sensor probe                |  |
|-----------------------------|--|
| Dimensions (Ø x L)          | 44 x 230 mm  |
| Operating temperature       | 0+110 °C water temperature                                   |
| Weight                      | 1.5 kg (excluding cable)                                     |
| Length of fibre optic cable | 2.5, 6 (standard), 10, 15 or 20 m                            |
| IP protection class         | IP68   |
| Pressure                    | 06 bar (optional 010 bar)                                    |
| Wetted Materials            | Stainless steel (1.4404), quartz windows (Titanium optional) |
| Automated cleaning          | Compressed air (oil free)                                    |
| Warranty                    | 1 year (extended warranty optional)                          |





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