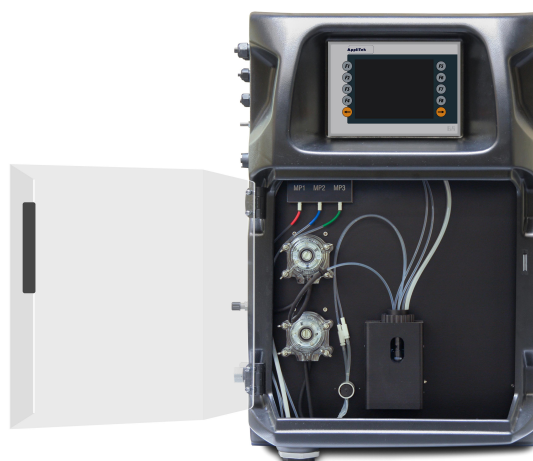# EnviroLyzer®
Series of On-line Colorimetric Analyzers

Single-parameter water analysis for industrial and environmental applications

Advanced features

- On-line, automatic colorimetric measurements

- Single methodology, single parameter, factory set measuring range

- Standard measuring ranges with optional internal dilution for high to very high ranges

- Minimalistic design: small footprint, less complexity

- Complete separation between electronics and wet part

- Smart features and add-on units reduce down-time and unnecessary checks substantially

- Up to six (6) sampling points possible

- Incorporated industrial panel PC with AppliTek controller software

- Extended data communication and exchange features

Application fields
From µg/L up to mg/L measuring ranges

On-line monitoring of chemical parameters and quality indices in clean and dirty water types:

- Boiler feed water / steam cycle monitoring
- Drinking water monitoring
- Waste water monitoring
- Cooling water monitoring
- Surface water monitoring

## High analytical performance

- Low reagent and sample consumption by batch-wise operation principle

- Smart features: automatic calibration, automatic validation and automatic cleaning

- High sensitivity and selectivity

- Factory configured, tested and calibrated

Masters in Analytical Technology.   **AppliTek**

Introduction

Managing both quantity and quality of water resources is a challenging task for companies, utility industries and authorities. On-line monitoring helps them to measure quickly and effectively all the relevant parameters in the water, whether it comes from a natural source or an industrial site. Simplicity, ease-of-use and robustness were keywords when we designed the **EnviroLyzer®** Series. The flexible analyzer mainframe allows a perfect on-line duplicate of any standard/laboratory wet-chemical method, with an excellent analytical performance. Moreover, the newly developed **TitriLyzer®** Series fit within this philosophy and are synonymous with high precision titration techniques.

The **EnviroLyzer®** Series harness features from our industrial, state of the art analyzers while retaining a compact footprint:

- Standard 4 - 20 mA signal output with alarm processing;
- High quality industrial panel PC;
- Standard Ethernet TCP/IP connection
- Higher measuring ranges: internal sample dilution
- Optionally multiple stream analysis
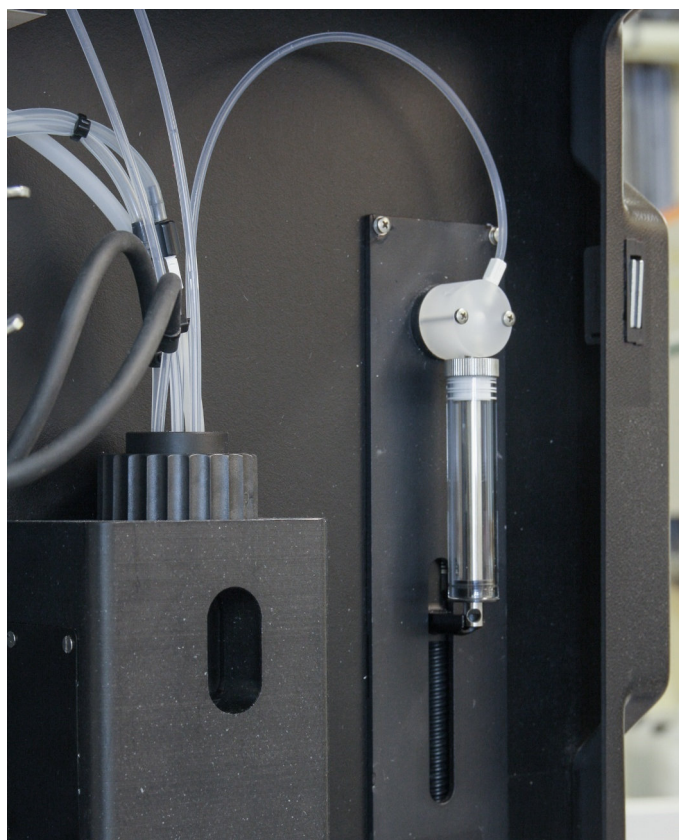
*Image: photometer assembly with additional sample dilution.*

Image: pinch valves for standard solutions and sample handling, carefully isolated from the inside part of the EnviroLyzer®.

On-line, automatic colorimetry

An impressive list of water quality indices and equally corresponding applications can be dealt with the **EnviroLyzer®** colorimeters. Determination of certain heavy metals such as copper, chromium, aluminium, iron, nickel, manganese and zinc is also perfectly possible by colorimetry in case no interfering compounds are present. Hardware: high quality components such as our robust precision micro pumps, used for addition of reagent solutions, are controlled by AppliTek's controller software running on the industrial panel PC. At the heart of the colorimeter there is a compact photometer assembly developed especially for the **EnviroLyzer®** Series. Consumption of reagents is reduced by low volume analysis, yet high sensitivity (µg/L range) is assured by a long optical path length. There is no direct contact between the optical parts and the sample (or reagents added), to avoid fouling or corrosion of the optics. A narrow-band optical filter avoids all influence from ambient light.
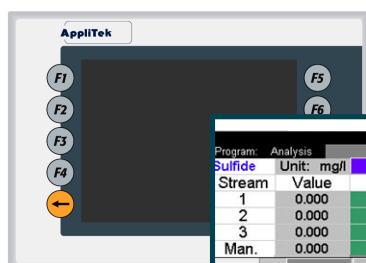
Smart functions

Automatic calibration and validation cycles with standard solutions can be programmed in order to check the analysis program and analyzer functionality. An automatic cleaning cycle of the sample lines and vessel eliminates unnecessary cross interference in the analysis stage. The sequence and interval of validation and cleaning, as well as the analysis cycle are user programmable within AppliTek's controller software —adding enhanced performance, reduced down-time and negligible operator intervention.

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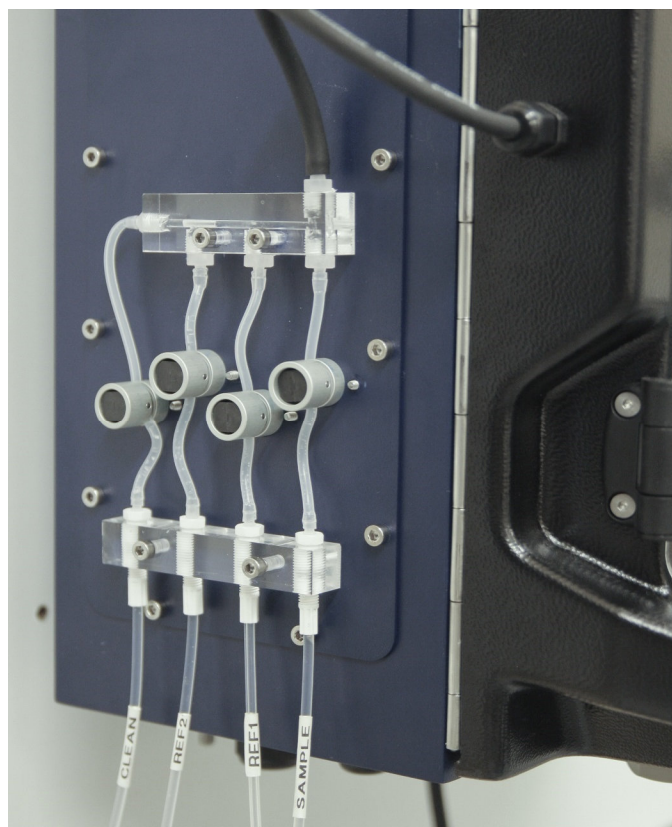
Data exchange and supervision

All analysis procedures of the **EnviroLyzer®** Series of On-line Analyzers are controlled by the incorporated industrial PC/controller. Gaining access and exchange information with your analyzer system is easy since the controller coordinates all tasks and job files within a LAN network.

Data logging

The incorporated industrial PC has a solid state data logger. A history of the records of the last 1,000 analysis results can be visualized in a chronological data table and equally be exported as Microsoft Excel files through the sealed USB port outside the analyzer cabinet.

Below: industrial controller with 5.7" user interface, showing examples of main screen (values), communication, data history and export to spreadsheet.

All actions and logs are controlled by the industrial PC, which generates large amounts of information. The incorporated software flexibility minimizes physical operator intervention. The analyzer screen (the client) can remotely be taken over by means of LAN Ethernet software (such as VNC software). Authorized users can carry out all manual operations and settings from a remote PC, such as trouble-shooting before doing any physical intervention and capturing cross-platform screenshots for reports.

Hardware and analyzer enclosures

The **EnviroLyzer®** Series are equipped with a new analyzer enclosure consisting of a solid steel back, combined with an ergonomic ABS hinged part with a transparent door allowing instant visual inspection of the wet-chemical part. Purging with instrument air is possible in case of extreme humidity or risk of accumulation of corrosive gases. If necessary, the analyzer can be integrated in various protective enclosures such as an IP65 rated protective cabinet for outdoor use or any hazardous atmosphere.

Analysis of multiple streams

AppliTek's integrated multiplexing unit **ModuPlex®** consists of extra solenoid valves controlled by a special valve control software. This option enables you to monitor up to 3 streams sequentially, thus reducing the cost per sampling point. Results of each stream can be communicated through individual analogue outputs. On special request we can integrate a valve train of 6 valves, doubling the number of streams that can be monitored by one single on-line analyzer.

Image: example of EnviroLyzer® in an ex-proof cabinet at a LNG terminal.

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Technical specifications

Parameters

Please check the respective datasheet for more details on the analysis method.

Parameter	Range	
Aluminium	10 - 300 µg/L	▲
Aluminium	20 - 300 µg/L	▲
Ammonia	0 - 1 mg/L	▲
Ammonia	0 - 2.5 mg/L	▲
Biocides	0 - 2 mg/L	
Boron	0 - 1 mg/L	
Chloride	1 - 10 mg/L	▲
Chlorine (total)	0 - 2.5 mg/L	▲
Chlorine (free)	0 - 2.5 mg/L	▲
Chlorine dioxide	0 - 2.5 mg/L	
Chromium III	0 - 500 µg/L	▲
Chromium VI	0 - 500 µg/L	▲
Chromium (total)	0 - 500 µg/L	▲
Color	0 - 500 Pt-Co	
Copper	0 - 3 mg/L	▲
Cyanide	0 - 200 µg/L	▲
Hardness (total)	0 - 500 µg/L	▲
Hardness (total)	0 - 1,000 µg/L	▲
Hydrazine	0 - 500 µg/L	
Iron II	0 - 1 mg/L	▲
Iron III	0 - 1 mg/L	▲
Manganese	0 - 10 µg/L	
Manganese	0 - 1 mg/L	
Nickel	0 - 500 µg/L	
Nitrate	0 - 200 µg/L	
Nitrite	0 - 200 µg/L	▲
Permanganate	0.2 - 25 mg/L	
Phenol	0 - 5 mg/L	
Phosphate	0 - 1 mg/L	
Phosphate	0 - 7.5 mg/L	
Silica	0 - 100 µg/L	
Silica	0 - 1,000 µg/L	
Silicium dioxide	0 - 2,000 µg/L	
Sulphate	0 - 40 mg/L	
Sulphide	0 - 1 mg/L	▲
Thiocyanate	0.1 - 2 mg/L	
Urea	0 - 500 mg/L	
Zinc	0 - 1 mg/L	

▲ **Remark: analysis of this parameter is also possible by titration at higher ranges.**

Utilities

Power
220 - 240 VAC, 2 A, 50 Hz
Max. power consumption: 150 VA
Other voltages available on request

Instrument air
Dry and oil free according to ISA-S7.0.01-1996 quality standard for instrument air

Demineralized water
For rinsing, calibration and/or dilution

Drain
Atmospheric pressure, vented, min. Ø 64 mm

Earth connection
Dry and clean earth pole with low impedance (< 1 ohm) using an earth cable of > 2.5 mm²

Environmental data

Ambient operating conditions
10 °C – 30 °C +/- 4 °C deviation at 5 - 95% relative humidity non-condensing
(50 °F – 86 °F +/- 7.2 °F deviation)

Reagent temperature
Keep between 10 °C - 30 °C (50 °F - 86°F)

Sample pressure
Atmospheric up to 0.1 bar (1.45 psi)
Note: higher sample pressures on request

Sample flow rate
10 - 30 ml per minute

Sample particulates
Maximum size 200 µm, < 0.1 g/l
Turbidity < 50 NTU

Mechanical data

Protection class
Analyzer cabinet: IP55
Touch screen/Industrial PC: IP65

Cabinet and materials, hinged part
Thermoform ABS
Bottom: leak detection
Door: antistatic plexiglass

Cabinet and materials, wall section
Galvanized steel, powder coated

Dimensions
69 cm (27.2") x 46.5 cm (18.3") x 33 cm (13") (H X W X D)

Total weight
25 kg (55 lbs.)

Control and communication

User interface / controller
Industrial PC with 5.7" TFT colour user interface, compact flash memory
Backlit touchscreen, brightness adjustable

Data handling, logging and security
- Standard TCP/IP Ethernet
- Log files with 1000 values/result are stored
- Sealed USB port for data download/upload
- User interface with administrator access and menu keys activated/inactivated
- Data retention in case of power failure, initialization program for safe status after restart

Analogue outputs
Max. 6 AO, active 4 –20 mA (max. 500 Ohm load)

Analogue inputs
Max. 4 AI

Alarms (digital outputs)
- Malfunctioning alarm (potential free contact)
- Result alarm (potential free contact)

Digital outputs (potential free)
Max. 24 DO

Digital inputs (potential free)
Max. 6 DI

RS232 / RS485 / MODBUS
Optional

Options / add-on units

Settling / Dilution
EZ-Settler® automatic sampling/ settling/ dilution system for saturated or dirty matrices

Filtration
MicroSize® self-cleaning microfiltration unit, various pore sizes

Reagent level detection
Installed on reagent containers; alarms are generated by controller software

Multiple streams
ModuPlex® 2 or 3 streams (6 on demand)

Outdoor cabinet
IP65

Certification

CE approval
Certified to CE approval

Factory Acceptance Test (FAT)
At AppliTek NV, Belgium.

Technology for Water and Environment

SPT
Siam Pollutek Co., Ltd.