



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services



Solutions

Water samplers and measurement stations

Automatic samplers and measurement stations
for liquid media

Analytical information in a water cycle



Analytical information in a water cycle

Water is an elementary and valuable resource. In order to guarantee reliable surface water monitoring, safe water supplies and efficient wastewater treatment, it is necessary to be able to evaluate all relevant analytical data at every step within the water cycle.

Sampling

Taking a representative sample is the first and most important step in any analytical sequence. Automatic sampling devices draw the sample liquid from the sampling point and distribute the samples into individually defined bottles. In order to avoid any biological changes in the samples collected, these can be stored at a refrigerated temperature of 4°C.

Measurement stations

Sensors and transmitters can also be incorporated for online measurement of various parameters, providing a complete measurement station.



Water samplers and measurement stations from Endress+Hauser

With the wide ranging water sampler and measurement station product basket, Endress+Hauser can offer the best technical and most cost-effective solution for every application.

For over 30 years Endress+Hauser has been setting the pace in this field. Modern production technology and an innovative development team for water samplers and measurement stations have made Endress+Hauser the technological and quality leader it is today. This is a great advantage for our customers who can be assured of a reliable and competent partner in Endress+Hauser.

Application areas

Wastewater treatment

- Self monitoring at municipal and industrial treatment plants
- Efficiency monitoring and evaluation of cleaning processes
- Monitoring indirect dischargers
- Monitoring wastewater (sewer) networks



Surface water monitoring

- Quality monitoring in rivers and lakes
- Quality monitoring in reservoirs
- Monitoring direct dischargers



Drinking water

- Monitoring water sources and potable water treatment
- Quality monitoring with a distribution network



The portable Liquiport 2000 water sampler

More than just a sampler

The Liquiport 2000 is a portable water sampler used for automatic removal and defined distribution of liquid samples.

The samples are taken by means of a peristaltic pump.

The Liquiport 2000 offers a number of advantages when used in mobile applications:

- Simple change of sampling mode and variably presettable sample volume
- Compact construction
- Integrated data logger, for recording measured values and sample statistics
- Free of charge PC software for set up and measured value analysis with connection using a serial interface or modem
- Also available with ATEX II2G approval for safe application in Zone 1 and 2 hazardous areas
- Zeolith cooling for powerless and mobile sample cooling

Simple and user-friendly

- For easy and comfortable sample transportation, the lower compartment containing the sample bottles can be separately sealed and transported.
- Compact design with large carrying grips.
- All wetted parts can be swiftly removed and replaced without any tools. This simplifies cleaning and maintenance.



Safety without compromise

The Liquiport 2000 Ex with ATEX II2G approval guarantees safe operation in Zone 1 and 2 hazardous areas.

The Liquiport 2000 Ex offers security without compromises at an unbeatable price and without any functional and operational limitation.

Liquiport 2000 with expanded functionality

In combination with additional components, the device becomes more than just a portable water sampler. Together with a multi-parameter sensor and the ReadWin® 2000 PC software, the Liquiport 2000 turns into a complete system solution for modern environmental monitoring.

Using the multi-parameter sensor, e.g. Endress+Hauser's Multisens C600R/XL, a number of different parameters can be measured online. The measured values are transmitted to the Liquiport 2000, which in addition to the sampling function also carries out the following:

- Storage of a number of measured values via the built-in data logger.
- Set-up of the multi-parameter sensor and calibration of the individual sensors.
- Starts a sampling sequence on alarm set point violation of a defined parameter.

In order to centrally (e.g. in the control room) analyse the relevant measured data, the internal data logger can be read out and transferred to a PC using the built-in RS232 interface and the ReadWin® 2000 PC software.



Sample cooling using the innovative Zeolith technology

The natural mineral Zeolith has the property of attracting water vapour. It binds this into its structure and thereby releases a large amount of heat energy. Zeolith can be found in the outer chamber of the Liquiport 2000 sample container. The chambers are connected via a valve. Energy is removed from the water in the internal chamber by the evaporation effect of the Zeolith. The water cools very quickly and freezes. Using this frozen water, the samples are cooled to 4 °C without the need for any external power connection.

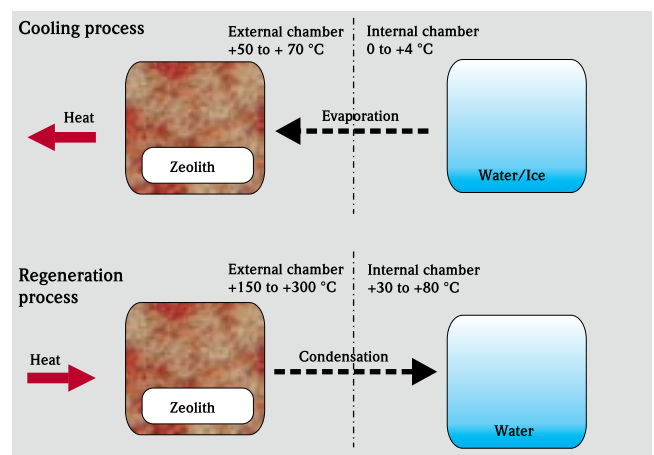
After having completed its cooling cycle, the cooling container can be regenerated for further use in a specially designed regeneration oven.



Advantages of the Zeolith sample cooling

- Power independent operation
- Cooling can be started, paused and stopped when required
- Safe sample conservation at 4 °C over 48 hours
- Simple regeneration
- Sample distribution with standard bottles

Active Zeolith cooling



Stationary ASP-Station 2000 water sampler

Quality convinces

The ASP-Station 2000 is a stationary water sampler for automatic removal, defined distribution and conservation of liquid samples. Samples are taken using the vacuum principle which offers the following advantages:

- Long operating times and low maintenance by means of robust technology and simple operation.
- Suitable for difficult media, as there is no direct contact between the pump and the medium and it features a large flow diameter.
- High suction speed for representative sampling (in accordance with EN 25667/ISO 5667).
- Pneumatic control using the maintenance-free air manager – not an electromagnetic valve in sight.



Robust, reliable and low maintenance – these are the advantages of the water sampler built for application in difficult environments:

- Stainless steel housing with 60 mm foamed PU insulation.
- Material and varnishing options for wetted components and the cabinet enable an optimum match to various application conditions.

- Sample chamber using a seamless plastic inner shell and foamed heat exchanger – no splitting and no corrosion of the cooling fins.



Integrated data logger



Connection to a control system
e.g. using PROFIBUS®-DP

Communication and programme options:

- Remote control using PROFIBUS® or Ethernet.
- Integrated data logger for recording measured data and sampling protocol.
- Parallel programme for simultaneous composite and dedicated sampling.
- Event and changeover programme for expanded programme functions.
- Free PC software for device set-up and measured data analysis using serial interface or modem transmission.

Simple fitting of wetted parts



Split bottle trays with large carrying handles

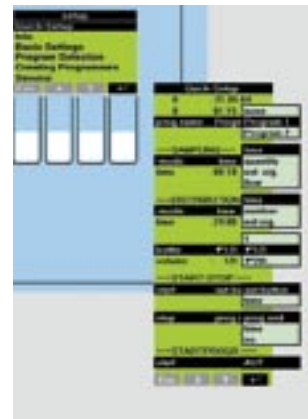


ATEX II3G approval optional



Everybody offers functions – but the ASP-Station 2000 in such a simple way:

- Wetted parts are easily removed and replaced without the need for tools, simplifies cleaning and maintenance.
- Split bottle trays with large carrying handles for comfortable and simple sample transportation.
- An interactive menu-led operation with Quick Set-up enables fast commissioning without the need for an operating manual.



Fast commissioning using the Quick Set-up

New function and application possibilities by means of additional components, accessories and device options:

- Expansion possibilities due to installation of recorders and electrical components in the upper compartment.
- FEACES dosing system with rinsing of the dosing glass and suction hose offers reliable operation even with difficult media.
- Sampling from pressurised pipelines using the ASP INLINE armature as a simple, effective and reliable solution.
- ATEX II3G approval for safe operation in Zone 2 hazardous areas.



Expansion possibilities in the upper compartment



Sample armature
ASP INLINE

Measurement station CE 4

Complete system for recording analytical information

- Tailor made solution for specific measurement requirements using a modular construction system
- Easily accessible measurement sensors
- Automatic pipework and measurement sensor cleaning system

System construction

The CE 4 is an automatic measurement station with integrated water sampler for continuous monitoring of online parameters in liquid media. The system consists of four building blocks:

- Electronics
- Analysis pipework
- Water sampler and
- Accessories

These enable the system to be matched to every measurement task. All components are installed inside a weatherproof stainless steel cabinet.

Operation

The pump in the base of the measurement station continuously transports the medium from the sampling point through the PVC analysis pipework and back to an outflow. The sensors integrated into the analysis pipework then measure their respective parameters.

The necessary transmitters for the sensors are installed in the electronics compartment and record the signals transmitted by the sensors, display the actual measured value and transmit the signals to an integrated data acquisition device, e.g. a Memograph from Endress+Hauser.

The measured data can, if required, be transmitted from the data acquisition device to a PC using an RS232 or RS485 interface, modem, diskette or ATA flash card.

The stationary water sampler type ASP-Station 2000 can be integrated into the measurement station in order to take and store samples that are to be later analysed in the laboratory.



Electronics

The thermostat controlled cabinet allows additional installation of

- Transmitters
- Data acquisition devices
- Electronic components

Water sampler

Integrated ASP-Station 2000 water sampler for:

Taking samples and storing these for later analysis in the laboratory.

Analysis

PVC pipe system with integrated sensors for online measurement of relevant parameters:

- pH value and temperature
- Redox potential
- Conductivity
- Turbidity
- Dissolved oxygen

As an option, further measurements for the following parameters can be integrated:

- SAC (spectral adsorption coefficient)
- Nitrate
- Chloride

Accessories

Installation of system components such as:

- Pump with dry run protection
- Automatic clean water rinse system
- Automatic cleaning system ChemoClean



Product overview for automatic water samplers and measurement stations

			
Device	Liquibox 2 A2/D2	Liquiport 2000	
Function	Portable water sampler	Portable water sampler	
Dosing system	Vacuum system	Peristaltic pump, 6 m suction height, 8 m suction height (optional)	
Suction height	6 m suction height		
Measurement parameter	-	-	
Housing	Plastic ABS	Plastic PE	
Distribution	-	Composite container 20 l 24 x 1 l PE, 12 x 2 l PE 12 x 1 l + 6 x 2 l PE 7 x 1.8 l glass Others on request	
Cooling/heating	Passive: Frost protection	Passive: Crushed ice Active: Zeolith cooling (optional)	
Inputs	Analogue: 1 (D2) Digital: 2 (A2), 3 (D2)	Analogue: 1 Digital: 2	
Outputs	Digital: 2 (A2), 3 (D2)	Digital: 2 Power supply: 10 V/30 mA	
Communication	-	1 x RS232 1 x RS232 for multi-parameter sonde (optional) GSM modem (optional)	
Data logger/storage	-	Analogue value; sample statistic Measured value recording for multi-parameter sonde (optional)	
Power supply	230 V/AC 12 V/DC (battery)	12 V/DC (battery) 230/110 V/AC (buffer charge operation)	
Dimensions	(H x W x D) 277 x 360 x 180 mm	(Ø x H) 480 x 675 mm	
Weight	10 kg	19 kg (with battery)	
Ex-approval	-	ATEX II2G, Zone 1 (optional)	
Accessories	-	Battery charger: Standard IP20 Field version IP65 Wide range charger 110 V - 230 V Hanging tackle Lower compartment with cover ReadWin® 2000 PC operating software for Windows 95/ 98/ NT/ 2000/ XP/ ME available for free download in the Internet: www.endress.com/readwin	
Further documentation	Technical Information TI048R/09/en	Technical Information TI084R/09/en	



ASP-Station 2000

Stationary water sampler

Vacuum system, 6 m suction height
8 m suction height (optional)

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Stainless steel 1.4301/SS304H
Stainless steel 1.4404/SS316L (optional)

Composite container 30 l, 60 l
4 x 20 l/4 x 12 l/12 x 3 l/
24 x 1 l/6 x 3 l + 2 x 12 l/
12 x 1 l + 2 x 12 l/12 x 1 l + 6 x 3 l
Glass bottles: 12 x 2 l / 24 x 1 l
Others on request

Active: dynamic refrigeration system,
heat exchanger and defrost heater foamed in

Analogue: 1
Digital: 3

Relays: 3

1 x RS232
1 x RS485
PROFIBUS®-DP

Analogue value; sample statistic

230 V/AC
110 V/AC (optional)

(H x W x D)
1300 x 890 x 740 mm

110 kg

ATEX II3G, Zone 2 (optional)

Sampling from pressurised pipelines (max. 6 bar):

ASP-Inline sample armature, flow through armature

Dosing system:

Dosing chamber in glass or PE, alternative switch off systems for foamy or fatty media, rinse function

Cabinet fixtures:

Cabinet base, castors and carrying handles, split door with window in upper part, additional varnish on refrigeration system

Electrical extras:

Mains isolator, internal lighting, surge arresters

ReadWin® 2000 PC operating software
for Windows 95/ 98/ NT/ 2000/ XP/ ME
available for free download in the Internet: www.endress.com/readwin

Technical Information
TI059R/09/en

Measurement station CE4

Measurement station with integrated stationary water sampler ASP-Station 2000

Vacuum system, 6 m suction height
8 m suction height (optional)

pH value, temperature, conductivity, dissolved oxygen, turbidity, optional: nitrate, SAC, chloride

Stainless steel cabinet 1.4301
Split into functional areas: Analysis, sampler, electronics and accessories
thermostat controlled, sample preservation at 4 °C

Composite container 30 l, 60 l
4 x 20 l/4 x 12 l/12 x 3 l/
24 x 1 l/6 x 3 l + 2 x 12 l/
12 x 1 l + 2 x 12 l/12 x 1 l + 6 x 3 l
Glass bottles: 12 x 2 l / 24 x 1 l
Others on request

Active: dynamic refrigeration system,
heat exchanger and defrost heater foamed in

Analogue: 1
Digital: 3

Relays: 3

1 x RS232
1 x RS485
PROFIBUS®-DP

Endress+Hauser strip chart recorder Alphalog, paperless recorders Ecograph and Ecograph A; Data manager Memograph

230 V/AC
380 V/AC

(H x W x D)
1901 x 880 x 737 mm (without water sampler)
1901 x 1710 x 737 mm (with water sampler)
210 kg without, 400 kg with water sampler

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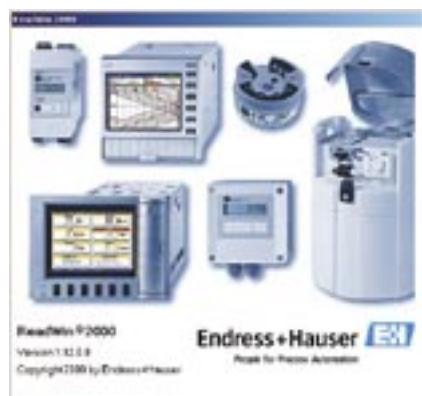
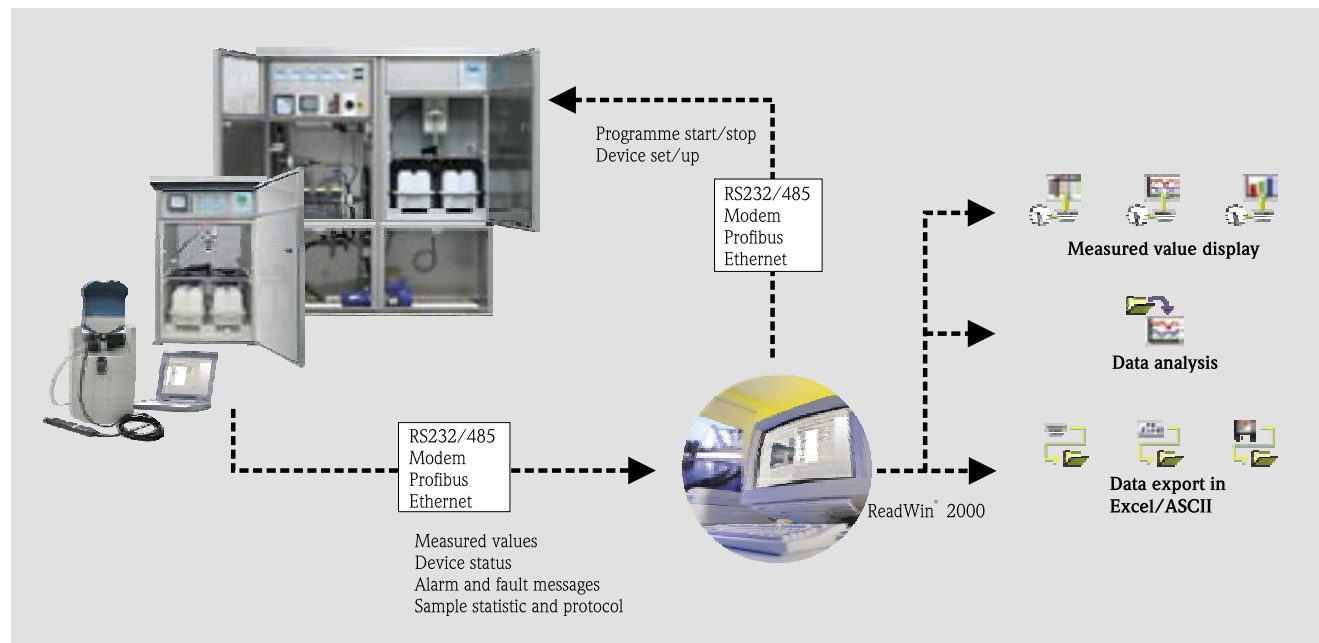
ReadWin® 2000 PC operating software
for Windows 95/ 98/ NT/ 2000/ XP/ ME
available for free download in the Internet: www.endress.com/readwin

Technical Information
TI102R/09/en

ReadWin® 2000

Creating information from data

ReadWin® 2000 is the common PC software for device set-up, measured data visualisation and archiving that operates under MS Windows® 95/ 98/ NT/ 2000/ XP/ ME. This is available for free download in the Internet under: www.endress.com/readwin



Advantages at a glance

- Simple device set-up and operation from a PC.
- Status request and remote diagnostics for the connected devices.
- Secure archive and analysis of measured values.
- Uses modem/GSM wireless connection to distant devices.
- Stores data in ASCII or Excel format and uses these in other applications.
- Various forms of measured value display, search function for events and entry of comments available.