

WaterViewer

On-line particle counter for liquids, Water quality control measurements



Particle measurement system with built-in sensor, flow control, and sampling system.

Volumetric cell design of PAMAS sensors guarantees highest accuracy, resolution, and best statistics.

Optional features:

- Networking capabilities
- Expandable to 8 - 32 waterlines using automatic multiplexer unit
- Automated sensor cleaning
- Multiple analogue and digital I/O
- Signal light for status and alarm

Standard features:

- Programming capabilities make the system as versatile as a PLC
- True single particle counting
- Fully automated operation
- RS-422 serial communication port
- Standard size range: 1 - 200 μm (800 μm)
- Particle concentrations from 0 up to 200,000 p/ml
- Different dynamic range sensors available
- System easily connected to analogue and digital devices

Modular Design - User Benefits



Cost-Effective Multiplexer

When combined with the optional Waterline Input Multiplexer (Shown: 4MuX; White disk inside the bottom housing), the PAMAS WaterViewer is a very economic system for sequentially sampling multiple water sources.

The Multiplexer Unit is easily flushed to remove contamination within a few minutes. The optional Sensor Flushing Unit protects the sensor from possible blockages, e.g. as a result of mixing water coming from different sources. Therefore high concentration of iron or manganese is no longer a cause for frequent maintenance.

The result is reliable unattended operation for long periods of time at a low cost per waterline.



If Mobility Matters

Whilst the system is designed for wall-mount operation, the PAMAS WaterViewer is also available with an aluminium mounting rack as shown. This makes it a highly mobile system, for in-house or outdoor measurements including wells and settling basins. The IP 65 housing protects against ingress of water spray and rainfall.

The PAMAS WaterViewer also performs well with other liquids - Please ask for details.



Easy Service

The modular design of the system makes it easy to service and maintain. Two separate housings for the electronics and hydraulics reduce the risk of damage caused by any internal water leaks. Easy access to all electronic parts, sensor and the multiplexer help to keep service costs low. High-quality plastic and stainless steel fittings protect against corrosion. This ensures long-term stability of measurements and protects your investment. PAMAS offers service contracts and service on demand, at reasonable cost and with short response times. The system is designed to run 24h/365d per year.

Please ask for details.

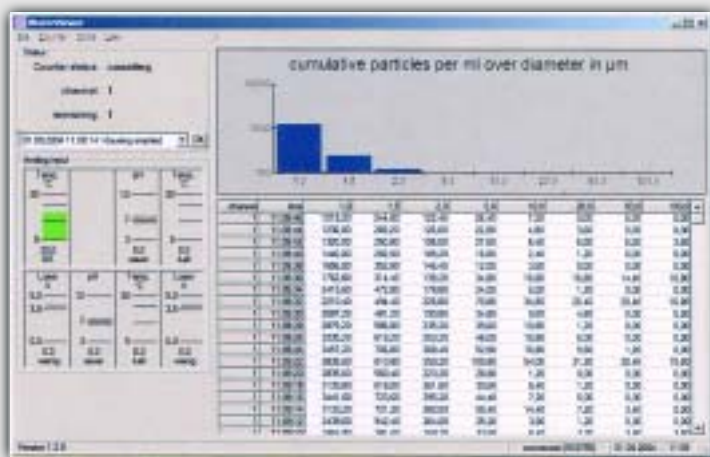
Some short information on sensitivity and particle number concentration:

A single spherical particle of 1 micron in diameter has a volume of 5.236×10^{-13} ml.

A single 1 micron particle detected per milliliter therefore is 0.5236 ppt (parts per trillion).

PAMAS particle counters even can measure much lower concentrations, starting from zero.

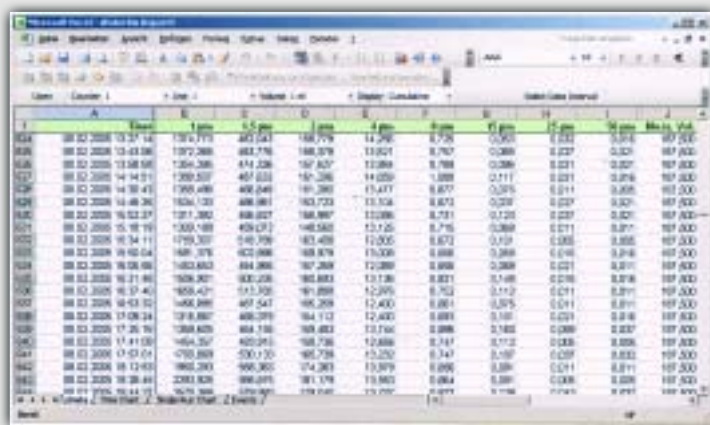
Software - Easy to Operate & User Friendly



Simple to Setup and Easy Data Download

Making life as trouble-free as possible - This was the concept when designing the software. Just a few operator steps are required to do the PAMAS WaterViewer setup.

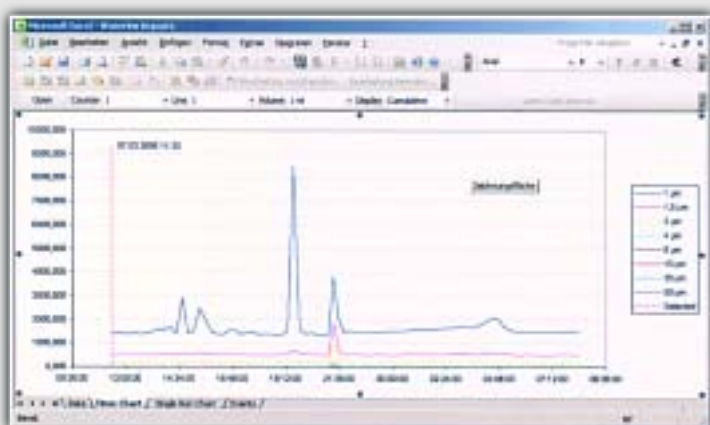
The PAMAS WaterViewer can be run without a PC connected permanently as it is capable of storing more than 2,000 data sets in its internal ring-buffer memory for later download to a PC for analysis by the software. This Download itself is plug-and-play.



Easy Data Import

Large amounts of data can be handled using the Excel® Macro software delivered with each system. The software macro can be installed on as many computers as you need so that data sampling and analysis can be performed on many computer systems.

Experienced Excel users may make changes to the macro to suit their special needs or PAMAS are happy to make changes to meet customer requirements.



Trends and Events made Visible

Raw data in column format are not easy to interpret. A graphical trend of the count data makes the results clear at first glance. Trend monitoring can be set-up with just a few mouse clicks. Just select the data you want to visualize. Your weekly reports are then easily produced by importing the Excel data into your word processor.

PAMAS recommends to install a SFU for on-line water systems

System options available:

Suction WaterViewer base system:	WV-S
Pressurized WaterViewer base sys.:	WV-P
Sensor:	15 - 25 - 50 - 100
Sensor Flushing Unit:	SFU
Inlet Multiplexer 4:	4MuX
Inlet Multiplexer 8:	8MuX
Analogue-to-Digital Converter 8 conn.:	ADC
Digital-to-Analogue Converter 4 conn.:	DAC
Programmable Logic Control conn.:	PLC
Signal Tower (for alarms):	TOW

Example for an order:

WV-P-50-SFU-4MuX-ADC-ADC-PLC as order code.

Refer to technical data, page 4.

**Global Power
Local Presence**

Complete water analysis, trend monitoring, and data storage

The PAMAS WaterViewer is more than just a particle counter. In reality it is a measurement system, that detects and sizes particles, and can be integrated into nearly any type of measurement system, that includes analogue or digital signalling. It can automatically respond to out of limit conditions, i.e. change measurement routines in respect of measurement results already obtained.

Multiple I/O channels make it as versatile as a PLC.

Many WaterViewers can be combined on a network of measurement devices that control a complete water treatment plant.

MultiplexUnit and SensorFlushUnit are available - running under full control of the WaterViewer. So a single measurement system can work on up to 32 water sources (or even more). Contamination debris build-up in the sensor can be removed automatically and is reported to the user.

This provides a previously unheard of flexibility in use - and is the best solution for water quality measurements available today.

The PAMAS WaterViewer has been designed to be modular making it easy to adapt to the user's changing requirements.

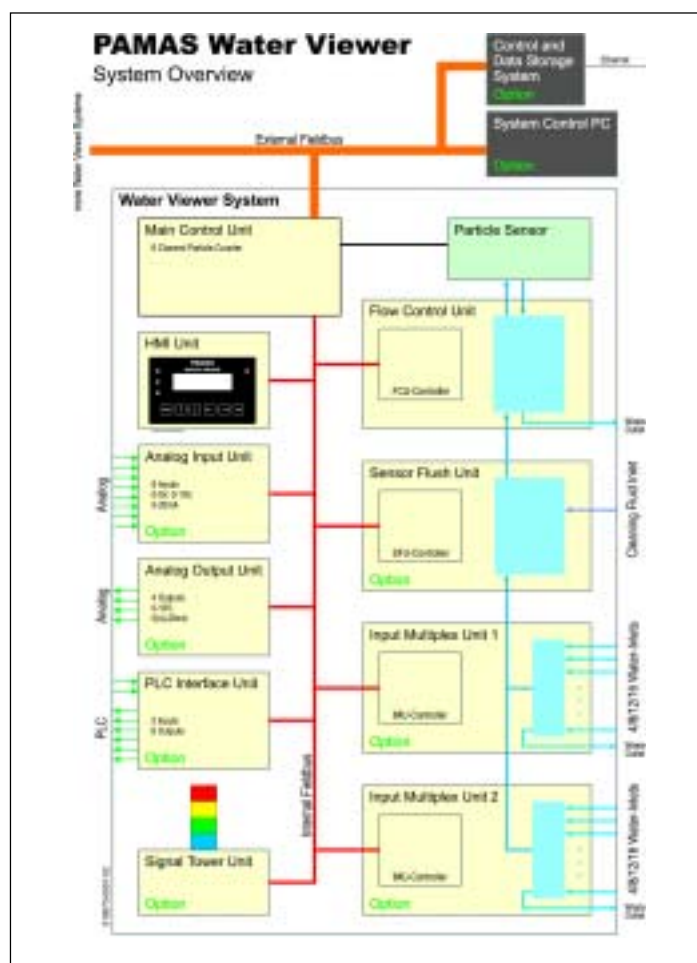
PAMAS-utilization of volumetric flow-cells guarantee that each particle passing through the sensor will be detected, counted and sized.

Calibration of sensors

Pulse height calibration with latex standards, according to ANSI/NFPA T2.9.6R1-1990 and ASTM F 658-80.

- Particle analysis in up to 8 size channels simultaneously
- Data storage in internal ring-buffer memory and long-term storage on external computer

- Constant flow rate through sensor by metering pump
- Communication ports for connection of system to external computer
- Flexible & programmable
- Can act as a PLC (option)
- Automated sensor flushing (option) removes deposited debris
- Safety features for unattended long-term use
- Easy to connect
- Data storage in standard data format
- 21 cfr part 11 (option)



Technical data

Sampling system:

metering pump, wear resistant ceramic piston and cylinder

Counter system:

WaterViewer, 8 size ranges

Power:

90 -240 V AC, 50 - 60Hz
12 - 30 V DC

Sensors:

HCBLD-15/25

Size range: 1–100 µm
Max. particle concentration: 200,000 p/ml at 10 ml/min

HCBLD-25/25

Size range: 1–200 µm
Max. particle concentration: 120,000 p/ml at 10 ml/min

HCBLD-50/50

Size range: 1–400 µm
Max. particle concentration: 24,000 p/ml at 25 ml/min

HCBLD-100

Size range: 2–800 µm
Max. particle concentration: 1,200 p/ml at 50 ml/min
(All concentrations given at 7.8% coincidence.)

Housing:

IP 65

Relative humidity:

0 - 100%, even condensing

Pressure range:

0.5 - 4 bar
(specially designed suction system available)

Size and Weight

(W x H x D) in mm
Single Water Line 300 x 400 x 242 approx. 11 kg
with MuX 300 x 600 x 242
4 MuX appr. 16 kg
8 MuX appr. 17 kg

PAMAS HEAD OFFICE

Dieselstraße 10
D-71277 Rutesheim
Phone +49 7152 99 63 0
Fax +49 7152 54 86 2
E-mail info@pamas.de

PAMAS USA

1408 South Denver Avenue
Tulsa, OK 74119 USA
Phone +1 918 743 6762
Fax +1 918 743 6917
E-mail ClayBielo@earthlink.net

PAMAS FINLAND

JHC, Hirsalantie 11
FIN-02420 Jorvas
Phone +358 9 299 6886
Fax +358 9 299 6887
E-mail esko.niiranen@pamas.de

PAMAS BENELUX

Battelsesteenweg 455 A
B-2800 Mechelen
Phone +32 15 28 2010
Fax +32 15 28 2009
E-mail paul.pollmann@pamas.de

Please visit our website at www.pamas.de