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“SME-WA-i01 ”Online Water Analyser

GENREAL INFORMATION

Mainly based on UV spectroscopy, well known for its stability and low operating cost, the “SME-WA-i01” can measure parameters like organic matter, nitrate, color, aromatic hydrocarbons (PAH). Its automatic cleaning system and its extremely long life time lamp, the maintenance is roughly limited to the periodic refill of the inexpensive cleaning solution. A new web-based interface allows the control and the troubleshooting from INTERNET on laptop, tablet or i-phone.



“SME-WA-i01” Specialist Of UV Spectroscopy

“SME-WA-i01” Online Water Analyser

“SME” Analyser is a cost effective water analyser for applications focused on one or two parameters.

Mainly based on UV spectroscopy, well known for its stability and low operating cost, “SME-WA-01” can measure parameters like organic matter, nitrate, colour, aromatics hydrocarbons (PAH). Complementary modules allow the measurement of PO₄, Cl₂, NO₂, Al, Fe, SiO₂, Cr(VI) by colorimetric method and turbidity by a visible or infra-red laser diode.

External probes can be added for physicochemical parameters like pH, ORP, dissolved oxygen, conductivity and turbidity.

Thanks to its automatic cleaning system and its extremely long life time lamp, the maintenance is roughly limited to the periodic refill of the inexpensive cleaning solution.

A new web-based interface allows the control and the troubleshooting at distance using an internet browser on a computer, tablet or i-phone.



Quick Response



Excellent performance



High Accuracy



Quality Tested

MAIN METHOD : UV - VIS SPECTROSCOPY

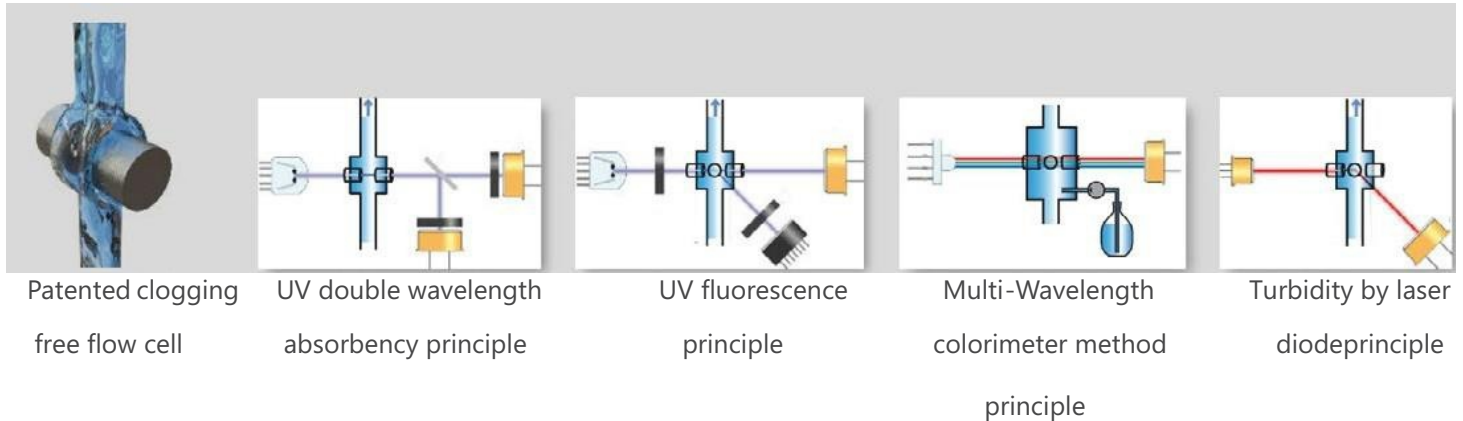
The most common measurements (UV254, NO₃, Colour, PAH) are based on the UV-VIS spectroscopy that brings fast and stable measurements with a simple hydraulic circuit for a high reliability.

All these measurements are done within 5 seconds. The turbidity of the sample is automatically compensated by a dual-wavelength method as shown on the figure.

The UV source is a xenon flash lamp specified for 10⁹ flashes that corresponds to more than 10 years of life time with one measurement every minute.

For PO₄, Cl₂, NO₂, Al, Fe, SiO₂, a colorimetric module has been specially developed to reach a very small volume flow cell that reduces the quantity of reagent to preserve the environment and to reduce the operating cost. A multi-wavelength LED source assumes a colour and turbidity compensation with an unlimited lifetime.

The patented flow cell allows very high level of suspended solid without clogging for all the optical measurements.



Features-

- All Components are independently researched and developed
- Free from the interference of chloride ion .
- It Requires no reagents, so it can save operating costs and will cause no secondary pollution .
- The Response is quick (about 2 seconds). It is suitable for the occasion where high real time performance is required , such as industrial process analysis .
- It Adopts full -spectrum measurement and chemo metric algorithm analysis ,Which in comparison with the simple dual wave length background subtraction technology, can measure more parameters and is less likely to be influenced by the compositional change of waste water.
- It adopts pulse blowing method to clean the pollutants on the two window surfaces. The Instrument probe in the water measures organics in the water by means of xenon lamp . The calculation of the spectrum obtained after each measurement will produce a measured value, which will be transmitted to the control box and displayed.

TECHNICAL SPECIFICATIONS

PARAMETERS	Details
Measuring Rang	As Customer required
Method	UV/Visible differential optical absorption spectroscopy, wave-length range 200 -800nm
Technology	UV Visible Spectroscopy
Parameters & Range	Refer Data sheet
Sample Flow	Recommended : 0-5 l/min
Application	Pharmaceutical,chemicals,Petrochemicals,Refineries Industries etc
Power	230V AC, 30w
Range (COD)	0~50~200mg/l,greater range can be customized
Interval	The shortest 60 seconds, the cycle can be set
Probes Depth	<10m
Working Temp	5°C~45°C
Auto -Cleaning	Auto-cleaning
Probe Weight	5kg
Power Supply	12-24VDC (±10%)
Sample Temperature	+2...+40°C
Ambient Temperature	+2...+40°C
Inflow velocity	0.1-10m/s

Physico-chemical measurements like pH, ORP, dissolved oxygen, conductivity can be added to the internal measurements by using external probes. The dissolved oxygen probe is based on fluorescence method for a lower maintenance and higher stability. Turbidity can also be measured by external probes.

Communication

The RS232 port supports the MODBUS protocol to transmit each measuring channel value to a SCADA system.

Additional parameters are available like status code, error code, calibration values and pumps run time. Basic 4 -20 mA output modules can be plugged on the main board for each measuring channel, in the limit of 12 modules. A USB port enables to download on any USB key the last 5000 recorded measurements as well as a diagnostic file containing the configuration and useful information for remote troubleshooting.

The new web interface makes possible to drive remotely the analyser from any computer, tablet or i-phone with a web browser. For this, an optional Wi-Fi or Ethernet module is added inside the analyser to connect it to an existing network with an internet gateway.

The recorded measurements file can be imported to Excel for graphs or other treatments. The software of the analyser can be upgraded by connecting a USB key.

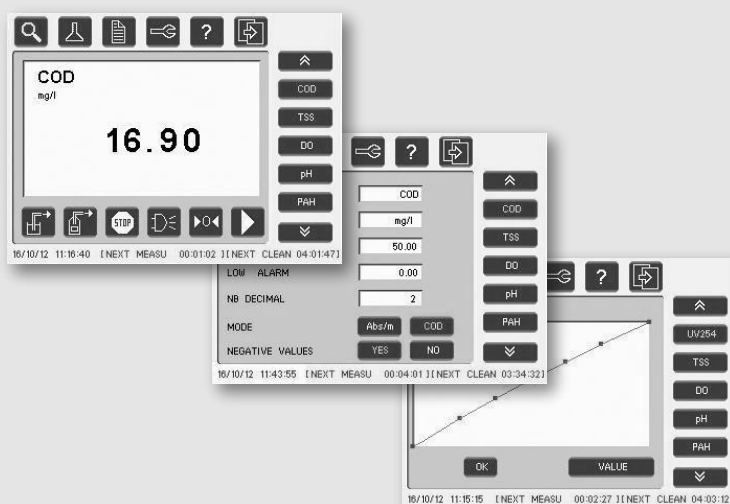
Multiplexing system

When different streams need to be analysed, for example inlet and outlet of a plant, an optional multiplexing system delivers relay contacts to control external electric-valves or external pumps.

User-Friendly Interface

The colour touch screen and intuitive interface available in 8 various languages makes very easy to test or configure the analyser.

Many test functions allows to test and troubleshoot each element of the analysers (light signal, pumps, solenoid valves, etc...) to setup quickly a maintenance diagnostic.



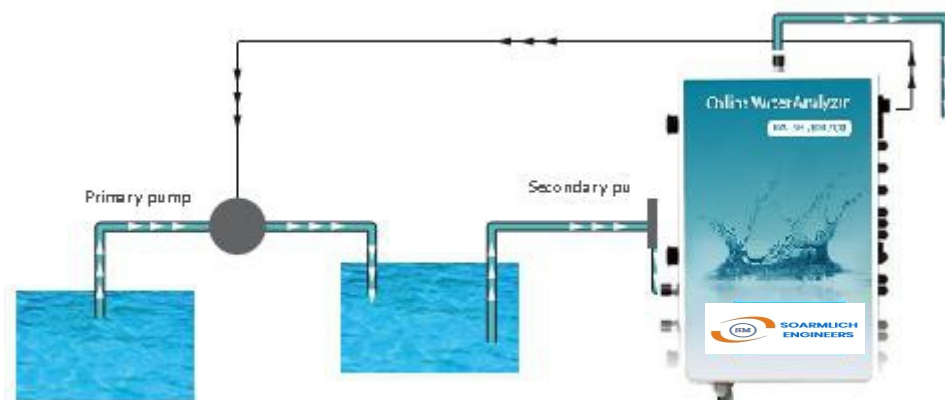
Sampling System

The "SME-WA-i01" can adapt to many different kind of sampling depending of the application surfacewater, drinking water, process water or wastewater.

If the water is already pressurized, the sample can be admitted directly inside the analyser with a maximal pressure of 4 bars. Otherwise an optional built-in peristaltic pump, synchronised with the measurement to extend the tubing life time, allows to take the sample directly from a tank located up to 6 meters below the analyser.

For demanding applications with long distances, another peristaltic pump in a separate enclosure is proposed as an option.

For some applications on river water or wastewater where two sampling pumps are necessary, the WA-i01 delivers a relay contact to synchronise the primary pump. The delay and running time of each pump can be adjusted easily in the parameters menu of the analyser.



“SME-WA-i01” Parameters Specifications

Parameter	Standard range Other ranges on request	Typical Repeatability For low values (<10% FS)	Accuracy On standard solution
UV254	0-200 Abs/m 0-600 Abs/m 0-2000 Abs/m	+/- 0.05 Abs/m +/- 0.15 Abs/m +/- 0.5 Abs/m	+/- 2%
COD by UV correlation	0-100 mg/l COD 0-2000 mg/l COD 0-20000 mg/l COD	+/- 0.05 mg/l COD +/- 1 mg/l COD +/- 10 mg/l COD	+/- 2%
BOD by UV correlation	0-100 mg/l BOD 0-1000 mg/l BOD 0-10000 mg/l BOD	+/- 0.05 mg/l BOD +/- 0.5 mg/l BOD +/- 5 mg/l BOD	+/- 2%
TOC by UV correlation	0-100 mg/l TOC 0-1000 mg/l TOC 0-10000 mg/l TOC	+/- 0.05 mg/l TOC +/- 0.5 mg/l TOC +/- 5 mg/l TOC	+/- 2%
Nitrate	0-100 mg/l NO ₃	+/- 0.1 mg/l NO ₃	+/- 2%
Colour	0-100 pt/Co 0-1000 pt/Co	+/- 1 Pt-Co +/- 2 Pt-Co	+/- 2%
PAH (aromatics)	0-10 mg/l C ₆ H ₆	+/- 0.01 mg/l C ₆ H ₆	+/- 2%
Oil in water	0-100 ppm OIW 0-1000 ppm OIW	+/- 0.1 ppm OIW +/- 1 ppm OIW	+/- 2%
Chlorophyll A	0-100 µg/l ChlA	+/- 1 µg/l ChlA	+/- 2%
Phosphate	0-2 mg/l P-PO ₄ 0-20 mg/l P-PO ₄	+/- 0.01 mg/l P-PO ₄ +/- 0.1 mg/l P-PO ₄	+/- 2%
Chlorine	0-5 mg/l CL ₂	+/- 0.05 mg/l CL ₂	+/- 2%
Nitrite	0-5 mg/l NO ₂	+/- 0.1 mg/l NO ₂	+/- 2%
Aluminium	0 - 500 ppb Al	+/- 10 ppb Al	+/- 2%
Iron	0 - 2 mg/l Fe	+/- 0.02 mg/l Fe	+/- 2%
Silica	0 - 20 mg/l SiO ₂	+/- 0.1 mg/l SiO ₂	+/- 2%
Cr VI	0 - 2 mg/l Cr VI	+/- 0.04 mg/l Cr VI	+/- 2%
Turbidity (TSS by correlation)	0-10 NTU 0-100 NTU 0-1000 NTU	+/- 0.01 NTU +/- 0.1 NTU +/- 1 NTU	+/- 2%
pH	0-14	+/- 0.01 pH	+/- 2%
ORP	+/-2000 mV	+/- 1 mV	+/- 2%
Dissolved oxygen	0-25 mg/l O ₂	+/- 0.1 mg/l O ₂	+/- 2%
Conductivity	0-2000 µS	+/- 1 µS	+/- 2%
External turbidity (TSS by correlation)	0-4 NTU 0-40 NTU		+/- 2% +/- 2%
External TSS	0-1500 mg/l TSS 0-30000 mg/l TSS	+/- 1% of reading or +/- 2 mg/l TSS +/- 1% of reading or +/- 2 mg/l TSS	+/- 2% +/- 2%
Temperature	0-80°C	+/- 0.1 °C	+/- 2%

“SME -WA -i01”Parts References

Basic unit	
wa-i01	<p>Basic unit (no measurement included) Color graphic display 320x240 pixels with touch screen Built-in data logger, memory 5000 measurements for each parameter 12 sockets for input and output modules (not included, refer to options) 7 available glands for inputs / outputs RS232 included (Sub-D 9 ways female connector) with 2 meters cable for PC RS485 included for the connection of external probes USB port included for USB key connection Automatic cleaning system with 2-litres tank Power supply 90-260 VAC 4763 Hz with power cord 2 meters Enclosure IP65/Nema4X 420x360x200 mm (HxWxD) / 15 to 20 kg Mounting lugs for wall</p>
Sampling pump	
Pump	<p>Sampling peristaltic pump for unpressurized water Built-in on the left side of the enclosure Flow of about 0.6 litre/min Discontinuous operating to increase tube lifetime</p>
P-EXT	<p>External Peristaltic sampling pump for unpressurized water Flow of about 940 ml/min Heavy duty brushless motor Discontinuous operating to increase tube lifetime</p>
Measurement module by UVabsorption	
COD-H	<p>Organic matter high range UV absorption at 254 nm high range: 0– 2,000 Abs/m (equivalent to approx. 20,000 mg/l COD on municipal waste water)</p>
COD-L	<p>Organic matter low range UV absorption at 254 nm low range: 0– 200 Abs/m (equivalent to 100 mg/l COD on river water)</p>
COD-M	<p>Organic matter Medium range UV absorption at 254 nm medium range: 0– 600 Abs/m</p>
NO3	<p>Nitrate Range: 0– 100 mg/l NO3 (0 – 25 mg/l N of NO3) Measurement possible until 250mg/l NO3 (60 mg/l N -NO3)</p>
Measurement module by visibleabsorption	
CO-H	<p>Colour high range Range: 0– 1000 Pt-Co unit</p>
CO-L	<p>Colour low range Range: 0– 100 Pt-Co unit</p>
Measurements by electroluminescence(external)	
DO-F	<p>Dissolved oxygen probe by fluorescence Range: 0- 25 mg/l O2 7 meters of cable</p>
EXT-TURB-H	<p>Turbidity probes high range High range: 0– 30,000 mg/l TSS 7 meters cable</p>
EXT-TURB-L	<p>Turbidity probes low range Low range: 0– 1500 mg/l TSS 7 meters cable</p>
Measurement module by UV fluorescence	
PAH	<p>Poly-aromatic hydrocarbons Range: 0– 10 ppm phenol (equivalent to approx. 0– 100 ppm oil with 10% aromatic ratio)</p>
CHLOA	<p>Chlorophyll A Range: 0– 300 ppb</p>
Measurement by nephelometry	
IRTURB-H	<p>Internal turbidity sensor high range High range: 0– 1,000 NTU Nephelometric method by laser diode at 650 nm (850 nm on request)</p>
IRTURB-M	<p>Internal turbidity sensor medium range Low range: 0– 100 NTU Nephelometric method by laser diode at 650 nm (850 nm on request)</p>
IRTURB-L	<p>Internal turbidity sensor low range Low range: 0– 10 NTU Nephelometric method by laser diode at 650 nm (850 nm on request)</p>

“SME-WA-i01”Parts References

Measurements by electrode (external)		Measurement module by colorimetric method	
PH	pH module Range: 0– 14 ATC input for platinum RTD 100 Ohm or 1000 Ohm	PO4-H	Phosphate high range High range: 0– 20 mg/l P (60 mg/l PO4) Sampling peristaltic pump included
ELPH	pH on-line electrode Range: 0– 14 5 meters of cable (10 meters in option) Built-in ATC RTD 100 Ohm	PO4-L	Phosphate low range Low range: 0– 2 mg/l P (6 mg/l PO4) Sampling peristaltic pump included
PH	ORP module Range: -2000 mV to +2000 mV ATC input for platinum RTD 100 Ohm	Cl2	Total residual chlorine (DPD method US-EPA330.5) Range: 0– 5 mg/l Cl2
ELORP	ORP on-line electrode Range: -2000 mV to +2000 mV 5 meters of cable (10 meters in option) Built-in ATC RTD 100 Ohm	NO2	Nitrite NO2 (Azo dye method US EPA353.3) Range: 0 – 1 mg/l NO2 (measurement possible up to 5 mg/l NO2)
MCOND	Conductivity module Range: 0– 100 µS to 0– 100 mS ATC input for platinum RTD 100 Ohm or 1000 Ohm	Al	Aluminium (Pyrocatechol violet method) Range: 0– 500 ppb Al
ELCOND	Conductivity online electrode Range: 0– 10 mS Cell constant k=1.0 cm ⁻¹ (medium range) 5 meters of cable (10 meters in option) Built-in ATC RTD 100 Ohm	Fe	Iron (Phenanthroline method) Range: 0– 1 mg/l Fe (measurement possible up to 10 mg/l Fe)
ICOND	Inductive conductivity online probe Range: 0– 100 mS 3 meters of cable Built-in temperature compensation at 2.2%/°C Requires a IMI420 module instead of MCOND module	SiO2	Silica (Molybdo-silicate method US-EPA370.1) Range: 0– 20 mg/l SiO2
		CrVI	Hexavalent Chromium (Diphenylcarbazide US-EPA 3500 CrB) Range: 0– 2 mg/l CrVI
Input modules		Communications	
MI4-20	4-20 mA input module Isolated 4-20 mA input Impedance: 100 Ohm	WiFi400	Wifi Interface Connection to wireless WIFI network 300m nominal range (open space) Secured data transfer (WEP keys)
MIL	Double logical inputs module Input no 1 : external pulse command for measurement Input no 2 : measurements inhibition Isolated 0– 48 V DC inputs Impedance: >10 Kohm	ETHER400	Ethernet interface Ethernet 10 baseT (IEEE 802.3)
		MTI133	Phone modem Industrial modem 33,6 Kb/s V34+ DIN rail Mounting Power supply 12V from the analyser
		GSM	GSM modem Dual band (EGSM 900/1800 MHz) Integral SIM card reader R & TTE approved
Output modules		Recommended consumables for 2 years:	
MO4-20	4-20 mA output module Isolated 4-20 mA output Active output, Max load 500 Ohm	P-ACI-HD1 : Head of cleaning pump (x1) P-RGT-HD1 : Head of reagent pump (x1) (only for NH4 or H2S) T-PHAR-1 : Tubing 6.4x9.6 mm (if optional sampling pump) (x2 to x8 depending on sampling pump use)	
MRELAY	Relay module Contact rating: 2A/220V Maximum 6 relays modules allowed		

Cleaning solution and reagents (if any) are not provided

The manufacturer reserves the right to modify and/or change any specifications, dimensions, design or drawing at any time without prior notice

For more Details contact to:

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