CROSS SMART SENSOR

SA9: In-situ UV-Vis Spectra Analyzing Sensor

Digital technology for optimized measures

FEATURES & BENEFITS

- Online multi-parameter spectrometry parameter: COD*eq*, BOD*eq*, TOC*eq*, DOC*eq*, SAC254, NO_3-N*eq*, O_3*eq*, H_2S*eq*, Color and Turbidity/SS ···
- Xenon flash light, 50 years theoretical life
- Different optical path lengths for various ranges and application
- 316L Stainless steel housing, Titanium is optional
- Factory pre-calibration for easy set up and field calibration for more accuracy
- Integrated air pressure purging nozzle and optional mechanical wiper
- Turbidity compensation
- Fully compatible with PC software Delta-Phase View™.

TYPICAL APPLICATIONS

Drinking water

- Quality control
- Alarm system

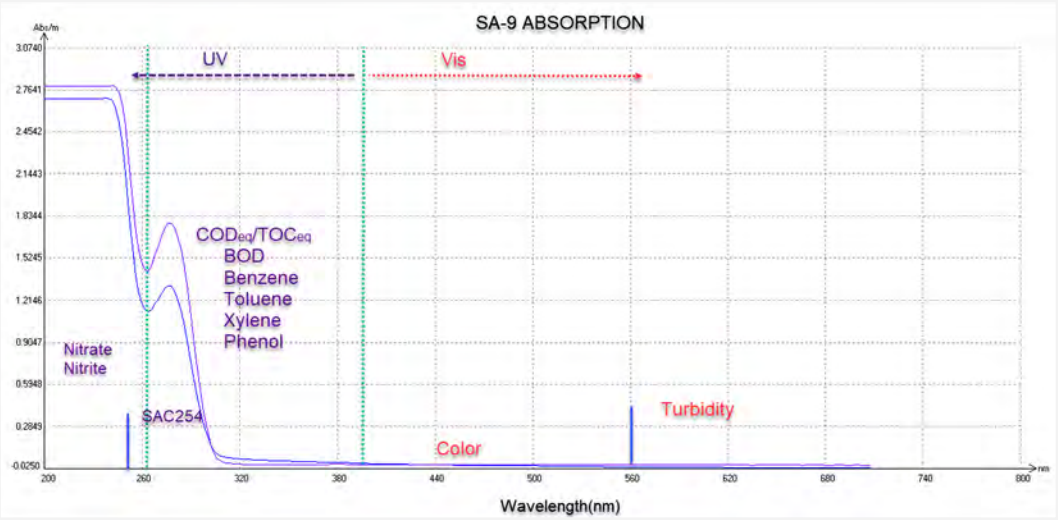
Waste water

- Effluent monitoring
- Analysis of trends
- Early detection of disposal (fingerprint)

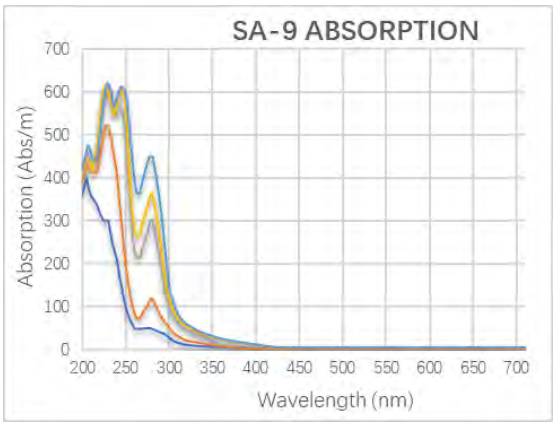
Process water

- Process monitoring in industrial facilities
- Control of water treatment

SA9 is the new generation of immersion spectra analyzing sensor. It uses standardized spectra algorithms by taking the complete 200 to 710 nm absorption spectrum of water into account to determine the nitrogen and carbon compounds. SA9's spectrum compensation for light absorbing particles and turbidity provides a unique and high sensitivity approach that allows the monitoring of dissolved organic substances without sample pre-treatment. SA9 gives reliable readings for NO_3-N, NO_2-N, organic ingredients (COD*eq*, BOD*eq*, DOC*eq*, TOC*eq*), and a number of other parameters. The sensor can be submerged into water by mounting hardware or using flow cell for bypass installation. Measurement path length is from 1 to 100 mm. There is a built-in purging nozzle for cleaning the test window by compressed air or pressurized water stream. There is also an optional clamp-on wiper for automatic test window cleaning.



CROSS SMART SENSOR



The validated spectral calibration by SA9 uses multiple wavelengths to monitor and compensate each sum parameter, which enables much more accurate and robust measurement than the single wavelength method. Using field special calibration that employs specific features of the absorption spectrum, it is even possible to distinguish various fractions of organic carbon groups. For a specific application, the relevant calculation and calibration of desired parameters require their corresponding spectra and reference values obtained from the analytical chemistry lab. The spectral data plus one or more corresponding measured values are called reference value pair. The sensor uses the reference value pair and the proprietary spectral algorithm to perform calibration. The more reference value pairs are provided; the more accurate calibration is given.

SA9 Sensor also enables applications in aggressive media (e.g. high chloride concentrations) thanks to the optional titanium housing.

Equipped with the Delta-Phase View configuration, internal data logger, flexible protocols and data outputs, SA9 Sensor includes features that are much more advanced than those of comparable devices currently available on the market.

The unified platform of all Delta-Phase photometers also facilitates a standardized spare parts and consumables system, which allows the use of a wide range of accessories for our devices. Furthermore the cutting-edge Delta-Phase View enables quick integration into third-party systems.

MEASUREMENT OF COLOR

SA9 enables reliable low-cost color measurements. SA9 uses Xenon Flash Light for long-term stable measurements of SAC or colors on UV to Vis Spectrum, SA9 Choose the different wavelengths for Color measurements, and the absorption at 550nm is used for turbidity/ background correction. The cutting-edge device platform, used in all other Delta-Phase photometers, enables optical path lengths of 35, and 100 mm, so that almost any application can be easily implemented.

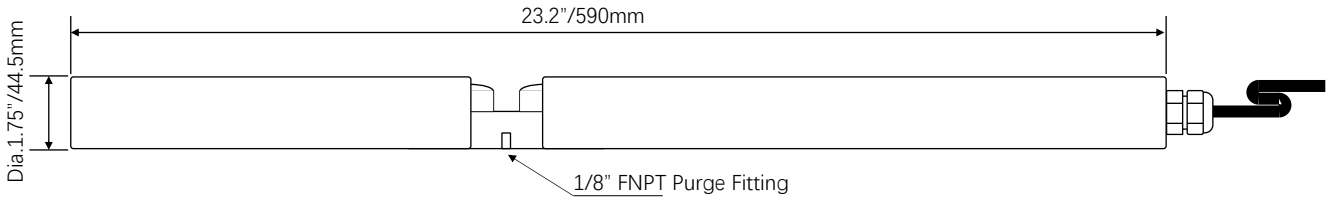
Delta Phase
WATER GAS MONITORING

CROSS SMART SENSOR

SPECIFICATIONS

Measuring Principle	Absorb spectral analysis UV-Vis(200~700nm) or Attenuation Absorb spectral analysis UV (190~390)
Light source	Xenon flash light
Detector	Miniature 256 CCD array spectrometer
Optical Length	1/2/5/20/35/50/100 mm
Respond Time	T90 < 1 min
Operating Temp.	32 to 122 °F (0 to 50 °C)
Storage Temp.	14 to 140 °F (-10 to 60 °C)
Operating Pressure	< 10 bar
Housing Material	316L Stainless steel, optional Titanium; Light Window: Sapphire
Protection type	IP68 immersible
Requirement of flow	<3m/s, high velocity may cause bubbles in the measurement
Auto cleaning	Air or water purging controlled by GDC uses either compressed air of 3-7 Bar or pressurized water; Optional clamp-on wipe
Interface	RS-485 Modbus RTU
Power	24 VDC (18-36VDC) by GDC, Consumption normally 5W, Max. 25W
Dimension & Weight	1.75" O.D, 22.05" length (Ø44.5 mm x L560 mm) & 6.6 lbs. (3 kg) with SS housing

DIMENSION



WIRES

24VDC+	24VDC-	RA	RB	TA	TB	-
Red	Black	Yellow	Blue	Gray	Green	Brown

Delta Phase
WATER GAS MONITORING

CROSS SMART SENSOR

THE OPTICAL PATH & RANGE OF TYPICAL APPLICATIONS

Applications		Inlet of WWTP		Aeration tank of WWTP	Outlet of WWTP	Ground Water		Drinking Water	Pure Water
Optical Path		2mm	5mm	1mm	5mm	20mm	35mm	35mm	100mm
NO_3-N	mg/l	0.2~50		0.2~70	0.5~50	0.1~25	0.1~10	0.1~10	
NO_2-N	mg/l			0~100	0~10				
COD	mg/l	5~1800	2~800		2~500	1~150	0.5~60		
BOD	mg/l	5~800	2~300		2~300				
TOC	mg/l					0.5~80	0.1~20	0.1~20	0.05~10
DOC	mg/l					0.1~50	0.1~10	0.1~10	
SAC254	Abs/m	5~1250	2~500		2~300	0.5~150	0.1~70	0.1~70	
SS	mg/l	25~2500	10~1000	100~8000	2~500				
Turbidity	NTU/FNU				0.2~200	5~300	0.5~150	0.5~150	
O_3	mg/l				0.1~10			0.1~10	
H_2S	mg/l	0~25	0~10						

THE RANGE OF COLOR

Parameter Variations	According to the Standard	Unit	Measuring Range (35mm)	Measuring Range (100mm)
Pt-Co color number (Hazen) (390 nm or 455 nm), Other Standard please contact the factory				
Hazen 390 nm	DIN EN ISO 6271-2: 2005-03	mg/l Pt	0 to 300	0 to 100
Hazen 455 nm	DIN EN ISO 6271-2: 2005-03	mg/l Pt	0 to 500	0 to 150

ORDER CODE

SA9 UV to Vis Spectra Sensor (200 to 700nm)

$SA9_{UV}$ UV Spectra Sensor (190 to 390nm)

Housing Material

- Standard Stainless Steel 316L
- ***-T*** Titanium

Optical Path

-001	1mm	***-002***	2mm	***-005***	5mm
-020	20mm	***-035***	35mm	***-100***	100mm

- ***i*** Inlet of WWTP (COD, NO_3-N, BOD, SS, H_2S, SAC254)
- ***a*** Aeration tank of WWTP (NO_3-N, SS)
- ***e*** Outlet of WWTP (COD, NO_3-N, BOD, SS, O_3, SAC254)
- ***g*** Ground Water (NO_3-N, DOC, TOC, SAC254, Turbidity)
- ***d*** Drinking Water (NO_3-N, DOC, TOC, O_3, SAC254, Turbidity, Color)
- ***r*** Surface Water (NO_3-N, DOC, TOC, SAC254, Turbidity, Color)
- ***c*** Industrial Process (NO_3-N, TOC, O_3, SAC254, Turbidity, Color)
- ***o*** Other Parameters Please Contact Factory

Cable Length

-C20	20'	***-C30***	30'	***-C50***	50'	More Length Please Contact Factory

SA9	-	005	i	-C30

Specifications subject to change without notice.

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