

Complete monitoring system for the automatic, continuous measurement of total organic carbon (TOC) in ultrapure water and water for pharmaceutical purposes.

Application examples

- Monitoring of production, storage and distribution systems for purified water (PW) and water for injection (WFI) in accordance with the requirements of the Pharmacopoeias.
- Measurement of TOC in the purification and quality control of ultrapure water, e.g. in the semiconductor industry.

Measuring range

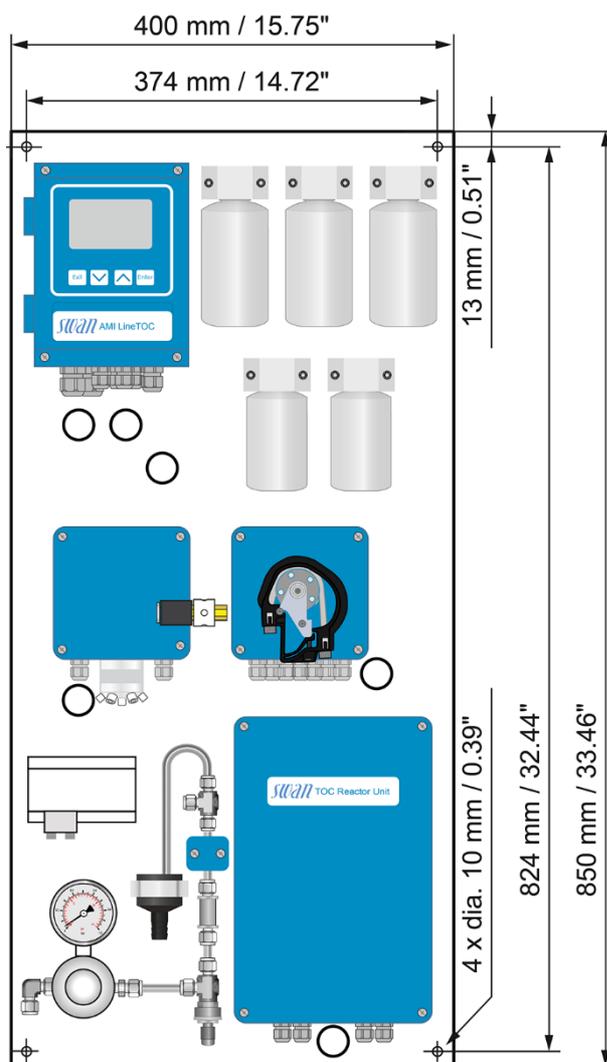
- From 0 to 1000 ppb.

Compliance

- Fully integrated and automatic system suitability test (SST) according to USP <643> and Ph. Eur 2.2.44.
- Hassle-free instrument qualification during commissioning with optional validation package.
- Firmware provides access protection/user management and audit trail/event logging.

Instrument features

- Smart design with easy grab sample function.
- Thin sample film and a large oxidation surface combined with strict temperature management guarantee 100% oxidation efficiency.
- Function test with stable TOC standard solutions, performed manually or automatically at user-defined intervals.



Order numbers:	AMI LineTOC AC	A-23.612.100
Option 1	Third signal output (0/4 – 20 mA)	A-81.420.050
	RS485 interface with Modbus RTU or Profibus protocol	A-81.420.020
	USB interface	A-81.420.042
	HART interface	A-81.420.060
Option 2	Inlet pressure regulator	A-82.589.000
Option 3	Sample cooler	A-82.300.010
Option 4	Validation package (English or German)	A-96.260.10X



TOC Measurement

Analytical method

Reagent-free UV oxidation with differential conductivity detection.

Response time <math>< 2 \text{ min}</math>

Measuring range TOC

0.00 to 9.99 ppb
10.0 to 99.9 ppb
100 to 999 ppb

Resolution

0.01 ppb
0.1 ppb
1 ppb

Reproducibility

0.1 to 50 ppb ± 1 ppb
50 to 1000 ppb ± 2 %

Accuracy conductivity

0.055 to 2 $\mu\text{S/cm}$ (25 °C) ± 1 %

System suitability test (SST)

Fully automatic, according to USP<643> and Ph.Eur.2.2.44.

Function test

Fully automatic; verification of instrument performance with concentrated, stable TOC standards and internal dilution.

Auxiliary sensors

- Temperature measurement with NT5K-type sensors, ± 0.2 °C accuracy in the operating range of the TOC reactor.
- Sample flow detection.

UV emitter

Service life 6 months
depending on application: up to 12 months
Power 11 W

Transmitter Specifications and Functionality

Electronics case: Cast aluminum
Protection degree: IP66 / NEMA 4X
Display: backlit LCD, 75 x 45 mm
Electrical connectors: screw clamps
Ambient temperature: -10 to +50 °C
Humidity: 10 - 90% rel., non-condensing

Power supply

Voltage: 100 – 240 VAC (± 10 %),
50/60 Hz (± 5 %)
Power consumption: max. 55 VA

Operation

User menus in English, German, French and Spanish.
Separate, menu-specific password protection.

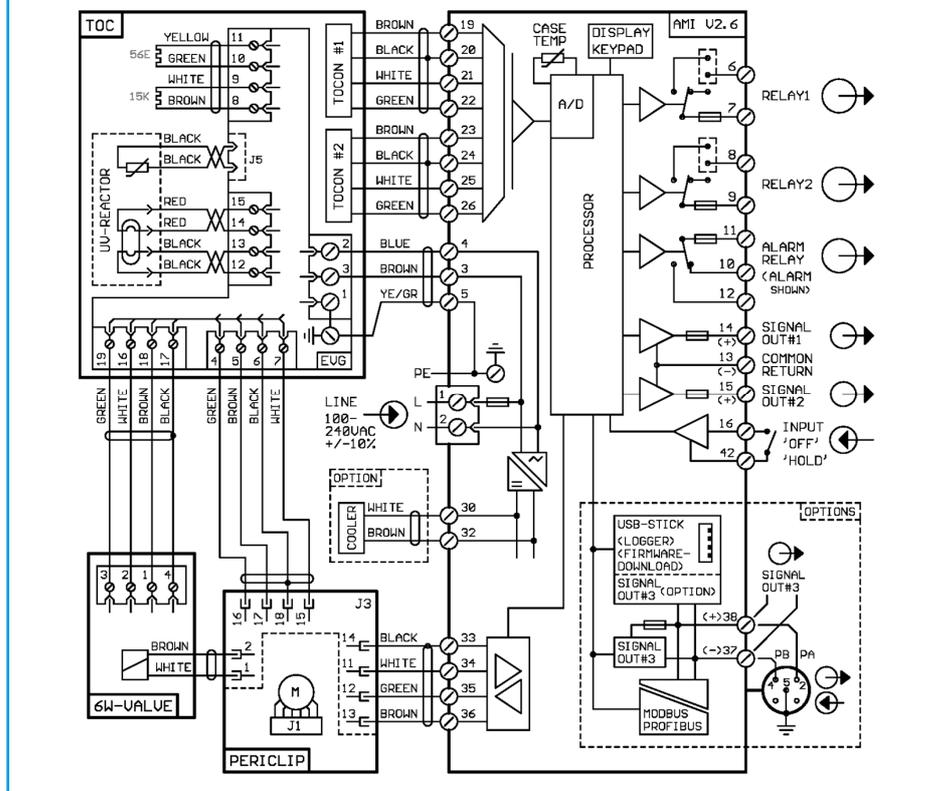
Safety features

No data loss after power failure, all data is saved in non-volatile memory.
Overvoltage protection of inputs and outputs.
Galvanic separation of measuring inputs from signal outputs.

Transmitter temperature monitoring

With programmable high/low alarm limits.

Electrical Connection Scheme



Real-time clock with calendar

For action time stamp and preprogrammed actions

Alarm relay

One potential-free contact for summary alarm indication for programmable alarm values and instrument faults.
Maximum load: 1 A / 250 VAC

Input

One input for potential-free contact.
Programmable hold or remote off function.

Relay outputs

Two potential-free contacts programmable as limit switches for measured values, controllers or timer with automatic hold function.
Rated load: 1 A / 250 VAC

Signal outputs

Two programmable signal outputs for measured values (freely scalable, linear or bilinear) or as controller outputs.
Current loop: 0/4 – 20 mA
Maximum burden: 510 Ω
Type: current source
Third signal output available as an option. The third signal output can be used as a current source or as a current sink (selectable via switch).

Communication interface options

- RS485 interface with Modbus RTU or Profibus DP protocol, galvanically separated
- Third signal output
- USB interface for logger download
- HART interface

Monitor Data

Sample conditions

Flow rate: 1 to 5 l/h
Temperature: 10 to 40 °C
with sample cooler: up to 90 °C
Inlet pressure_{abs.} (25 °C): up to 1.5 bar
with pressure regulator: up to 5 bar
Outlet pressure: pressure free
Conductivity: 0.055 to 2 $\mu\text{S/cm}$
Particle size: <math>< 100 \mu\text{m}</math>
No sand, no oil

Sample connections

Sample inlet: Swagelok 1/4" tube adapter
Sample outlet: for flexible tube, 15 mm inner \varnothing

Panel

Dimensions: 400 x 850 x 180 mm
Material: stainless steel
Total weight: 18 kg

