

Monitor AMI-II LineTOC

Data sheet no. DenA23512100

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

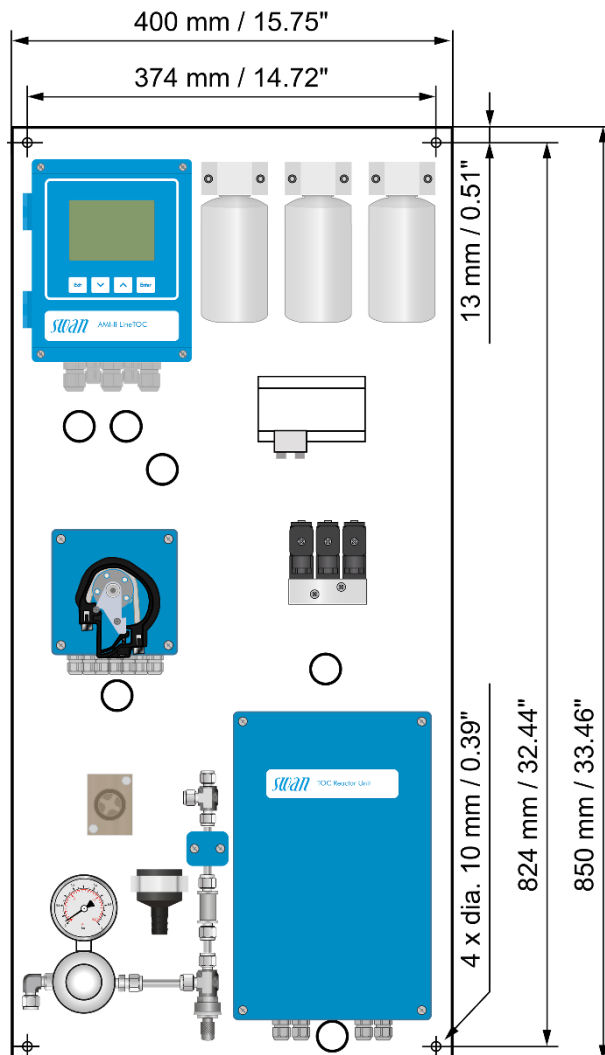
- From 0 to 1000 ppb.

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.
- Support for 21 CFR Part 11 compliance with access control and audit trail with encrypted export of records.

Instrument features

- Smart design with easy grab sample function.
- Thin sample film and a large oxidation surface combined with strict temperature management guarantee superior oxidation efficiency under all conditions.



Order numbers:	AMI-II LineTOC AC	A-23.512.100
Option 1	RS485 interface with Modbus RTU or Profibus protocol HART interface Two additional 0/4 – 20 mA signal outputs.....	A-81.470.0x0 A-81.470.030 A-81.470.040
Option 2	Inlet pressure regulator	A-82.589.000
Option 3	Sample cooler	A-82.300.010
Option 4	Validation package (English, German or Spanish).....	A-96.270.10x



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.

Auxiliary sensors

- Temperature measurement with NT5K-type sensors, $\pm 0.2\text{ °C}$ 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, 74 x 53 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.

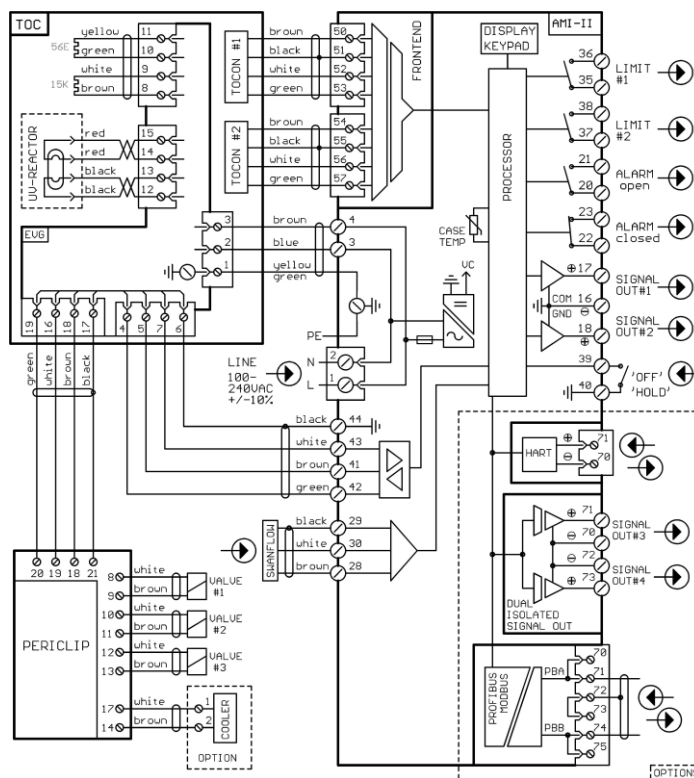
21 CFR Part 11 support

Access control: multi-level user management.
Audit trail: logging of all instrument and user generated events, all changes and all results of instrument routines.
Protection of records: encrypted export of audit-trail records; secure access and generation of human readable exports in signed pdfs with separate PC software SWAN Guard.

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.

Electrical Connection Scheme



Transmitter temperature monitoring

With programmable high/low alarm limits.

Real-time clock with calendar

For action time stamp and preprogrammed actions

Alarm relay

Two potential-free contacts for summary alarm indication for programmable alarm values and instrument faults (one normally open and one normally closed contact).
Maximum load: 100 mA / 50 V resistive

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 timers with automatic hold function.
Rated load: 100 mA / 50 V resistive

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

SD card interface

Possibility to record measured values and diagnostic data to an SD card.
SD card included.

Communication interface options

- Two additional signal outputs, galvanically separated
- RS485 interface with Modbus RTU or Profibus DP protocol, galvanically separated
- HART interface

Monitor Data

Sample conditions

Flow rate: 3 to 6 l/h
Temperature: 10 to 40 °C
with sample cooler: up to 90 °C
Inlet pressure_{Abs.}: up to 1.5 bar
with pressure regulator: up to 5 bar, 80 °C
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 $\frac{1}{4}$ " tube adapter
Sample outlet: for flexible tube, 15 mm inner ϕ

Panel

Dimensions: 400 x 850 x 180 mm
Material: stainless steel
Total weight: 20 kg

