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Technical Datasheet
eTOC Series TOC-Analyzer TOC-1000e S

Project ID:	Quotation ref.:	

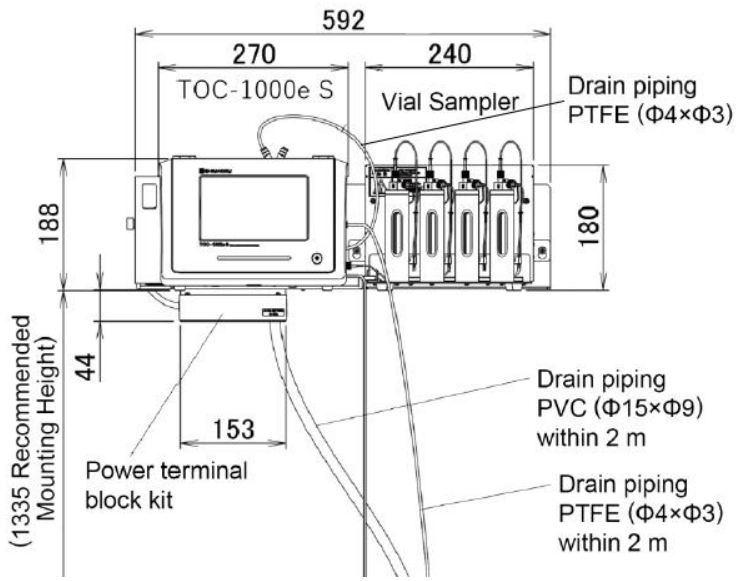
General specifications	
Model Range	TOC-1000e S, Online TOC-Analyzer for ultrapure water (638-91141-58), eTOC Series semiconductor model
Measurement Parameter	TOC
Measurement Principle	UV oxidation – conductivity method with automatic internal blank subtraction
Measurement Range	TOC: 0 to 500 µg/l
System architecture	Single conductivity sensor, automatic temperature compensation
Oxidation mechanism	Mercury-free UV Excimer lamp, reagent less, batch layout, variable oxidation time (70 or 6 s)
User Interface	7-inch color touch panel and LED status indicator, easy to use standalone software
Calibration	Up to 3-point calibration curve in max. 4 position batches [1], typical interval 1 year [2] Shimadzu proprietary standard solutions (CRM) available
Security Features	Non-volatile data storage, User authentication and access rights control with personalized IDs, Operation / Event Log (Audit Trail)
Maintenance	Tool-free, typical exchange interval 1 year [2] | Items: UV lamp, sample pump head, inlet filter[3]
Performance specification	
Detection Limit	TOC: 0,02 µg/l [4]
Measurement Cycle	Min. 5 min (adjustable:5 min, 10 min, 15 min, 30 min)
Startup time	5 min
Repeat accuracy	TOC: ± 0,05 µg/l (at concentrations ≤ 1 µg/l) [4]
Accuracy	TOC: ± 5% (500 µg/l Sucrose) [4]
Linearity	TOC: $R^2 \geq 0,98$
Data interfaces	
USB	2x Type A socket, for USB flash drive (FAT32)
Ethernet	1x RJ45, Automated file transfer (SMB protocol), built-in web page, Modbus TCP Use Cat 5e or higher LAN cable (not included)
Analog Output	3 channels 4-20 mA (Max. burden 500 Ω), Output item: TOC
Contact Output	12 freely programmable relay contacts, 1 power shutoff indication relay contact Alarms: Measurement value alarm, maintenance request, serious failure, power interrupted Events: Ready for measurement, measuring, analogue output updated, system check start
Contact Input	Potential-free; start measurement
Wiring	0,14 to 0,5 mm^2 (AWG26 to AWG20), max. length 10 m
Data Export	Operation log, Measurement data, daily analysis report, event and calibration logs, Instrument configuration, validation and calibration reports

[1] Optional Vial sampler required | [2] May vary depending on sample properties and measurement condition
[3] Depending on condition, typically lasts several years | [4] Specifications apply when oxidation time is set to 70 seconds

Operating conditions and required utilities	
Installation site	Indoors, humidity 0 to 80% non-condensing
- Ambient temperature	Specification: 25±5°C [5] | Operation: 10 to 40°C [6]
Mounting | Enclosure	Tabletop, wall-mounted [7] or pole-mounted [7] | IP33
External Dimensions | Weight	W 270 x H 180 x D 140 mm | 3,0 kg
Electric supply	AC 100 – 240 V ± 10%, 50/60 Hz; max. 100VA
Electric connection	AC power connection cable, or hard-wired [8]
Sample characteristics	Ultrapure water
- Temperature	Specification: 25±5°C [5] | Operation: 10 to 50°C [6]
- Conductivity	Specification: ≤0,1 µS/cm @25°C [5] | Operation: ≤1 µS/cm @25°C [6]
- Flow rate	Specification: 30 to 200 mL/min (rec. 100 mL/min)[5] | Operation: 30 to 500 mL/min[6]
- Pressure	≥50 kPa. Maximum pressure depending on sample piping assembly (see next page)
Sample inlet piping	Gas-tight piping OD 1/8", ID 1,5 to 2 mm [9], e.g. PTFE tube 980-27967 Use sample inlet filter (60µm)
Sampling point	As close as possible to the analyzer
Drainage facilities	Drainage capacity of at least 500mL/min within a distance of 2m Pressure-less and non-constricted 2m drain tubing included

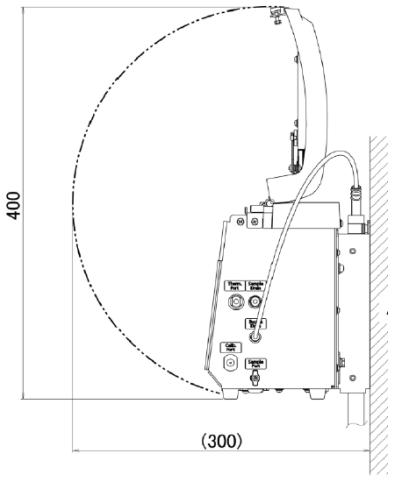
Dimensional drawing

Frontal view

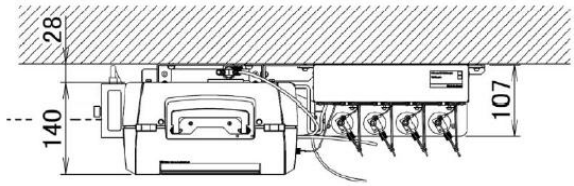


(Vial sampler required for calibration & validation only)

Side view



Top view



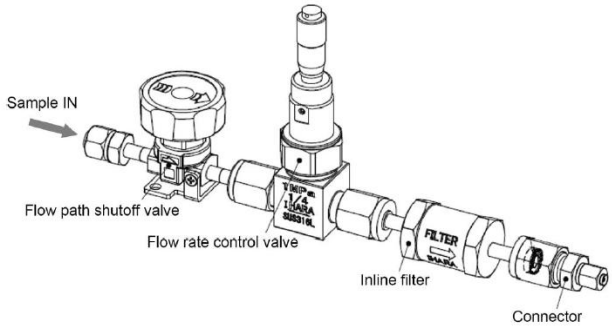
[5] Analysis performance specifications apply
[6] Analyzer can operate in this range, but analysis performance specifications may not be fulfilled
[7] Optional Bracket set required
[8] Optional Power Terminal Block Assy required
[9] Not included with the main unit

Configuration Checklist

Application Description	_____		
Power Connection	☐ Cold Device Cable	☐ Hard wired	
Installation	☐ On a surface	☐ Wall mounted	☐ Pole mounted
Data Interface	☐ 4-20 mA	☐ Relay outputs	☐ Modbus TCP

Sample connection

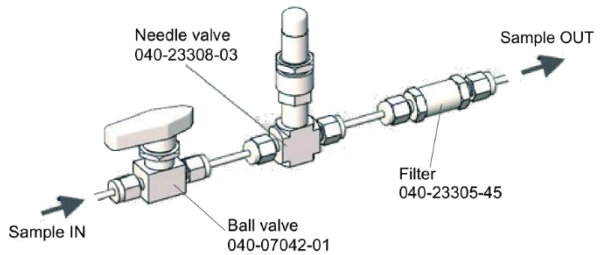
☐ For ultra-high purity applications (e.g. <10nm process nodes)



(Install as close as possible to the analyzer)

Description	"Sample piping set" (040-22311-01). Sample conditioning assembly incl. shutoff valve, flow rate control valve and inline filter. Pre-assembled, pre-rinsed, leak tested prior shipping.
Inlet pressure resistance	1,0 MPa
Outlet pressure	50-100 kPa @ ≤ 500mL/min
Filter pore size	60 µm
Materials	Shutoff valve body: SS 316L Control valve: SS 316L Inline filter: SS 316
Sample IN connection	Gas-tight flexible hose, OD 6,35 mm, ID 4,35 mm, e.g. 30m PTFE tube 631-42242-31
Sample OUT connection (to TOC-1000e S sample IN)	Gas-tight piping, OD 3,17 mm (1/8"), ID 1,59 mm (1/16"), e.g. PTFE tube 980-27967

☐ For regular purity applications (e.g. ≥10nm process nodes)



(Install as close as possible to the analyzer)

Description	Shutoff valve 040-07042-01, control valve 040-23308-03, inline filter 040-23305-45 (not pre-assembled)
Inlet pressure resistance	6,89 MPa
Outlet pressure	50-100 kPa @ ≤ 500mL/min
Filter pore size	60 µm
Materials	Shutoff valve body: SS 316 Control valve: SS 316 Inline filter: SS 316
Sample IN connection	Gas-tight piping OD 3,17 mm (1/8"), ID 1,59 mm (1/16"), e.g. PTFE tube 980-27967 Alternatively (not shown): OD 1/4", ID 1/8" using reducer union 035-60414-50
Sample OUT connection (to TOC-1000e S sample IN)	Gas-tight piping, OD 3,17 mm (1/8"), ID 1,59 mm (1/16"), e.g. PTFE tube 980-27967