

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



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General specifications	
<b>Model Range</b>	eTOC Series TOC-1000e, Online TOC-Analyzer for pure water (638-91140-58)
<b>Measurement Parameters</b>	TOC, conductivity (or resistivity), temperature
<b>Measurement Principle</b>	UV oxidation – conductivity method
<b>Measurement Range</b>	TOC: 0 to 2000µg/L Conductivity: 0,023 to 206 µS/cm (with temperature correction deactivated) Temperature: 10 to 50 °C
<b>System architecture</b>	Single conductivity sensor, automatic temperature compensation
<b>Oxidation mechanism</b>	Mercury-free UV Excimer lamp, reagent less, batch layout
<b>User Interface</b>	7-inch color touch panel and LED status indicator, easy to use standalone software
<b>Calibration</b>	Up to 4-point calibration curve in max. 4 position batches <sup>1</sup> , typical interval 1 year <sup>2</sup> Shimadzu proprietary standard solutions (CRM) available
<b>Validation support</b>	Electronic IQ/OQ, PQ (USP <643> System Suitability and LOD tests)
<b>Security Features</b>	Non-volatile data storage, User authentication and access rights control with personalized IDs, Operation / Event Log (Audit Trail) Proprietary ER/ES functionality by automatic data export to Shimadzu LabSolutions DB/CS <sup>3</sup>
<b>Maintenance</b>	Tool-free, typical exchange interval 1 year <sup>2</sup>   Items: UV Excimer lamp, pump head, inlet filter
Performance specification	
<b>Detection Limit</b>	TOC: 0,1 µg/L
<b>Measurement Cycle</b>	Min. 2,5 min (adjustable: 5 min, 10 min, 15 min, 30 min, 1 h, 2 h, 4 h, 12 h, 24 h)
<b>Repeatability</b>	TOC Online: CV ≤ 1% or SD ≤ 0,3 µg/L, whichever greater TOC calibration: CV ≤ 3% (500 µg/L, 2.000 µg/L Sucrose)
<b>Accuracy</b>	TOC: ± 5% (500 µg/L, 2.000 µg/L Sucrose) Conductivity: Within ± 2% (147µS/cm KCl solution at 25°C) Temperature: ± 0,5 °C (Sample temperature 25 °C)
<b>Linearity</b>	TOC: R <sup>2</sup> ≥ 0,98
<b>System Suitability</b>	According to USP <643>
Data interfaces	
<b>USB</b>	2x Type A socket, for USB flash drive and printer
<b>Ethernet</b>	1x RJ45, Automated file transfer (SMB protocol), built-in web page, Modbus TCP Use Cat 5e or higher LAN cable (not included)
<b>Analog Output <sup>4</sup></b>	3 channels 4-20 mA (Max. burden 500 Ω), Output items: TOC, Conductivity, Conductivity / Resistivity (Temp. corrected), Temperature
<b>Contact Output <sup>4</sup></b>	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
<b>Contact Input <sup>4</sup></b>	Potential-free; start measurement
<b>Wiring</b>	0,14 to 0,5 mm <sup>2</sup> (AWG26 to AWG20)
<b>Data Export</b>	Audit Trail, Measurement data, daily analysis report, event and calibration logs, Instrument configuration, validation and calibration reports

<sup>1</sup> Optional Vial sampler required

<sup>2</sup> May vary depending on sample properties and measurement condition

<sup>3</sup> Optional LabSolutions DB (local PC) or CS (Client/Server network) required | <sup>4</sup> Optional I/O Board Set required

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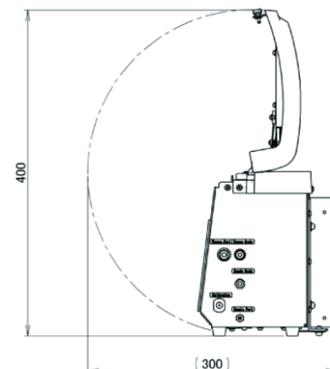
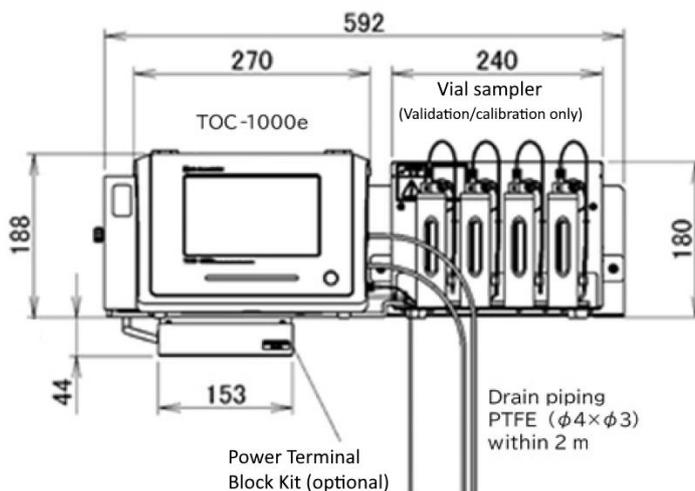
### Operating conditions and required utilities

<b>Installation site</b>	Indoors, 10 to 40°C ambient temperature, humidity up to 80% non-condensing
<b>Mounting</b>	Tabletop, wall-mounted <sup>5</sup> or pole-mounted <sup>5</sup>
<b>External Dimensions   Weight</b>	W 270 x H 180 x D 140 mm   2,88 kg
<b>Electric supply</b>	AC 100 – 240 V ± 10%, 50/60 Hz; max. 100VA
<b>Electric connection</b>	AC power connection cable, or hard-wired <sup>6</sup>
<b>Sample characteristics</b>	Pure water, conductivity 2 µS/cm or lower, non-ionic content
<b>- Flow   Pressure   Temperature</b>	30 to 500 mL/min (rec. 75 mL/min)   50 to 689 kPa   10 to 50 °C
<b>Sample inlet piping</b>	Gas-tight piping OD 1/8", ID 1,5 to 2 mm <sup>7</sup> Recommend material SUS316L (1.4404) or PTFE Use sample inlet filter <sup>8</sup> (60µm) 040-23305-45
<b>Sampling point</b>	As close as possible to the analyzer. Optional: flow adjustment valve to limit product loss <sup>9</sup> and maintenance shut-off valve <sup>10</sup>
<b>Drainage facilities</b>	Drainage capacity of 500mL/min within a distance of 2m Pressure-less and non-constricted 2m drain tubing OD 4, ID 3mm for sample and bypass drain each included

### Dimensional drawing

Frontal view

Side view



### Configuration Checklist

<b>Application Description</b>	
<b>TOC Calibration Range</b>	<input type="checkbox"/> 0 – 500 ppb <input type="checkbox"/> 0 – 2000 ppb
<b>Power Connection</b>	<input type="checkbox"/> Cold Device Cable <input type="checkbox"/> Hard wired
<b>Installation</b>	<input type="checkbox"/> On a surface <input type="checkbox"/> Wall mounted <input type="checkbox"/> Pole mounted
<b>Data Interface</b>	<input type="checkbox"/> 4-20 mA <input type="checkbox"/> Relay outputs <input type="checkbox"/> Modbus TCP
<b>Validation support</b>	<input type="checkbox"/> IQ/OQ (electronic)      PQ: <input type="checkbox"/> USP <643> TOC – System Suitability Test <input type="checkbox"/> USP <643> TOC – Limit of Detection Test <input type="checkbox"/> USP <645> Conductivity
<b>ER / ES Support</b> (such as FDA 21 CFR part 11)	<input type="checkbox"/> Shimadzu LabSolutions connection <input type="checkbox"/> Data export to customer specific system ( _____ )

<sup>5</sup> Optional Bracket set required<sup>6</sup> Optional Terminal Block Assy required<sup>7</sup> Not included with the main unit<sup>8</sup> Optional inlet filter required<sup>9</sup> Optional flow regulation valve required<sup>10</sup> Optional manual shutoff valve required