VEOLIA

CheckPoint Pharma and CheckPoint^{e}

On-Line/Portable TOC Sensors

WATER TECHNOLOGIES

Measure low-level total organic carbon (TOC) *anywhere, anytime* with the new **CheckPoint Pharma and CheckPoint**[e] On-Line/Portable Total Organic Carbon (TOC) sensors. Affordable, versatile, and portable, the CheckPoint sensors can be used online for continuous monitoring or hand-carried to any point in a water system for rapid diagnostic sampling and troubleshooting.

The two CheckPoint models have the same specifications except as follows:

- The CheckPoint Pharma has a dynamic range of 0.21 to 1,000 ppb and can measure TOC in hot or ozonated water. It meets US, European, Chinese, and Indian Pharmacopeia specifications.
- The CheckPoint[e], which is designed to meet the greater sensitivity requirements of the semiconductor, power, and other markets, has a dynamic range of 0.05 to 1,000 ppb.

Key Benefits

Cost Effective —The CheckPoint sensors use the simple TOC methodology of measuring initial sample conductivity, UV oxidation of organics, and a final, post-UV con- ductivity measurement (Direct Conductometric). They provide a reliable low-cost TOC approach useful for pharmaceutical Purified Water (PW) and Water for Injection (WFI) and semiconductor ultrapure water (UPW) monitoring applications.

Rapid Analysis — The two sensors provide the rapid results and fast rinsedown required for time-critical diagnostics and troubleshooting. Featuring a default measurement every 15 seconds, users can adjust output intervals from 15 seconds up to eight hours.

Easy to Use with Low Maintenance — The reagentless CheckPoints are easy to operate and need minimal maintenance. Calibration is typically stable for six months.

Sensor-to-Sensor Matching — The sensors can be calibrated to a reference TOC instrument, allowing excellent low-level TOC sensor-to-sensor matching.

Pharmaceutical — The CheckPoint Pharma provides pharmaceutical manufacturers with a cost-effective and flexible process monitor for process trending, screening potential trouble areas, and diagnosing problems in real time. The CheckPoint Pharma can be placed at a dedicated point of use or conveniently moved throughout the pharmaceutical manufacturing facility for multi-point water monitoring, diagnostics, and troubleshooting. The CheckPoint Pharma comes with a simple and convenient Standard Operating Procedure (SOP) to meet installation, operation, and performance qualification requirements.

Hard Disk, Thin Display, and Semiconductor — The CheckPointe's low cost and portability gives microelec- tronics manufacturers new problem-solving and diagnostic capabilities. In addition to providing contin- uous on-line TOC monitoring to detect critical ultrapure water changes, the CheckPointe sensor makes it possible to quickly check TOC samples from pressurized or non-pressurized sources. CheckPointe can also monitor UPW distribution points or fab tools for potential contamination sources.

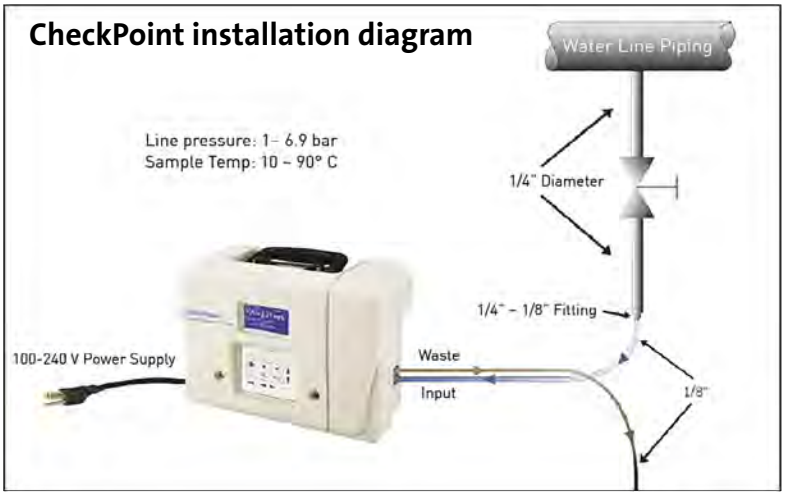
Power (UPW, Cation Conductivity Control, Makeup, or Cogeneration Condensate Polish Control) — The CheckPointe provides sensitive detection of trace organic contamination in power feed and loop UPW. Controlling cation conductivity can be difficult if its source is non-ionic organics. High pressures and temperatures in power plant water cycles can oxidize Cl, S, or N containing non-ionic organics to extremely corrosive hydrochloric, sulfuric, or nitric acids. The CheckPointe has an enhanced response to these compounds and can rapidly indicate their presence in makeup or con-densate water. Rapid detection of other UPW system problems is easy with CheckPointe's ultra portability and diagnostic features.

CheckPoint highlights

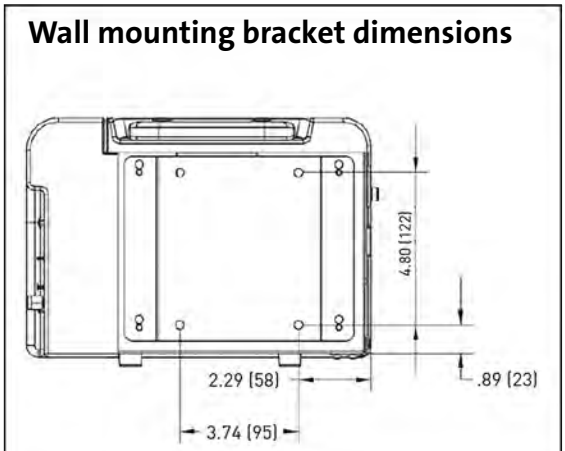
- Enables on-line and off-line testing in one instrument
- Display screen and documentation available in English, Chinese, or Japanese
- Self-contained pump for easy system suitability and calibration testing
- Ethernet Modbus transmission to facilitate data system
- IQ/OQ/PQ validation protocols provided
- User-friendly TOC graph that indicates trends
- Stores 28,800 records with TOC display data accessi- ble using USB memory stick

CheckPoint Installation Diagrams

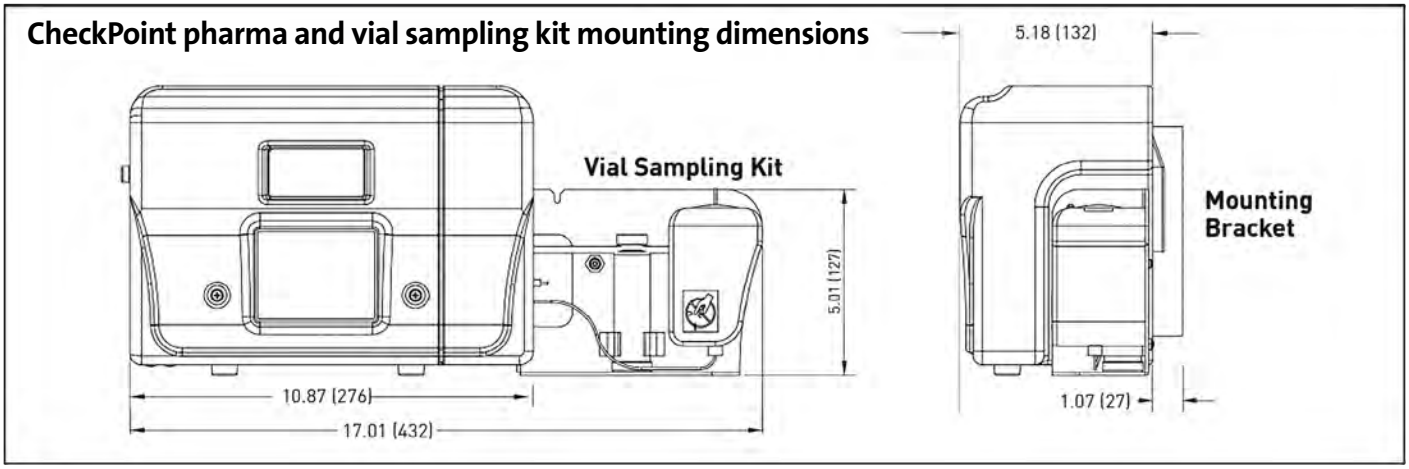
CheckPoint installation diagram



Wall mounting bracket dimensions



CheckPoint pharma and vial sampling kit mounting dimensions



Options and Accessories

I/O Board — The optional I/O board has three programmable analog outputs (select from TOC, raw conductivity, temperature- compensated conductivity or resistivity, error, warning, or standby options), one binary input (remote start/stop), and two alarms with 24 V supply.

Vial Sampling Kit — The CheckPoint Vial Sampling Kit, which attaches easily to the Sensor, allows users to measure standards and grab samples.

Low-Pressure Sampling Kit — This includes Teflon and stainless steel sampling tubes and a waste bag for collecting zero- pressure samples in the laboratory or fab.

Sample Inlet Filter — The 60-µm sample inlet filter is recommended for on-line monitoring.

Ordering Information

Pharmaceutical Industry	**Part Number**
Checkpoint TOC sensor — basic model	PRD 97150
Checkpoint with I/O board	PRD 97160
Electronics/Semiconductor Industry	
Checkpoint^{e} TOC sensor — basic model	PRD 97000
Checkpoint^{e} with I/O board	PRD 97100
Options	
Vial Sampling Kit	APK 97900
Checkpoint In-line Filter Kit (60 µm)	APK 97300
Printer	HMI 97050
40-mL Certified Sample Vials (Case of 72)	HMI 90606
Consumables	
One-year kit (2 UV lamps and 2 pump heads)	APK 97010
One UV lamp (6-month continuous use)	ARK 35001
One pump head (6-month continuous use)	APK 97000

300 00169 EN Rev. G

System Specifications[1]

Total Organic Carbon	
Linear Range (CheckPoint Pharma)	0.21–1,000 ppb C
Linear Range (CheckPoint[e])	0.05–1,000 ppb C
Accuracy	± 5% at 500 ppb C of sucrose2,3
Precision (CheckPoint Pharma)	The greater of <1% RSD or 0.21 ppb for on-line measurements; ≤3.0% RSD at 500 ppb for grab samples
Precision (CheckPoint[e])	The greater of <1% RSD or 0.05 ppb for on-line measurements; ≤3.0% RSD at 500 ppb for grab samples
Analysis Modes	On-line (average or timed); grab (with optional Vial Sampling Kit)
Analysis Time	Selectable: 15 seconds to 8 hours on-line mode; 10 minutes grab mode
Ozone Compatibility (CheckPoint Pharma)	50 ppb O3; 200 ppb O3 for 2 hours daily
Conductivity/Resistivity	
Conductivity/Resistivity Range for CheckPoint[e]	
Non-Temperature Corrected	0.023 µS/cm (43.5 Mohm-cm) to 150 µS/cm (0.00667 Mohm-cm)
Temperature Corrected to 25 °C	0.055 µS/cm (18.24 Mohm-cm) to 113 µS/cm (0.00885 Mohm-cm)
Conductivity/Resistivity Precision	± 0.5% RSD (20–40 °C or 68–104 °F)
Conductivity/Resistivity Accuracy	± 2.0%[3]
Conductivity/Resistivity Calibration Stability	Typically 6 months
Conductivity/Resistivity Range for TOC[4]	Max 1.4 µS/cm or Min 0.7 M ∧cm from CO_2[4]
Sensor Specifications	
On-Line Sample Pressure	103–690 kPa (15–100 psig) (1.0–6.9 bar)
Low Pressure Samples	-6.9–55 kPa (-1.0 to 8 psig) (-0.069-0.55 bar) with optional Low Pressure Sampling Kit
Required Sample Line Flow Rate	60 mL/min (high pressure) or 1 mL/min (low pressure)
Power Requirements	100–240 ±10% VAC, 60 W, 50/60 Hz, or battery
Temperature (CheckPoint Pharma)	Sample: 10–90 °C (50–194 °F); Ambient: 10–55 °C (50–131 °F)3
Temperature (CheckPoint[e])	Sample: 10–60 °C (50–140 °F); Ambient: 10–40 °C (50–104 °F)
Humidity	90% non-condensing
Altitude	3000 meters
Outputs	Ethernet (Modbus TCP/IP), USB, plus three 4-20 mA, two alarms, and binary input with optional I/O board
Installation/Overvoltage Category	II
Dimensions	H: 25.40 cm (10.0 in); W: 30.48 cm (12.0 in); D: 15.24 cm (6.0 in)
Dimensions with Vial Sampling Kit	H: 25.40 cm (10.0 in); W: 34.87 cm (13.7 in); D: 15.24 cm (6.0 in)
Weight — CheckPoint	2.9 kg (6.4 lb)
Weight — Vial Sampling Kit	0.6 kg (1.3 lb)
Industrial Ratings & Safety Certifications	CE, ETL listed. Conforms to UL Std. 61010-1. Certified to CSA C22.2 No. 61010-1

1. Stated analytical performance is achievable under controlled laboratory conditions that minimize operator and standards errors.
2. Total measurement accuracy includes separate contributions from both the standards accuracy and the Instrument Accuracy.
3. Conductivity and accuracy specifications are met as shown above for ambient temperatures from 10–40 °C (50–104 °F). When calibrated at 40 °C, the following specifications are met at 40–55 °C (104–131 °F): conductivity accuracy is ± 2.4%, and TOC accuracy is ± 6.7% on 500 ppb C of sucrose.
4. Sample water quality with a conductivity >1.4 µS/cm may result in reduced TOC accuracy.

Hg The UV lamp inside this product contains mercury and must be recycled or disposed of in accordance with local, state, and federal laws.

ISO 9001:2008 QUALITY MANAGEMENT SYSTEM

CE

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