

**Thermo Scientific Barnstead GenPure Pro UV/UF-TOC Water Purification System  
A & E Specification Sheet**

Lab water purification system capable of producing between 1 – 200 L/day of Type 1 ultrapure water on demand with TOC monitoring

**PART 1 – GENERAL**

**1.1 DESIGN AND PERFORMANCE CRITERIA**

- A. Water purification system must provide 18.2 megohm quality (Type 1) water to be utilized in a laboratory environment. Type 1 water quality meets standards as defined by ASTM D1193-6, ISO 3696 and CLSI™-CLRW.
- B. Water purification system will be capable of delivering up to 200L per day on demand at a flow rate of 2 liters per minute using pretreated feed water (treated by deionization, distillation, reverse osmosis, or combination DI/RO) as the supply water.
- C. Water purification system must function as one component with a flexible dispensing arm. The water purification system must be able to be mounted on the wall or bench.
- D. The system must also have built in product water resistivity; incoming feed water, leak detection, and TOC (Total Organic Carbon) monitors.

**1.2 SUBMITTALS**

Product Brochure  
Water Purification System Operating Manual (includes installation instructions)  
Product Guidelines for Site Installation  
Drawings

**1.3 QUALITY ASSURANCE**

- A. Each water purification system will be certified by CE and CSA for electrical safety and integrity.

**1.4 QUALIFICATION**

- A. Manufacturer – Company must have 10 years documented experience in the construction of water purification systems.
- B. Water Purification System – Shall be CE and CSA certified and meet ASTM D1193 standards.

**1.5 WARRANTY**

- A. Manufacturer's warranty against defects in material and workmanship covering parts and labor must be available for a period of one year. Standard exceptions for cartridges, filters, and lamps shall apply.

## **PART 2 – PRODUCT**

### **2.1 MANUFACTURER**

A. Thermo Scientific Barnstead GenPure Pro UV/UF-TOC water purification system – **50131922**

### **2.2 WATER PURIFICATION SYSTEM PRODUCT WATER SPECIFICATIONS**

- A. Ultrapure water flow rate of 2L/minute
- B. Product water must have a resistivity of up to 18.2 megohms-cm at 25°C
- C. Less than 5 ppb TOC (Total Organic Carbon) with a visual read out of the TOC levels in the product water
- D. Pyrogen (bacterial endotoxin) levels of less than 0.001 EU/ml with in-line integrated ultrafilter
- E. Bacterial counts less than 1 CFU/ml
- F. RNase levels <0.003 ng/ml, and DNase <0.4 pg/μl with in-line integrated ultrafilter

### **2.3 WATER PURIFICATION SYSTEM PERFORMANCE REQUIREMENTS**

- A. Dispensing from the system must be from a flexible dispensing arm with a working radius of 24” (60cm) so that a wide range of vessels can be utilized.
- B. Dispenser can operate in volumetric mode to prevent repetitive motions or flooding of lab and/or on/off by pressing the dispense button.
- C. System display must have adjustable angle display to make the display easy to read from any angle.
- D. System display should provide all system status data plus access to user menu.
- E. The system will include a UV lamp with a two-year lifespan that will emit both 185 nm and 254 nm wavelengths, designed to ensure organic removal as well as maintaining a bacteria-free environment.
- F. The system will include an inline ultrafilter for the removal of pyrogens with a two year lifespan. The system must allow for an extended ultrafilter flush as well as a 1 minute ultrafilter flush, which is initiated by the controls. The unit must also automatically flush the ultrafilter. External point-of-use ultrafilters are not acceptable.
- G. Real-time TOC measurement combined with continuous monitoring of the intensity of the UV lamp will remove the risk of false TOC values due to decreasing UV intensity. A fault message will alert the user when the UV lamp intensity is no longer sufficient for accurate TOC measurements.
- H. The system will automatically switch to “Interval” operation after it has been running, but idle, for 10 minutes. User can modify settings to extend the time before going into “Interval” mode.
- I. Systems cartridges must be able to be removed / replaced with quick disconnect fittings with no threads, screws or other mechanisms required to change cartridges.
- J. System must have built-in feed water monitor which will alert the end-user if the incoming feed water does not meet the pre-set levels.
  - a. Feed water monitor must be able to be adjusted or turned off as end-user requires.
- K. System must have built-in leak detector that will automatically alert the end-user if a leak is detected within the system.
- L. An absolute 0.2μm polysulfone membrane filter is required as the final purification step as the water is being dispensed. The final filter will be sterilizable using an autoclave.
- M. The conductivity measurement is performed with two high precision measuring cells. A fully automatic check and calibration will occur prior to each measurement via a built-in reference resistance. The cell constants are 0.01 cm<sup>-1</sup>.
- N. Temperature measurements are made by a platinum chip sensor with ± 0.1° C accuracy.

- O. Water will re-circulate within the system when operating during the “Interval” mode. The time span for “Interval” mode can be user-modified.
- P. Digital microprocessor control automatically monitors and stores faults from the past four weeks.
- Q. RS232 interface will be available for data tracking to a printer or PC.

**2.4 – ACCESSORIES**

**A. OPTIONAL**

- a. **AY1137X1** - Log printer for connection to RS232 port
- b. **06.5038** - 30L storage reservoir for supply of pretreated water to feed system if none available in the lab
- c. **06.5068** - 60L storage reservoir for supply of pretreated water to feed system if none available in the lab
- d. **09.2201** - Disinfection cartridge for use when the system requires disinfection cycle

**B. REPLACEMENT CONSUMABLES**

- a. **09.2005** - Ultrapure polishing cartridge
- b. **09.2002** - UV lamp
- c. **50133980** - Ultrafilter
- d. **09.1003** - 0.2 micron final filter

**ADDITIONAL SPECIFICATIONS**

DIMENSIONS (System)	18.6” W x 13” D x 24” H (472mm x 330mm x 615mm)
ELECTRICAL REQUIREMENTS	100 – 240 V, 50/60 Hz, 2-1A, up to 5 ft from unit
WATER CONNECTIONS	¾” NPT with manual shut off valve recommended
MIN/MAX INLET PRESSURE	2 – 87 PSI (0.1 – 6 bar)
RECOMMENDED FEED TEMPERATURE	2 – 40°C
RECOMMENDED FEED WATER TYPE	Pure water (Type 2 water)
DRAIN	An atmospheric drain must be available within 5 feet of the final mounting location