



Thermo Scientific Barnstead GenPure  
Water Purification Systems

**smart H<sub>2</sub>O**

for you, and your science

**Thermo**  
SCIENTIFIC

# smart H<sub>2</sub>O



GenPure xCAD Plus water system

GenPure Pro water system



GenPure standard water system

## Thermo Scientific Barnstead GenPure water purification systems

Ideal for your molecular biology, microbiology and analytical chemistry applications:

### Molecular Biology and Microbiology

- Cell and tissue culture
- PCR, DNA sequencing
- Electrophoresis

### Analytical Chemistry

- HPLC
- CG, CG-MS, ICP-MS, AA
- TOC Measurements, IC

Ultrapure water is elemental to the success of your experiments. But finding the right water system for your research goes deeper than water quality alone.

You need a smart choice that supports both your science and your budget — on day 1, and with every cartridge and filter change. One that reflects 130 years of innovations, like feed water monitoring, hands-free dispensing and effortless cartridge change-outs. With a Thermo Scientific™ Barnstead™ lab water system, the only thing you'll have in your water is confidence.

Suitable for even the most demanding and sensitive applications, the family of Thermo Scientific™ Barnstead™ GenPure™ water purification systems exceeds international standards ASTM D1193 Type 1, ISO 3696 Grade 1 and CLSI-CLRW, delivering ultrapure 18.2 MΩ·cm water with consistent quality.



# selector guide



Select the GenPure water purification system that best fits your requirements

Benefits

			GenPure xCAD Plus	GenPure Pro	GenPure
			Full control at the GenPure xCAD Plus remote dispenser	Flexible dispensing	Economical Type 1 water
APPLICATIONS	Ultra-low organic levels, <5 ppb HPLC, TOC, GC/MS, ICP, ICP-MS	UV oxidation is necessary for the removal of organics in the feed water, reduces organic levels to <5 ppb, and protects against microorganisms	✓	✓	✓
	Cell culture, monoclonal antibody production, electrophoresis	Ultrafiltration removes pyrogens from the feed water	✓	✓	✓
	Nuclease and pyrogen-free applications such as PCR, 2-D electrophoresis, cell culture, blotting	UV/UF is the most common combination of technologies – used to reduce organics and remove pyrogens and nucleases	✓	✓	✓
TECHNOLOGY	UV monitoring	Photosensor continually checks the intensity of the UV lamp. A decrease could result in an incorrect total organic carbon (TOC) measurement result.	✓	✓	✓
	Feed water monitoring	Feed water monitoring alerts you to fluctuations in feed water quality	✓	✓	✓
	Total Organic Carbon (TOC) monitor	Real-time monitor of the amount of organic materials in the product water shown on the display	✓	✓	✓
FEATURES	Volumetric Dispensing	Dispense at the push of a button. Control from 0.01-65 liters with an accuracy of <0.5%	✓	✓	—
	GenPure xCAD Plus remote dispenser	Allows for full control of the system at the GenPure xCAD Plus remote dispenser	✓	—	—
	Under-the-bench mounting	System sits under the bench – an ideal solution when bench space is limited.	✓	—	—
	RS-232 data printing at pre-programmed intervals	Satisfies GLP guidelines, data available in print	✓	✓	✓
CAPACITY	Optimal amount of water to use daily to sustain reasonable cartridge life	Expands with your laboratory and application needs	200 L/day	200 L/day	200 L/day

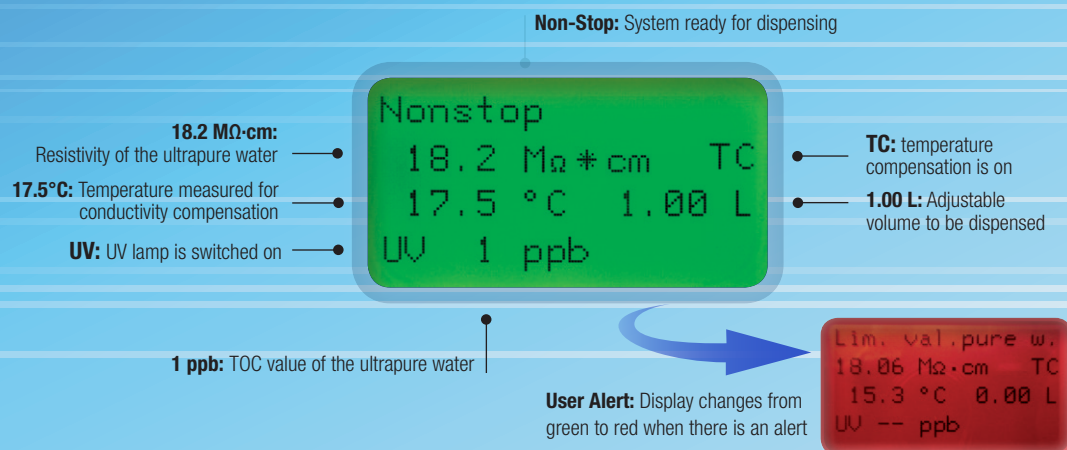
# Features common to all GenPure systems

## READY-TO-USE

- Have everything you need to make Type 1 water the day you receive your system. Each system ships with all start-up consumables under a single part number so there are no surprises or added post-sale costs.

## INTEGRATED FEED WATER MONITORING

- Additional measuring cell monitors feed water conductivity. If the quality of the feed water drops below the set value, a fault message will immediately be displayed.



## SMART CONSUMABLES

- Aquastop quick-connections on the ultrapure cartridge enable cartridge replacement within seconds—even mid-operation
- Validated 0.2 μm final filter with folded membrane can be sterile up to 5 times.
- Dual wavelength UV lamp, 185/254 nm, reduces organic compounds in the water to ultra-low levels as well as microorganisms and their metabolites. Available only on systems containing a UV lamp (UV).
- Internal ultrafilter is flushed automatically to assure the highest retention of endotoxins and nucleases, which produces a long two year lifetime. Available only on systems containing an ultrafilter (UF).

## USER-FRIENDLY DISPLAYS

- Illuminated four-line alpha-numeric displays show important system parameters
- Tilting control panels allow for optimal viewing

## MEASUREMENT OF CONDUCTIVITY/RESISTIVITY

- Conductivity cells are carefully calibrated prior to each measurement via built-in reference resistance with cell constants at 0.01 cm<sup>-1</sup>
- Temperature measurements are made by a platinum chip sensor with ± 0.1°C accuracy

## GLP-COMPLIANT DOCUMENTATION

- Real-time clock and code-protected operating system prevents unauthorized changes to system settings
- RS-232 interface with adjustable send-interval for safe data transfer of all measured data, faults, date and time to a PC computer or log printer
- Digital microprocessor control automatically monitors and stores faults from the last four weeks
- USP-compliant conductivity measurement with temperature compensation can be switched on or off





▲ The GenPure Pro system dispenser can reach up to 24 in (60 cm) from the unit.

Choose the ideal dispensing for your lab.

**Barnstead GenPure xCAD Plus water purification systems**

- GenPure xCAD Plus systems ship with your choice of one bench- or wall-mounted xCAD Plus remote dispenser
- For increased flexibility, add one or two more xCAD Plus dispensers
- Simultaneously dispense water from up to three xCAD Plus dispensers from a single system
- Fully automatic volume dispense of 0.01-65.0 L with < 2% accuracy

**Barnstead GenPure Pro water purification systems**

- New flexible dispenser offers a radius of 24 in. (60 cm) from the system for filling larger vessels or glassware washing
- Fully automatic volume dispense of 0.01-65.0 L with < 2% accuracy

**Barnstead GenPure water purification systems**

- Drop-by-drop to full 2 L/min dispensing for controlled dispensing



▲ For increased flexibility, add up to two more xCAD Plus remote dispensers. Water can dispense simultaneously from all three dispensers.



◀ GenPure standard system features controlled dispensing.

# Advanced TOC monitoring to safeguard your experiments

## TOC monitoring

Total Organic Carbon (TOC) monitoring (available on TOC systems only) provides a real-time measurement of the actual level of organics in the product water.

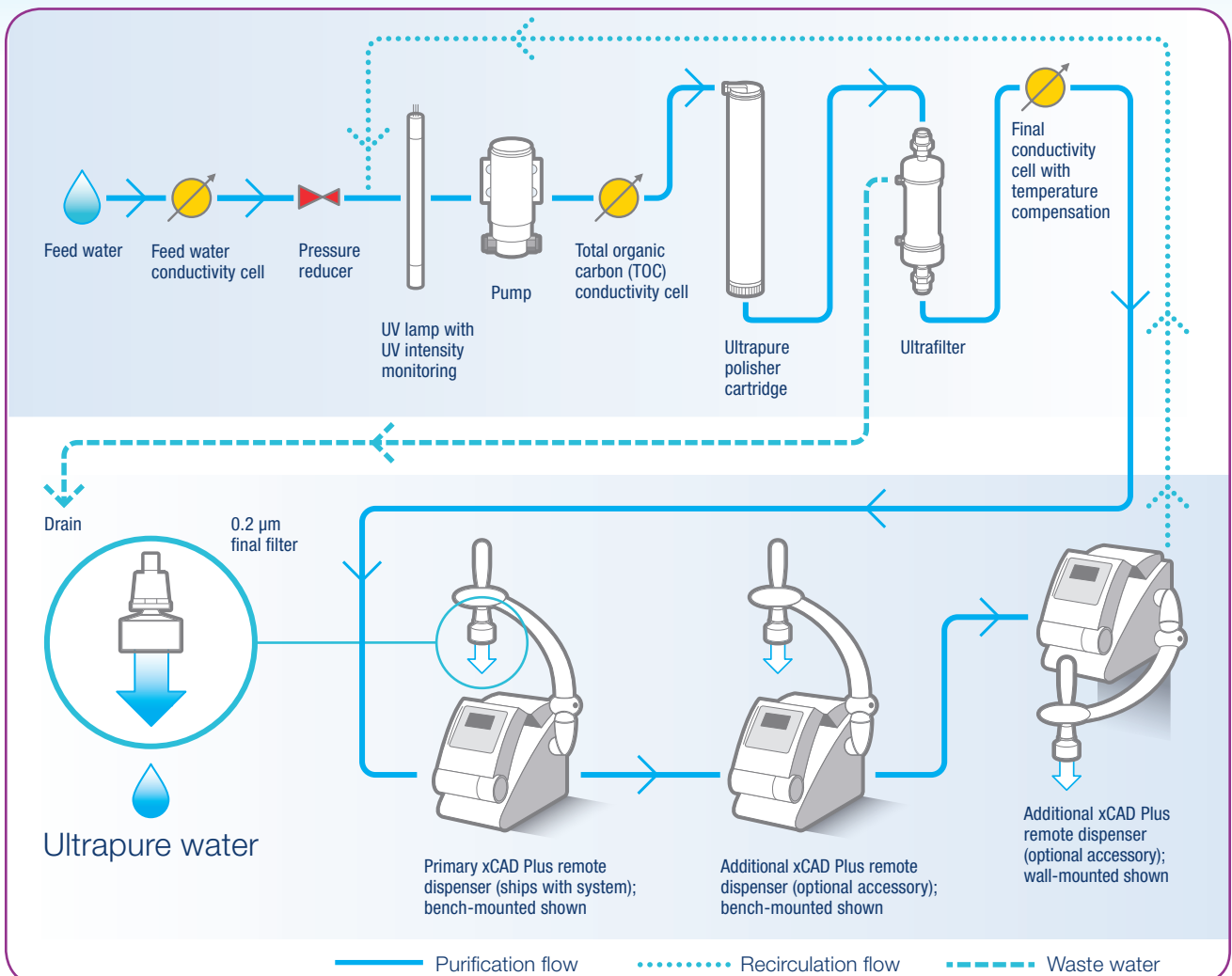
To test the product water for trace levels of organics, the conductivity of the water is measured at the final conductivity cell, just before the point of dispense, as shown in the flow diagram. During recirculation, the ultrapure water passes again through the system's UV bulb, where any trace organics are oxidized. This oxidation creates ions, which are then measured by the TOC conductivity cell. The amount of extra ions in the water is directly proportionate to the amount of organics in the water if the UV bulb is working properly. The difference between the conductivity cells is calculated and a TOC value is displayed.

## UV intensity monitoring

UV intensity monitoring comes standard on all GenPure systems with TOC monitoring.

The accuracy of the TOC measurement depends on how well the UV bulb irradiates the water. If the bulb is not fully illuminated, the total amount of organics in the water will not be oxidized, resulting in a false reading. To help protect against this, the system utilizes a photo electrode that directly monitors the intensity of the UV lamp, ensuring that it is working properly. If there is a problem with the UV bulb or the intensity is inadequate for complete oxidation, the system will alert the user with an error. Additionally, the intensity of the UV lamp can be accessed through the menu at any time.

▼ Flow diagram of the GenPure xCAD Plus UV/UF-TOC bench model water purification system, part number 50136146, with two additional xCAD Plus remote dispensers (optional accessories).



**Quick Look Comparison for to GenPure, GenPure Pro, and GenPure xCAD Plus systems**

	Standard	UV	UF	UV/UF	UV - TOC	UV/UF - TOC
<b>Suggested Applications</b>	<b>IC, standard buffer</b>	<b>ULTRALOW TOC LEVELS REQUIRED</b> Analytical analysis, such as HPLC and ICP-MS	Molecular biology, microbiology, PCR, IVF, monoclonal antibodies	<b>NUCLEASE, PYROGEN, ORGANIC FREE WATER REQUIRED</b> Molecular biology, PCR, DNA, monoclonal antibodies, cell culture media	<b>TOC MONITORING AND ULTRALOW TOC LEVELS REQUIRED</b> Chemical analysis (trace analysis, HPLC, IC, ICP-MS, TOC measurements)	<b>TOC MONITORING AND NUCLEASE, PYROGEN, ORGANIC FREE WATER REQUIRED</b> Biosciences (cell and tissue culture media, PCR, DNA, monoclonal antibodies)
<b>Resistance at 25 °C, MΩ-cm</b>	18.2	18.2	18.2	18.2	18.2	18.2
<b>Conductivity, μS/cm</b>	0.055	0.055	0.055	0.055	0.055	0.055
<b>TOC value , ppb</b>	5 - 10	1 -5	5 - 10	1 -5	1 -5	1 -5
<b>Endotoxines, EU/ml:</b>	n/a	n/a	<0.001	<0.001	n/a	<0.001
<b>Rnase, ng/ml</b>	n/a	n/a	n/a	<0.003	n/a	<0.003
<b>DNase, pg/μl</b>	n/a	n/a	n/a	<0.4	n/a	<0.4
<b>Particles, 0.22 μm/ml</b>	<1	<1	<1	<1	<1	<1
<b>Bacterial content in CFU/ml:</b>	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<b>TOC monitoring</b>	not available	not available	not available	not available	standard	standard
<b>Flow Rate, L/min*</b>	up to 2	up to 2	up to 2	up to 2	up to 2	up to 2

\* Dependent on feed water pressure

**Product Specifications**

	GenPure	GenPure Pro	GenPure xCAD Plus		
			Main housing	xCAD Plus remote dispenser (bench)	xCAD Plus remote dispenser (wall)
<b>Product Dimensions</b> HxWxD, mm (inches)	615 x 372 x 337 (24 x 15 x 13)	615 x 495 x 337 (24 x 20 x 13)	615 x 372 x 337 (24 x 15 x 13)	725 x 260 x 530 (28 x 12 x 21)	655 x 260 x 530 (26 x 12 x 21)
<b>Product Weight</b> kg (lbs)	22-25 (49-55)	23-26 (51-57)	22-25 (49-55)	12 (27)	5 (11)
<b>Shipping Dimensions</b> HxWxD, mm (inches)	706 x 455 x 430 (28 x 18 x 17)	706 x 455 x 430 (28 x 18 x 17)	706 x 455 x 430 (28 x 18 x 17)	790 x 485 x 320 (31 x 19 x 13)	790 x 485 x 320 (31 x 19 x 13)
<b>Shipping Weight</b> kg (lbs)	24-27 (53-60)	25-28 (55-62)	24-27 (53-60)	14 (30)	7 (15)

**Feed Water Requirements\*\***

<b>Source</b>	Potable tap water, pretreated by reverse osmosis, ion exchange or distillation
<b>Feed water conductivity, μS/cm</b>	< 2
<b>TOC, ppb</b>	max 50
<b>Bacteria count, CFU/mL</b>	< 100
<b>Turbidity, NTU</b>	< 1.0
<b>Temperature, °C</b>	2-35
<b>Pressure, psi (bar)</b>	1.4-87 (0.1-6)

\*\*Please see user manual for complete list of feed water requirements.



## Choose the system that best fits your needs:

Genpure xCAD Plus System Options		Standard	UV	UF	UV/UF	UV - TOC	UV/UF - TOC
All systems include a wall bracket, ultrapure polisher cartridge, sterile 0.2 µm filter, pressure regulator, UV lamp and/or ultrafilter where applicable	with xCAD Plus bench version	50136149	50136152	50136150	50136151	50136153	50136146
	with xCAD Plus wall version	50136165	50136170	50136167	50136169	50136171	50136172

Genpure Pro System Options	Standard	UV	UF	UV/UF	UV - TOC	UV/UF - TOC
All systems include a wall bracket, ultrapure polisher cartridge, sterile 0.2 µm filter, pressure regulator, and UV lamp and/or ultrafilter where applicable	50131956	50131952	50131954	50131950	50131948	50131922

Genpure System Options	Standard	UV	UF	UV/UF	UV - TOC	UV/UF - TOC
All systems include a wall bracket, ultrapure polisher cartridge, sterile 0.2 µm filter, pressure regulator, UV lamp and/or ultrafilter where applicable	50131211	50131243	50131235	50131217	50131229	50131256

## Select accessories to customize your system:

Optional Accessories		Standard	UV	UF	UV/UF	UV - TOC	UV/UF - TOC
<b>Disinfection cartridge</b> Required for periodic preventative maintenance.		09.2201	09.2201	09.2201	09.2201	09.2201	09.2201
<b>Storage reservoir, 30 L, to feed system</b> Polyethylene tank, opaque to light. 23.5 x 14.9 in (598 x 380 mm), H x W. Wall mount accessory is 06.5015		06.5038	06.5038	06.5038	06.5038	06.5038	06.5038
<b>Storage reservoir, 60 L, to feed system</b> Polyethylene tank, opaque to light. 35.9 x 14.9 in (912 x 380 mm), H x W. Wall mount accessory is 06.5016		06.5068	06.5068	06.5068	06.5068	06.5068	06.5068
<b>xCAD Plus Remote Dispenser</b> (Available for Genpure xCAD Plus only) Additional remote dispenser for increased flexibility. Up to 2 additional dispensers can be added to a single system.	bench version	50136494	50136494	50136494	50136494	50136494	50136494
	wall version	50136505	50136505	50136505	50136505	50136505	50136505
<b>Printer</b> Utilizes RS-232 interface for safe documentation of all measured values and faults with date and time in compliance with GLP-guidelines	120V, 50/60Hz	AY1137X1	AY1137X1	AY1137X1	AY1137X1	AY1137X1	AY1137X1
	230V, 50Hz	09.2207	09.2207	09.2207	09.2207	09.2207	09.2207

## Replacements consumables for maintaining your water system:

Replacement Consumables		Standard	UV	UF	UV/UF	UV - TOC	UV/UF - TOC
<b>Ultrapure polisher cartridge</b>		09.2005	09.2005	09.2005	09.2005	09.2005	09.2005
<b>Sterile filter, 0.2 µm</b>		09.1003	09.1003	09.1003	09.1003	09.1003	09.1003
<b>Ultrafilter</b>		n/a	n/a	50133980	50133980	n/a	50133980
<b>UV lamp</b>		n/a	09.2002	n/a	09.2002	09.2002	09.2002
<b>Disinfection solution</b>	Europe/Asia Pacific	09.2202	09.2202	09.2202	09.2202	09.2202	09.2202
	North America/Latin America	CMX25	CMX25	CMX25	CMX25	CMX25	CMX25

[thermoscientific.com/purewater](http://thermoscientific.com/purewater)

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