



Life Sciences



## Cascada™ Lab Water Purification System



### *Faster, consistent water purification with real-time quality monitoring*

- ▶ **Continuous quality monitoring** – multi-stage monitoring analyzes water throughout system to ensure water purity.
- ▶ **Quality results immediately** – get resistivity, temperature, and Total Organic Carbon (TOC) monitoring results in real time – no waste of water.
- ▶ **Smart dispense** – 33% faster flow rate than the leading competitive unit's published specs, Cascada units dispense up to 2 liters per minute. BIO/AN units have a timed dispense programmable for repeat volume dispenses.
- ▶ **Lower cost of ownership** – unlike systems with quad purification packs, the Cascada system uses two double cartridge packs to ensure complete cartridge usage before replacement.
- ▶ **Adjustable flow rate** – dispense drop-by-drop or full stream.
- ▶ **No need for calibration modules** – unit calibrates electronic circuitry upon set up.
- ▶ **Cartridge identity technology prevents errors** – provides enhanced quality assurance data. Electronically tagged cartridges prevent incorrect cartridge fitting and potential leaks. Data is displayed on the control monitor showing cartridge number and recommended change out date.
- ▶ **Comprehensive sanitization** – unlike many competitive systems, Cascada's entire fluid pathway is included in the automated disinfection process ensuring complete sanitization. Data tagged sanitization blocks prevent other operations during sanitization process.
- ▶ **Fits anywhere** – compact design for benchtop, under bench, or wall mounting.

*Filtration. Separation. Solution.<sup>SM</sup>*



# Cascada BIO-Water System

The Cascada BIO-water System provides extremely high quality water for life sciences applications by featuring ultrafiltration for the effective removal of contaminants such as endotoxins and nucleases.

Endotoxin removal makes the purified water suitable for critical applications in cell culture and monoclonal antibody production. Nuclease elimination removes the requirement for toxic DEPC treatment in applications such as PCR and DNA sequencing. The full spectrum UV photo-oxidation technology provides oxidation of organic contaminants at 185 nm and radiation at 254 nm, which breaks down DNA, thereby killing bacteria.

## Applications

18.2 Megohm.cm (MΩ-cm) ultrapure water for critical laboratory applications:

- ▶ Molecular biology
- ▶ Microbiology
- ▶ PCR
- ▶ Electrophoresis
- ▶ DNA sequencing
- ▶ Monoclonal antibody production
- ▶ Cell culture
- ▶ Media preparation

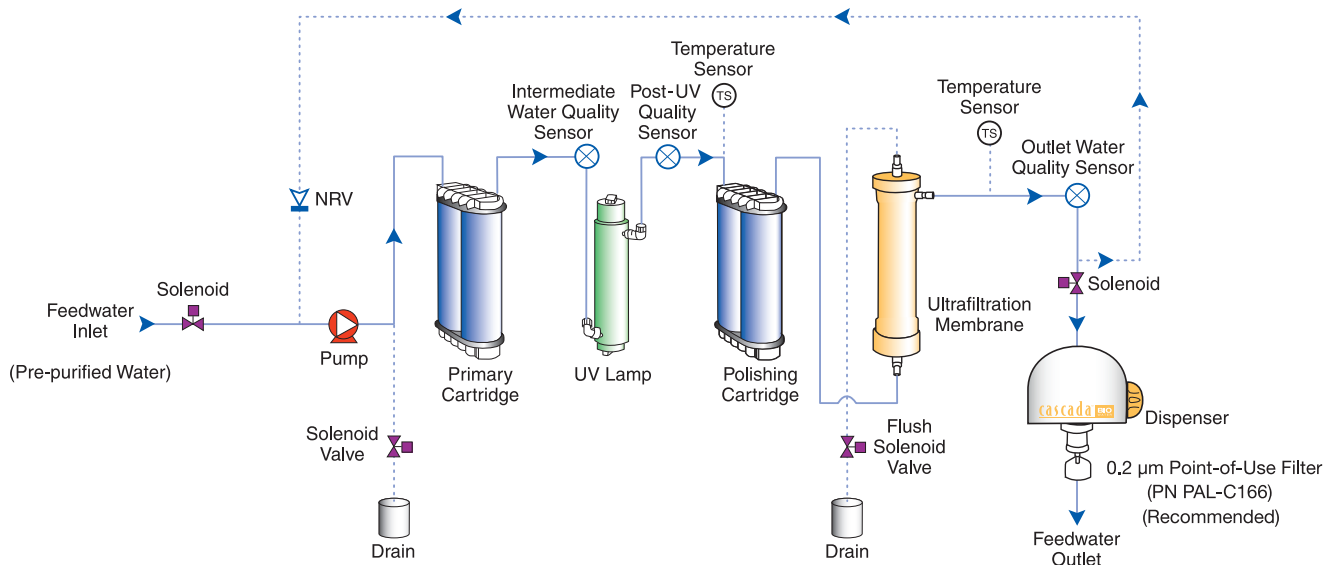
## BIO-Water Purification System Flow

Pre-treated water enters the system and is pumped through the primary purification pack. The first purification pack removes most of the impurities from the water and the intermediate water quality sensor then measures the resistivity of the water from the first pack to determine when it needs to be replaced.

Purified water flows directly through the UV chamber where it is exposed to intense UV radiation at wavelengths of 254 and 185 nm to provide continuous bacterial control and photo-oxidation of residual organic impurities. The second temperature compensated quality sensor provides data for TOC monitoring.

Any remaining ionic and organic impurities are removed by the second polishing purification pack. The ultrafilter removes pyrogens, bacteria, and other microbial impurities as well as particles. Final water resistivity and temperature are measured before dispense.

Water within the unit is recirculated through the purification system to maintain purity. An intermittent recirculation can be used overnight in 'sleep mode'. An optional 0.2 µm point-of-use (POU) filter is recommended to protect the outlet from bacterial contamination.



# Cascada AN-Water System



The Cascada AN-water System provides ultrapure water for optimal chromatographic results and longer column life by incorporating full spectrum UV photo-oxidation technology for oxidation of organic contaminants at 185 nm and radiation at 254 nm, which breaks down DNA, thereby killing bacteria.

The ultra-microfiltration filter removes colloids and bacteria. The purified water has extremely low levels for inorganic and organic contaminants for the most demanding high performance liquid chromatography (HPLC), gas chromatography-mass spectrometry (GC-MS), ion chromatography, solid phase extraction, and other UV spectrometry applications.

## Applications

18.2 Megohm.cm ( $M\Omega$ -cm) ultrapure water for critical laboratory applications:

- ▶ Ultra-trace and trace inorganic and organic analysis
- ▶ HPLC
- ▶ GC-MS
- ▶ ICP-MS
- ▶ CF-AAS
- ▶ TOC analysis
- ▶ Ion chromatography
- ▶ Solid phase extraction
- ▶ Electrochemistry

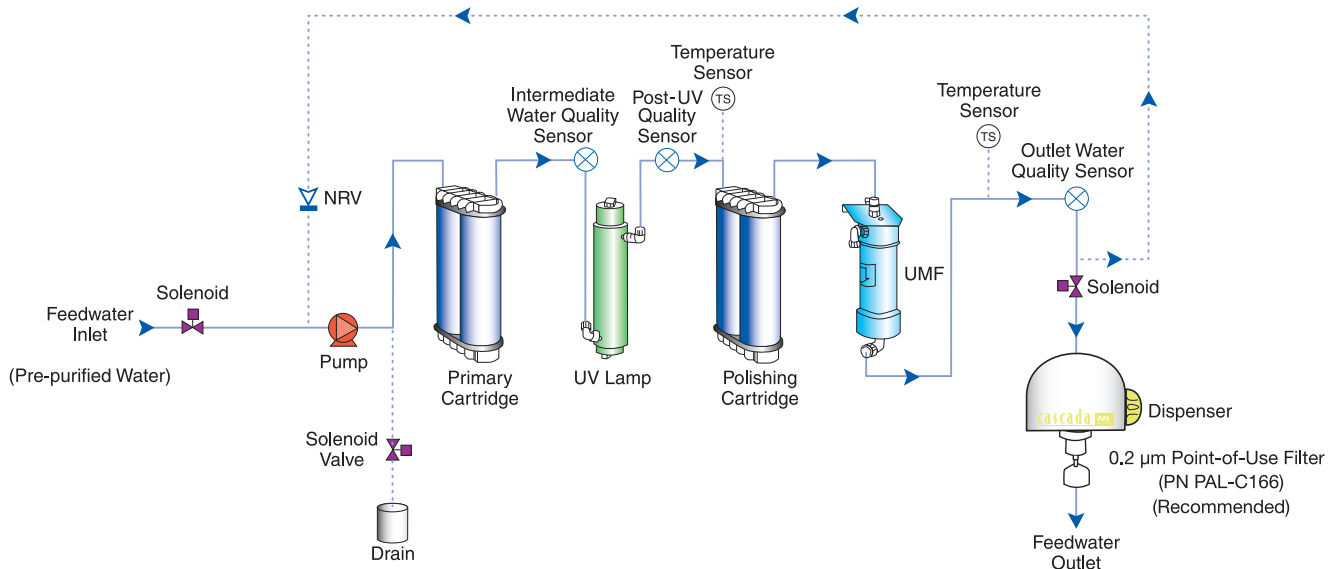
## AN-Water Purification System Flow

Pre-treated water enters the system and is pumped through the primary purification pack. The first purification pack removes most of the impurities from the water and the intermediate water quality sensor then measures the resistivity of the water from the first pack to determine when it needs to be replaced.

Purified water flows directly through the UV chamber where it is exposed to intense UV radiation at wavelengths of 254 and 185 nm to provide continuous bacterial control and photo-oxidation of residual organic impurities. The second temperature compensated quality sensor provides data for TOC monitoring.

Any remaining ionic and organic impurities are removed by the second polishing purification pack. The 0.05  $\mu$ m ultra-microfilter removes bacterial impurities as well as particles. Final water resistivity and temperature are measured before dispense.

Water within the unit is recirculated through the purification system to maintain purity. An intermittent recirculation can be used overnight in 'sleep mode'. An optional 0.2  $\mu$ m point-of-use filter is recommended to protect the outlet from bacterial contamination.



## Specifications

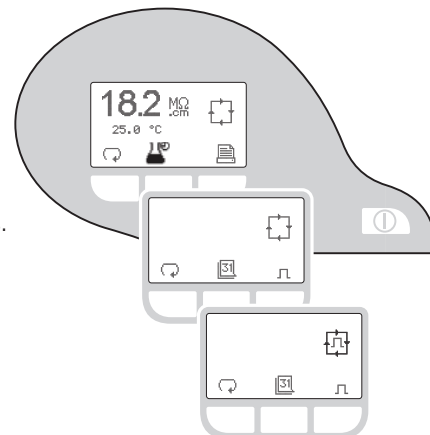
Water Purity	BIO-water	AN-water
Resistivity at 25 °C	18.2 MΩ-cm	18.2 MΩ-cm
TOC (RO pre-treatment)	< 3 ppb*	< 2 ppb*
Bacteria	< 1 CFU/mL	< 1 CFU/mL
Bacterial endotoxin	< 0.001 EU/mL	–
RNase/DNase	Free	–
Particles	Ultrafilter	0.05 µm ultra-microfilter
Flow Rates	Up to 2 L/min.	Up to 2 L/min.
Purification Technologies	BIO-water	AN-water
Dual purification cartridges	Yes	Yes
Photo-oxidation	185/254 nm UV	185/254 nm UV
Ultrafilter	Yes	No
0.05 µm ultra-microfilter	No	Yes
0.2 µm optional POU filter	Yes	Yes
Recirculation	Yes	Yes
System Monitoring	BIO-water	AN-water
Interstage water purity	Yes	Yes
Product water purity	Yes	Yes
Real time TOC	Yes	Yes
Dimensions	Weight	Electrical Requirements
46 W x 52 H x 37.5 D cm (18.2 W x 20.5 H x 14.8 D in.)	15.0 Kg (33.0 lbs)	Electrical input 100-240V AC, 50-60Hz, system voltage 24V DC

\*Dependent on feed water. Recommended feed < 50 ppb TOC.

Inside each system, the dual purification cartridge packs incorporate high quality organic absorbents, ion exchange resins, and membrane processes to purify the water to 18.2 MΩ-cm in order to meet ASTM Type 1, ISO 3696, and USP27 specifications. Both models feature a pure water recirculation system to maintain consistent peak quality.

Models feature operational LCD displays for power on, process on, intermittent operation, recirculation, smart dispense adjustable flow rate, dispense flow rate, sanitization, and feed water flush. Units feature adjustable audiovisual alarms.

RS232 port allows for data collection and permanent record of water quality and system parameters – essential for compliance with Good Laboratory Practice (GLP) guidelines.



## Ordering Information

Part Number	Description	Quantity
PAL-CAXXB10M2	Cascada BIO-water System	1/pkg
PAL-CAXXXANM2	Cascada AN-water System	1/pkg
PAL-C180	RO Feed Cartridge Pack	1/pkg
PAL-C181	SDI Feed Cartridge Pack	1/pkg
PAL-C166*	Point-of-use Filter	1/pkg
PAL-A655*	Wall Mounting Kit for Cascada Unit	1/pkg

\*Optional



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