



# Ultra Clear™ RO/EDI and LaboStar™ Water Purification Systems

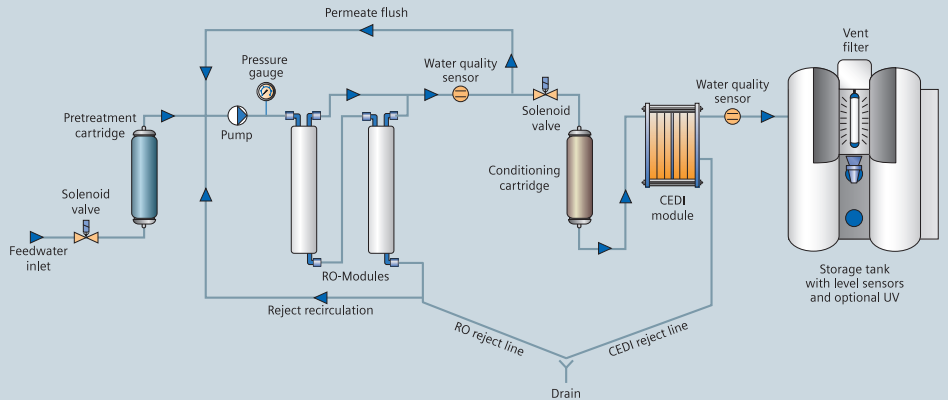
Water Technologies

**SIEMENS**





## Ultra Clear™ RO/EDI System



## Consistent pure water with pure savings

The Ultra Clear™ RO/EDI water purification systems from Siemens Water Technologies combines the proven technologies of pre-purification, reverse osmosis (RO), softening and continuous electrodeionization (CEDI) to produce high quality ASTM type II water.

Pure water is an essential part of any laboratory and provides the life blood to specific applications. But for many users, pure water can also bring a high cost, either from buying expensive bottled water or from using older purification systems which require constant maintenance and upkeep. The Ultra Clear™ RO/EDI system is the perfect solution for producing high quality pure water, direct from tap and provides a cost savings over using older inefficient systems or buying bottled water.

The Ultra Clear™ RO/EDI systems have combined technologies together in a space saving compact unit with easy-to-navigate control panel to give you total purity, total control and total peace of mind.

Ultra Clear™ RO/EDI systems are available in multiple system configurations to meet any daily pure water need up to 1300 liters per day, with production rates of 10, 20 and 55 liters per hour of pure water and storage tanks of 30, 60 and 80 liters.

Low initial upfront costs, simple maintenance, and overall lower running costs, makes the Ultra Clear™ RO/EDI systems your best choice for high purity water. The combined technology ensures that no external service deionization exchange, softeners or additional pretreatment is required. The range of Ultra Clear™ RO/EDI systems require minimal attention. They feature easy to change pretreatment and softening cartridges, long life RO membranes with high recovery, and a self regenerating CEDI module that requires no chemicals for operation.

High recovery rates of up to 50%, low energy consumption, and less rinse water than competitive systems make Ultra Clear™ RO/ CEDI systems the economical and environmental choice for your pure water.

### Advantages of Ultra Clear™ RO/EDI Systems

- Type II quality water on demand
- Efficient RO and CEDI technologies
- Minimal consumable change-outs
- Optional submersible UV for enhanced bacteria protection
- Compact system
- Microprocessor controlled with easy to read display
- Easy, front door access with quick connect cartridges
- Fully validatable

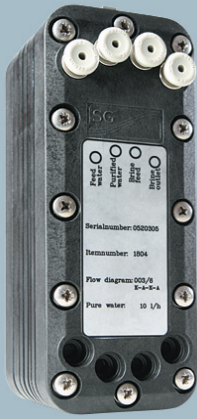
### Markets Best Served by Ultra Clear™ RO/EDI Systems

Pure water from Ultra Clear™ RO/EDI systems are used in a wide market range, and play a major role in many laboratory tests and applications. The following are just a few of the markets that require consistent pure water for their applications.

- Food and Beverage
- Analytical Research Laboratories
- Drug Screening Laboratories
- Life Science Laboratories
- Clinical Testing Laboratories
- Cosmetic Industry
- Biotechnology Industry

### Applications Best Served by Ultra Clear™ RO/EDI Systems

- Supplying water to health and science equipment
  - Clinical Analyzers
  - Glassware Washers
  - Autoclaves
  - Humidifiers
- Biochemical reagents
- Pretreatments to an ultra pure (type I) water purification system.



## Ultra Clear™ RO/EDI systems and tank specifications

Feed Water Specifications		
Feed water pressure	bar psi	2–6 29–87
Feed conductivity	µS/cm	<1400
Hardness	ppm	<350
Colloid index	SDI	<3
Free Chlorine and Fe	mg/L	<0.1
CO <sub>2</sub> max.	mg/L	<20

Production Water Performance				
Ultra Clear™ RO/EDI		10 lph	20 lph	55 lph
Production rate at 15° C	LPH	10	20	55
Conductivity at 25° C	µS/cm	0.06–0.2	0.06–0.2	0.06–0.2
Resistivity at 25° C	MΩ-cm	5–17	5–17	5–17
TOC	ppb	5–20	5–20	5–20

System Specifications				
Ultra Clear™ RO/EDI		10 lph	20 lph	55 lph
Shipping weight	kg lbs	40 88	41 90	46 101
Power supply	V/Hz	110–230/50–60		
Dimensions H x W x D	mm in	530 x 340 x 320 21 x 13 x 13	538 x 340 x 420 21 x 13 x 17	

Tank Specifications				
Tank Volume		30 liters	60 liters	80 liters
Power supply	V/Hz	–	–	115/60Hz
Pump performance	L/min	–	–	8
with counter pressure	bar psi	–	–	2 29
Level sensor		4–20 mA	4–20 mA	4–20 mA
Dimensions H x W x D	mm in	555 x 300 x 300 22 x 12 x 12	555 x 300 x 300 22 x 12 x 12	810 x 340 x 515 32 x 13 x 20
Shipping weight	kg lbs	9 20	10 22	15 33

Systems			
Ultra Clear™ RO/EDI system models*	10 lph	20 lph	55 lph
System numbers	3402-SW	3403-SW	3406-SW

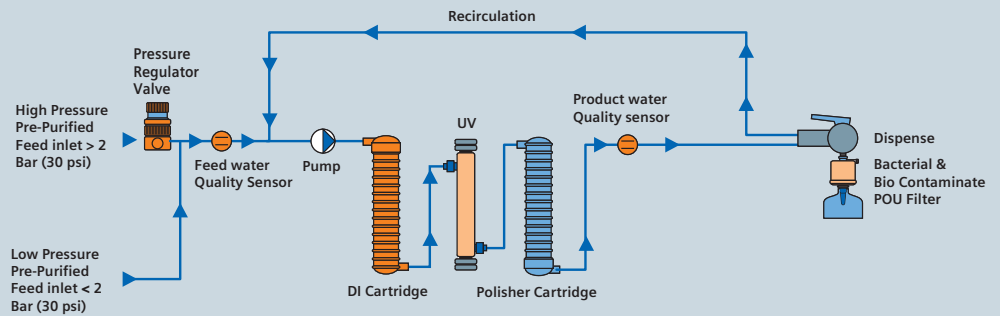
Tanks			
Volume	30 liters	60 liters	80 liters
Part number	3315-01-SW	3311-01-SW	3301-01-SW

Accessories and Consumables	Part Number
Submersible UV – for 30 liter tank	2595-SW
Submersible UV – for 60 liter tank	2596-SW
Submersible UV – for 80 liter tank	2597-SW
Pretreatment Module	2057-SW
Conditioning Module	2062-SW
UV-30 liter tanks**	2595-1-SW
UV-60 liter tanks**	2596-1-SW
UV-80 liter tanks**	2597-1-SW
Vent Filter (30/60 liter tanks)	3510-SW
Vent Filter 80 liter tank	3512-SW
RO-Module 10 lph	2083-SW
RO-Module 20 lph	31019-SW
RO-Module 55 lph (3 RO Modules required)	31019-SW

\* Tanks are required to be ordered separately  
 \*\* Replacement UV bulbs



### LaboStar™ Polisher - DI/UV



## Economical ultra pure water quality

Our Labostar Range of systems can be fed by the Ultra Clear RO EDI system or other pretreated sources to provide the final polish and provide high quality ASTM (American Society of Testing and Materials) type I, analytical grade water.

Our LaboStar TWF (Tap Water Feed) range of systems are designed to provide ASTM Type I water from a tap water feed source, for labs that do not have pretreatment nor have the need to invest in a pretreatment systems. This range of systems feature a unique pretreatment cartridge to provide Type III (RO quality) water that can be dispensed for low volume type III water requirements.

The compact and easy to use design provides up to 1.2 lpm of ultra pure water quality water needed for many of today's laboratory applications. The simple design provides you with a cost effective alternative to larger volume ultra pure water systems that have expensive features you may not require.

With their compact size, LaboStar™ systems are simple to use and can be easily installed virtually wherever ultra pure water is required direct from tap or easily integrated into your buildings pretreated water supply or combined with the Ultra Clear RO/EDI. LaboStar™ water purification systems can be conveniently placed on a work bench for use, or purchased as a wall mounted unit to conserve valuable bench space.

LaboStar™ systems are supplied with a basic installation kit and required consumables to get you up and running right from the box. It features a two cartridge design that ensures water quality is at its peak once it reaches the positively charged 0.2µm point-of-use (POU) filter at the dispense point.

### Advantages of LaboStar™ Systems

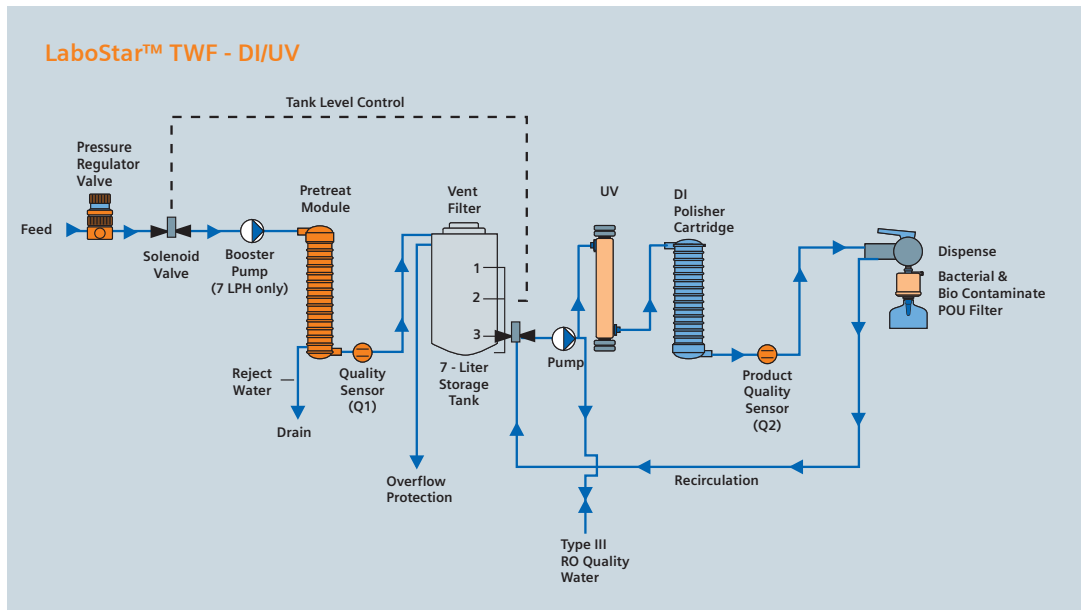
- Water recirculation to maintain water quality.
- Supplied with first set of consumables and basic install materials.
- Available as bench top or wall mount style system, to be installed wherever ultra pure water is needed.
- Available as a tap or pretreated feed system to meet all lab needs.
- Positively charged 0.2µm point-of-use (POU) filter for Bacterial and biological protection.

### Markets Best Served by LaboStar™ Systems

- Life Sciences Laboratories
- Analytical Research Laboratories
- Molecular Biology Laboratories
- Pharmaceutical Laboratories
- Food and Beverage Testing and QC Areas

### Typical Applications Served by LaboStar™ Systems:

- LC buffer preparation
- Sample dilution and solution preparation
- Cell and tissue culture
- HPLC
- ICP
- Pyrogen sensitive applications
- Plant tissue culture
- Electrochemistry



## LaboStar™ range specification and order information

### LaboStar™ TWF Range

Ultrapure Water Specifications	
Flow Flow	Up to 1.2 lpm
Type III Production Rate	3 and 7 lph
Conductivity	0.055µm/cm @ 25°C
Resistivity	18.2MΩ-cm @ 25°C
Total Organic Carbon (TOC)	<5 ppb - DI/UV Model <10 ppb DI Only Model
Bacteria*	<1 CFU/ml
Endotoxins*	<0.001 EU/ML
RNase*	<0.01 ng/ml
DNase*	< 4 pg/µl
Particles > 0.2µm*	< 1

\*With POU filter installed and system is used within operating parameters

Feed Water, Electrical and Systems Specifications	
Inlet pressure	43 - 73 psi (3-5 bar)
Conductivity	<1400 µm/cm
Temperature	41 to 90°F (5-35°C)
Power Supply	100-240V/50-60Hz
Consumption	< 0.4 Kw
Shipping weight -DI	52 lbs (24 kg)
Shipping weight -DI/UV	55 lbs (25 kg)
Dimensions (HxWxD)	21x12x16 In (535 x290 x 400 mm)

Systems	Bench Top	Wall Mount
LaboStar™ TWF - DI Only		
3 lph	2221-SW	2221-W-SW
7 lph	2231-SW	2231-W-SW
LaboStar™ TWF - DI/UV		
3 lph	2222-SW	2222-W-SW
7 lph	2232-SW	2232-W-SW

Consumables	
Pretreatment Module	2111-SW
Polishing Cartridge - Low Inorganics - DI Model	2172-SW
Polishing Cartridge - Low organics -DI/UV Model	2173-SW
Replacement UV Lamp	2068-SW
POU Bio Filter (3/pk)	2097-SW
Tank Vent Filter	3513-SW
Wall Bracket - To mount bench top unit to a wall	2190-SW
Disinfection Kit (3/pk)	2055-SW

### LaboStar™ Polishers

Ultrapure Water Specifications	
Output	Up to 1.2 lpm
Conductivity	0.055µS/cm @ 25°C
Resistivity	18.2 MΩ-cm @ 25°C
Total Organic Carbon (TOC)	< 5 ppb – UV Model <10 ppb – DI Only
Bacteria*	<1 CFU/ml
Endotoxins*	<0.001 EU/ML
Rnase*	<0.01 ng/ml
Dnase*	< 4 pg/µl
Particles > 0.2µm*	< 1

\* With POU filter installed and system is used within operating parameters

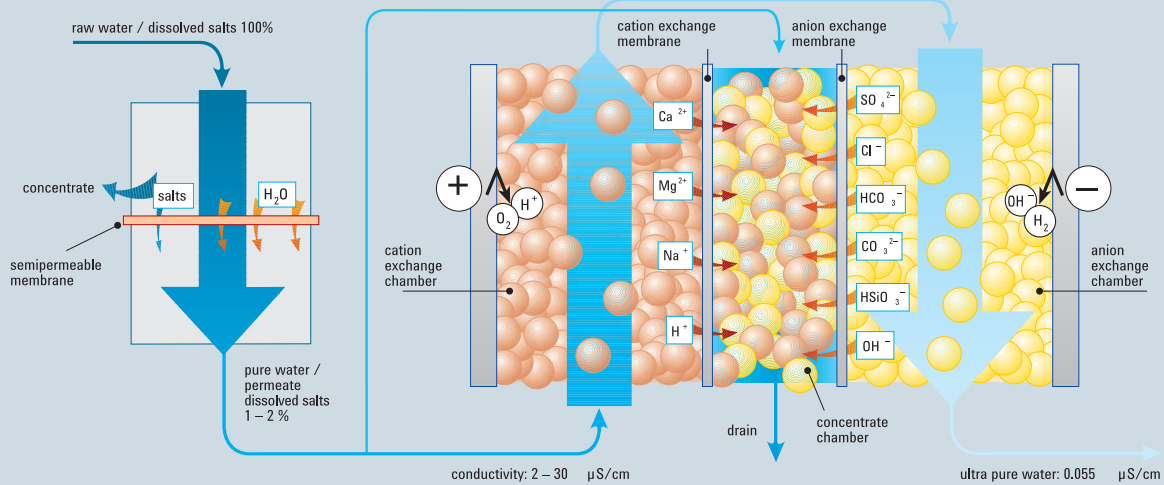
Feed Water, Electrical and Systems Specifications	
Pressure	0-87 psi (0-6 bar)
Conductivity	<20 µS/cm
TOC	< 50ppb
Temperature	41- 95°F ( 5-35 °C)
Silica	2 ppm
Power Supply	100-240V/50-60Hz
Dimensions HxWxD	21x11x13 in (535x290x320 mm)
Shipping weight -DI	47 lbs (21 kg)
Shipping weight -DI/UV	51 lbs (22 kg)

Systems	Bench Top	Wall Mount
LaboStar™ System - DI	2206-SW	2206-W-SW
LaboStar™ System - DI/UV	2207-SW	2207-W-SW

Consumables	
DI Cartridge	2160-SW
Polishing Cartridge Low Inorganics - DI model only	2172-SW
Polishing Cartridge Low organics -DI/UV model	2173-SW
Replacement UV Lamp	2068-SW
POU Bio Filter (3/pk)	2097-SW



## CEDI Technology



## Continuous regeneration means continuous water quality

### CEDI Technology

Our Ultra Clear™ RO/EDI systems feature a CEDI module that consists of ion exchange resins used in single beds for enhanced water purification. Microbiological analysis of product water shows a high decrease in proliferation of bacteria due to the high pH swing between the 2 cells and direct contact of resin and electrodes. Furthermore, an intermediate pH shift has a positive effect on the separation of SiO<sub>2</sub> (Silicon Dioxide) and CO<sub>2</sub> (Carbon Dioxide). We also see a remarkable reduction in the number of bacteria with high colony forming unit (CFU) counts from the feedwater, as electrodes in the water make it unsuitable for bacteria to live.

### CEDI's Clear Advantage Is Continuous Operation

CEDI Technology is designed to have the module continually regenerate itself, without any acids or alkalis. This technology is a cost effective way to ensure pure water when you need it and also benefits the environment because of less required consumables. With the combined RO membranes and the CEDI module's long life, our Ultra Clear™ RO/EDI system has minimal down time which means less process interruptions for you.

### CEDI vs. Ion Exchange Resin Cartridges

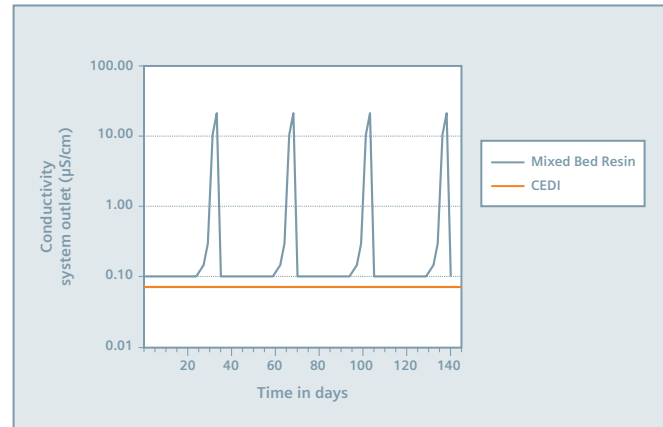
The advantage of CEDI is clear when compared with standard ion exchange (IX) resin based cartridges.

Standard RO/DI systems use a mix bed resin cartridge after the RO to produce type II water. During normal use the water quality coming from the cartridge can decrease as the resins begin to exhaust and reaches its full capacity.

With our unique CEDI technology, the water quality out of an Ultra Clear™ RO/EDI system remains at a consistent pure water quality. Maintaining this level of quality is achieved by

the continuous regeneration of the CEDI resin. This maintains a high quality water production for many years without changing the CEDI module.

### Ion Exchange (IX) Resin vs. Continuous Electro Deionization (CEDI)



When a mixed bed ion exchange cartridge is used, the conductivity of the product water increases during normal operation and exhaustion. Cartridges have to be changed if the maximum acceptable conductivity is reached.

With a CEDI module, the product water quality is constantly at the highest level. No regeneration, no quality variation. Just high quality water all the time.



## Siemens – the service specialists

### Pure Water Storage Tanks for Ultra Clear™ RO/EDI Systems

Pure water storage tanks have been specially designed for use with the Ultra Clear™ RO/EDI systems. Available in three sizes, 30, 60 and 80 liter storage capacity, to meet daily water requirements up to 1300 liters per day.

These tanks incorporate a point-of-use dispenser (30/60L tanks) to draw pure water directly from the tank or an 8 liter per minute distribution pump (80L tanks) to provide water to your sink, washer or autoclave units which require pure water.

All Ultra Clear™ RO/EDI systems require a storage tank to provide pure water during high demands. These tanks feature integrated level sensors which communicate with the Ultra Clear™ RO/EDI microprocessor to regulate water production.

### Key Features:

- Specially designed for Ultra Clear™ RO/EDI systems
- Easily add a UV for enhanced bacterial protection
- Polyethylene construction minimizes risk of organic extractables
- Independent pressure control (80L tanks) protects the pump from running dry
- Tank Level information displayed on Ultra Clear™ RO/EDI control panel
- Vent Filter supplied to protect bacterial contamination in the air from entering tank
- 100% Drainable
- Wall or Bench Mountable (30L and 60L)

### Single Source Provider

Siemens Water Technologies is your single source solution provider of water purification products and services to the laboratory and healthcare markets. We offer a full range of water purification systems and the services needed to keep your systems running optimally for today's most stringent applications.

### Design Experts

Siemens will work with you to meet your specific water application needs. As experts in the water industry, we can configure and design a complete system to meet your every demand. With Siemens, you can rest assured that your water quality meets or exceeds industry standards.

### Installation Professionals

With over 80 service branches in North America, we are poised to provide expert installation and start-up for your system. With highly trained technicians and all the necessary components and materials for optimal performance, we'll have you up and running quickly — so you can concentrate on your work at hand.

### Service Specialists

We offer comprehensive preventative maintenance programs that can fit your application need. With a program tailored to your specific requirements, our expert services can help you lower your running costs, reduce downtime and extend the product life of your water purification system. All Siemens Water Technologies laboratory water products are available with Installation Qualification (IQ) and Operational Qualification (OQ) documents, for total peace of mind.

### Dedicated Support

Siemens also offers customer service that is available 24/7 and a technical service department for any help needed with a Siemens system or service.

For more information contact:

Siemens  
Water Technologies

800.875.7873 x5000 Technical Support  
800.466.7873 24hr Customer Service

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