General Water Technologies

2261 S. 1560 W.
Woods Cross, UT 84087
United States of America

GWT 2010-10 OPERATOR'S MANUAL

Produced by General Water Technologies

Thank you to our loyal customers!

Contact: 888-586-5654 M-F 8:00 AM – 5:00 PM MST (message prompt after hours for emergency response 24/7)
Service: service@genwater.com
Sales: sales@genwater.com
Accounting: accounting@genwater.com
Customer Portal (how-to Videos and ordering consumables):
https://www.genwater.com/customer-portal

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Safety References

This water purification system complies with state-of-the-art standards in terms of technology and safety regulations. All parts have been produced and or manufactured by preferred vendors to GWT specifications, and then assembled by GWT personnel (henceforth “supplier”) according to our proprietary design.

The supplier has taken all precautions to ensure safe operation. Users must ensure that the installation is performed in a manner that the method/mode of operation will not be affected. A signature at installation verifies that this is the case. Return visits to amend this placement will be subject to additional fees.

The system is supplier factory-approved and fulfills our safety standards.

> Please read the following safety precaution before start-up and comply with them during operation.

The system must be operated by trained staff. Users should read this manual prior to utilizing this equipment.

The user is allowed to carry out only that maintenance work described in this manual or provided at training by the installation team. Only use designated spare parts for maintenance work.

The system must be connected to a fused, grounded power supply.

If leaks in the system become evident, the unit must be isolated immediately from the electrical supply and the fault rectified. If required, inform your suppliers customer service department.

Carry out maintenance and inspections as recommended by the supplier at the recommended intervals to insure user-safety and optimal system performance.

The supplier does not take any responsibility for injuries to users caused by improper application of this system, including negligence or abuse.

Site Requirements

Pre-Site Readiness Verification Form – GWT 2000 Series (Must be complete for delivery and installation of equipment)

Water (Domestic) Feed

- ½" feed line per system
    - 1/2" dedicated line per system
    - 1/2" FNPT ball valve connection
    - Minimum 30 PSI line pressure

Drainage

- Floor-drain or sink near system (6 ft or closer preferred)
- Drain capacity of 45 l/h per system
- Client indicates if water will need to be pumped

Power

- Dedicated 120 VAC/20 AMP

It is the responsibility of the purchaser/user to ensure that all above items are complete prior to installation. Failure to achieve appropriate site readiness can impact performance and result in additional service fees.

Water Purity Conversion Charts

Parts Per Million (PPM)	Grains Per Gallon (GPG)	Hardness Rating
0 - 75	0 – 4.3	Soft
76 - 150	4.4 – 8.7	Moderately Hard
151 - 300	8.8 – 17.5	Hard
Over 300	17.6+	Very Hard

Conductivity (Microsiemens/cm)	Resistivity (MegOhm/cm)
0.056	18
0.063	16
0.071	14
0.083	12
0.100	10
0.133	7.5
0.200	5
0.500	2
1.000	1
1.333	0.75
2.00	0.5
4.00	0.25
10.00	0.1
20.00	0.05
40.00	0.025
80.00	0.013
100.00	0.01
200.00	0.005
500.00	0.002
1000.00	0.001
2000.00	0.0005
5000.00	0.0002
10000.00	0.0001

Purification Process

The process flow with all its components is illustrated on the flow chart (refer to page 8 of this manual).

When the system is started in normal operation the inlet valve opens and the reverse osmosis pump starts. The inlet valve controls the water supply into the system. The inlet valve will close, and the pump will stop when the system is shutdown, unplugged, paused, permeate tank is full, or the inlet water pressure drops.

The sediment filter (if applicable) and carbon filter absorb organic chemicals like chlorides, insecticides, pesticides and herbicides from the water and remove particles larger than 5 microns.

The reverse osmosis pump increases the input pressure to the operating pressure for the reverse osmosis process.

The reverse osmosis modules remove ~ 98%~ of the waters salt content. Moreover, nearly all bacteria, viruses, heavy metal complexes, and organic material with molecular weight exceeding 300 Daltons are rejected. The purified water product is called Permeate; the wastewater including all rejected components is called concentrate.
The concentrate is then directed the drain.

The permeate quality is controlled with a Permeate sensor. The Permeate quality is displayed on the front display, top screen. The conductivity of the permeate is monitored after the RO stage for purposes of evaluating RO performance. This measurement should not be confused with the final water-quality measurement taken after downstream polishing and prior to delivery to the analyzer.

The system is connected to a storage tank with a level sensor. The production of permeate to fill the tank is regulated by the level sensor. When the permeate reaches the maximum level (100%) the production will stop. If the permeate falls below 66% the production of the permeate will be started again and the tank will be filled to the maximum level. If the permeate level falls below 10% the distribution pump will be stopped to prevent dry running.

Continuous Decontamination

The permeate is stored in the storage tank. The tank is equipped with a distribution / circulation pump. The pump is continually circulating the water from the storage tank through the UV disinfection (the cell walls of bacteria, virus, and protozoa are penetrated, permanently altering the DNA of the microorganisms. This effectively inactivates the microorganisms, making them unable to infect and reproduce). Water then passes through a Mixed Bed DI Resin before finally passing through 0.2-micron “final” filter. From there, water either feeds to the

analyzer on a demand-basis, or back into the tank, where it will undertake the process another time, thus ensuring continuity in the decontamination process.

The quality of the pure water being delivered is constantly monitored by a Product MOhm*cm Sensor viewable on the front Display.

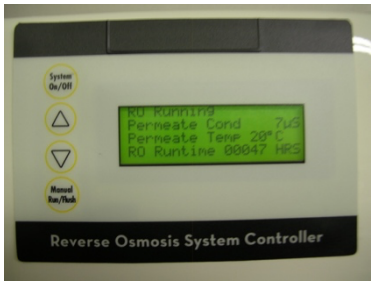
System Features

This water purification system is designed for the production of Pure Water out of drinking water from public supply. It unifies purification technologies with Reverse- Osmosis according to the latest developments. The system has to be connected to a tank with level control measurement.

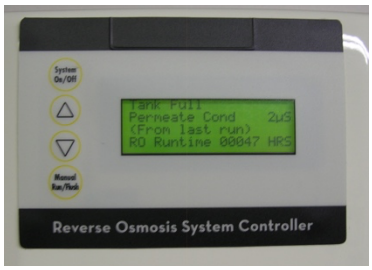
The production rate of pure water is >10 liter per hour with a reduced salt content of 98-99%. Bacteria and particles are rejected for more than 99%. Water quality and tank filling is displayed on the systems screen.

The system runs in the following modes:

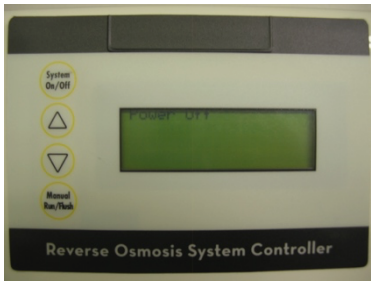
RO RUNNING Mode: Pure water production and tank filling.



TANK FULL/ TANK FULL DRAW DOWN Mode: Production is stopped and the machine is waiting for new water demand.



POWER OFF Mode: Machine has been turned off



All components of the RO Cabinet are assembled in an aluminum housing. The front door can easily be opened for the access of the modules. The rear panel can be accessed by removing four screws.

The pure water storage tank is 5 liters and is made of Polypropylene.

System Control Display

Specifications

Power: 120VAC -15+10%, 60Hz, 25 Watts

Environment: -22 F to 140 F, 0-95% RH, noncondensing

Enclosure: 5 1/2” X 4”

Display: 4 Line X 20-character, backlit LCD

Front Panel: Overlay with LCD window, alarm lamp, Keypad

Understanding the Permeate Reading

The system control display includes a permeate water quality reading, typically expressed in microsiemens (µS). This reading measures the conductivity of the water after it has passed through the reverse osmosis (RO) membranes and before it enters the storage tank.

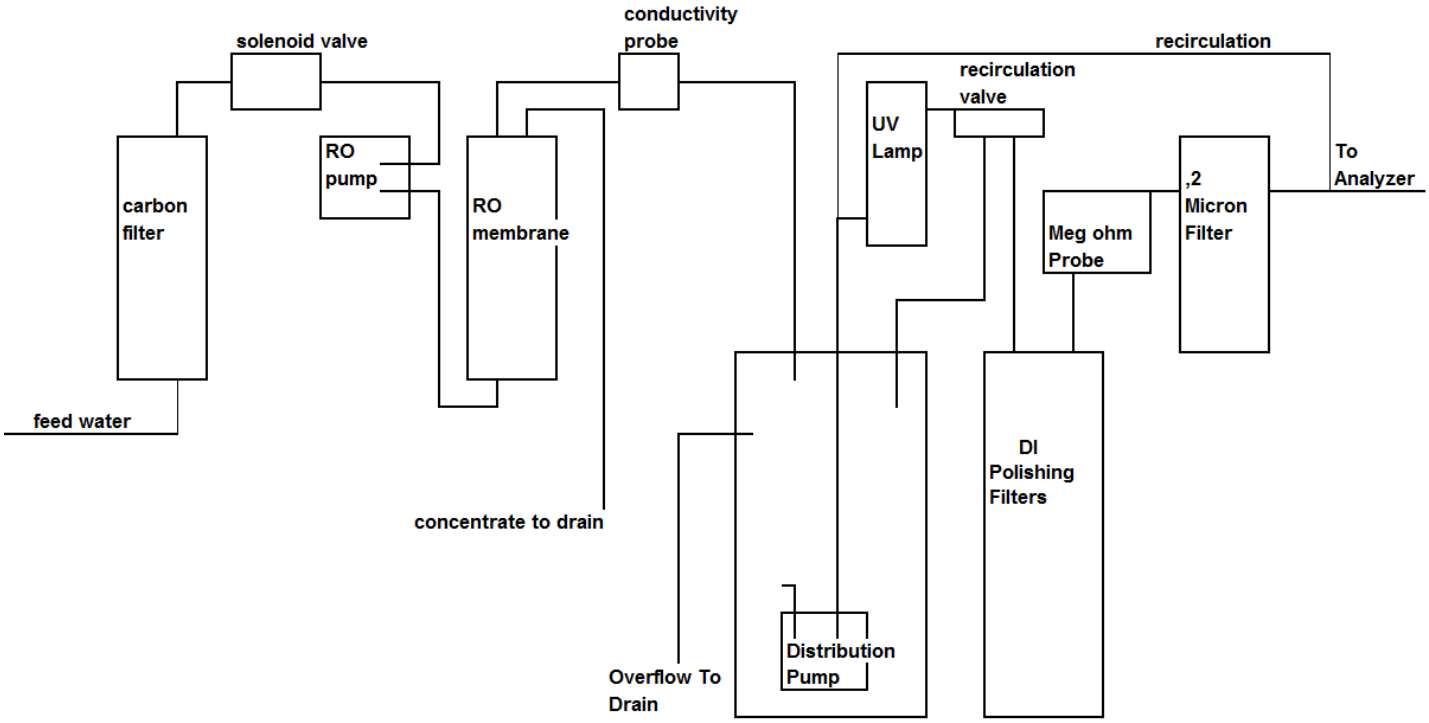
The permeate reading is not a measurement of the final water quality being delivered to the connected laboratory instrument. After RO treatment, the permeate is stored in the system tank and subsequently undergoes additional treatment, including UV exposure, mixed-bed deionization (DI) polishing, and final filtration before delivery to the instrument.

Final delivered water quality is monitored separately by the system's resistivity/megohm measurement. The permeate reading is provided primarily as a system performance and service diagnostic tool. General Water Technologies uses this measurement to evaluate RO membrane

performance, identify changes in incoming or RO-treated water quality, and help anticipate future maintenance or service requirements.

Because permeate conductivity can vary based upon incoming feed-water quality and other operating conditions, changes in the permeate reading do not, by themselves, indicate that the system is delivering water outside of the required final water-quality specification.

Flow Chart



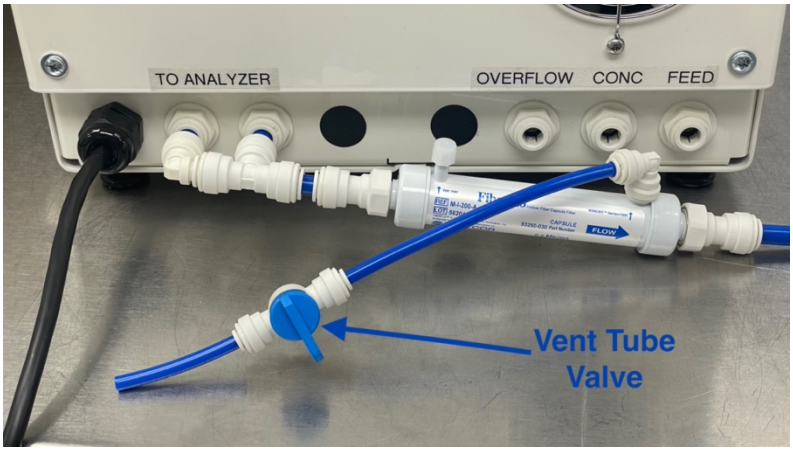
DI Cartridge Replacement Procedure

Materials needed:

- Two (2) new GWT DI cartridges (part no. GWT DI PAK)
- Filter wrench
- Disposable gloves

How to Replace DI Cartridges:

1. Turn off delivery pump.
2. Remove filter housing by turning counterclockwise. (Hint: hold filter wrench in your right hand and push toward left hand.)
3. Remove old cartridges from filter housings.
4. Remove gaskets from inside the blue caps. (DI Cartridge gaskets stick to caps)
5. Drop in new DI Cartridges.
6. Install Filter housing by turning housing clockwise until hand tight



7. Turn delivery pump on.
8. Depress the red pressure release buttons on top of the blue caps until water flows out and housings are full.
9. Open Vent Tube Valve attached to in-line .2-micron filter until you get a continuous flow of water.
10. Close Vent Tube Valve

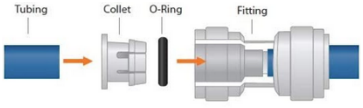
Recommended Filter & Membrane Replacement Schedule

FILTER	FREQUENCY (Approx)	
DI Cartridges	Change as your own SOP dictates. GWT recommends: • CLIA GP40 Standard: 10.0 – 18.2 MΩ • Type 2 water = 1.0 - 18.2 MΩ (replace when below 1.0 MΩ)	
Carbon Filter	When top screen indicates “Service Fault: Low Feed Pressure”	
RO Membrane recertification.	1-5 Years	GWT Replaces this during yearly
.2 Micron Germ Filter recertification.	1-3 Years	GWT Replaces this during yearly
Ultraviolet Light recertification.	9000 Hours	GWT Replaces this during yearly

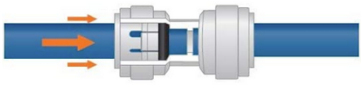
*Replacement frequency depends on feed water quality and pure water usage.

Making a connection with Push-Fit Fittings

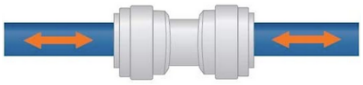
John Guest fittings are used throughout the system.

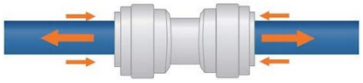


Step 1 – Cut Tubing
Cut the tube square ensuring it is free of score marks. Avoid damage to the internal. O-ring by removing burrs and sharp edges on the tubing. Inside the fitting are stainless steel grippers that grab the tubing.



Step 2 – Assemble the Connection
Push the pipe into the fitting to the tube stop. The collet has stainless steel grippers that hold the pipe firmly in position. The O-ring provides a permanent leak proof seal. Simply pull on the tube to check it is secure.





Step 3 – Disconnect
Depressurize the line before removing the tube. Push in the collet (ring closest to tube) squarely against the face of the fitting. The tube can be removed when the collet is pushed in. The fitting can be re-used.

Daily Checklist

Date	**Product MΩ Range 0.3- 18.2**	**Permeate, µS/cm Range 0.0-50.0**	**Runtime**	**Signature**

Document Control

Document Owner	Effective Date	Last Reviewed	Version
Head of Services and Installations	09/01/26	09/01/26	1.2