

Culligan[®]

OWNERS GUIDE

Aquasential[™] Tankless RO

Models from 2023





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Table of Contents

About This Manual.....4

Attention Culligan Customer:.....5

Thank You!.....6

Specifications7

Application & Operation.....8

Navigation.....9

Things to Check Before You Call For Service11

Care & Cleaning12

Performance Data Sheets13

Records & Data14

Culligan Limited Warranty15



About This Manual

This manual:

- Familiarizes the operator with the equipment
- Explains installation and setup procedures
- Provides basic programming information
- Explains the various modes of operation
- Gives specifications and troubleshooting information

Read this Manual First

Before you operate the Culligan unit, read this manual to become familiar with the device and its capabilities.

Installation or maintenance done on this system by an untrained service person can cause major damage to equipment or property damage. Not adhering to the recommended service/maintenance can cause damage to equipment or property damage.

Safety Instructions and Safety Definitions

Note

NOTE! "Note!" is used to emphasize installation, operation or maintenance information which is important, but does not present any hazard.

Caution



CAUTION!

"Caution" is used when failure to follow directions could result in damage to equipment or property.

Warning



WARNING!

"Warning" is used to indicate a hazard which could cause injury or death if ignored.

The **CAUTION** and **WARNING** paragraphs are not meant to cover all possible conditions and situations that may occur. It must be understood that common sense, caution, and careful attention are conditions which cannot be built into the equipment. These **MUST** be supplied by the personnel installing, operating, or maintaining the system.

NOTE! Be sure to check and follow the applicable plumbing codes and ordinances when installing this equipment.

WARNING! Use protective clothing and proper face or eye protection equipment when handling chemicals or power tools.

Attention Culligan Customer:

We encourage Culligan users to learn about Culligan products, but we believe that product knowledge is best obtained by consulting with your Culligan dealer. Untrained individuals who use this manual assume the risk of any resulting property damage or personal injury.



WARNING!

Electrical shock hazard! Prior to servicing equipment, disconnect power supply to prevent electrical shock.

WARNING!

If incorrectly installed, operated, or maintained, this product can cause severe injury. Those who install, operate, or maintain this product should be trained in its proper use, warned of its dangers, and should read the entire manual before attempting to install, operate, or maintain this product. Failure to comply with any warning or caution that results in any damage will void the warranty.



CAUTION!

This system is to be supplied with cold water only.

CAUTION!

This product is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, unless they have been given supervision or instruction. Children should be instructed not to play with this appliance.

CAUTION!

If the power cord from the power supply to the unit looks or becomes damaged, the cord and power supply should be replaced by a Culligan Service Agent or similarly qualified person in order to avoid a hazard.

CAUTION!

To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

NOTE! This system is not intended for use with water that is microbiologically unsafe or of unknown quality without adequate disinfection either before or after the system.

Check with your public works department for applicable local plumbing and sanitation codes. Follow local codes if they differ from the standards used in this manual. To ensure proper and efficient operation of this Culligan product to your full satisfaction, carefully follow the instructions in this manual.

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Culligan International Company

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Thank You!

Welcome To Your New World of Better Living with Culligan Water.

Congratulations on selecting the Aquasential® Tankless RO Advanced Drinking Water System. With Culligan's many years of knowledge and experience in water treatment, you can be confident that the model you selected has been designed and engineered to provide years of service with a minimum of care and attention.

If this is your first experience having filtered, conditioned water in your home, you'll love the amazing difference it makes. We promise that you'll never want to be without it again.

The Culligan® Aquasential® Tankless RO Advanced Drinking Water System is designed to meet the needs of applications for high quality water. This manual contains important information about the units, including information needed for operating and maintenance procedures.

This manual is based on information available at the time it was finalized, approved, and published. Continuing design refinement could cause changes that may not be included in this publication.

Your local independently operated Culligan dealer employs trained service and maintenance personnel who are experienced in the installation, function and repair of Culligan equipment. This publication is written specifically for these individuals and is intended for their use.

The Aquasential® Tankless RO Advanced Drinking Water Systems utilize a high capacity reverse osmosis membrane which uses a tightly woven membrane that acts as a barrier to substances. Water is pushed up against this membrane at pressure. Depending on the weave of the membrane only a certain percentage of substances can pass through. These systems' high capacity membrane can reduce more than 80% of substances.

The Aquasential™ Tankless RO and Aquasential Tankless RO with Mineral Boost + have been tested and certified by WQA against NSF/ANSI 372, CSA B483.1 and NSF/NSF 58 for the reduction of TDS as verified and substantiated by test data.

For installations in Massachusetts, the Massachusetts Plumbing Code 248 CMR shall be adhered to. Consult your licensed plumber for installation of this system. This system and its installation must comply with state and local regulations. The use of saddle valves is not permitted.



Specifications

Influent Water Characteristics

Pressure	40-120 psi
Temperature	33° - 100° F
Total Dissolved Solids (TDS) ¹	0-1000 ppm (0-1000 mg/L)
pH	5 - 10
Chlorine	0-3 ppm (0-3 mg/L)
Chloramine	0-3 ppm (0-3 mg/L)
Turbidity	0-10 NTU
Hardness ²	0-10 gpg
Iron	0-1 ppm (0-1 mg/L)
Bacterial Quality	Potable

¹ Rating at 50 psi, 77°F, 500 mg/L TDS influent, without storage tank.

² A softener is strongly recommended for water over 10 gpg hard. Installing a system without a softener on water with hardness higher than 10 gpg will reduce the life of the membrane.

Filter Performance

Filter Cartridge	Capacity
CF composite filter cartridge	1 year or 4,755 gallons
RO reverse osmosis filter cartridge	600 gpd
CB carbon block filter cartridge	1 year or 4,755 gallons
MB+ mineral boost+ filter cartridge	1 year or 4,755 gallons

Product Specifications

Tankless RO	
Length x Width x Height	18.7 in x 5.7 in x 17.2 in
Power Specifications	Input: 120 VAC / Output: 24 VDC
Rated System Operating Pressure	15 - 120 psi
Inlet Water Temperature	41° - 100° F
Min. Product Flow Rate*	0.42 gpm
Rated Daily Production Rate	715 gpd
Recovery Rating	58.4%

*Depending on local water quality and use environment, the actual filtered water flow rate and total filtered water volume will vary.

Recovery rating means the percentage of the influent water to the membrane portion of the system that is available to the user as RO treated water when the system is operated without a storage tank or when the storage tank is bypassed. The system's recovery rating has been verified with test data.

Daily production rate: 715 gpd.

Application & Operation

The performance of the Aquasential® Tankless RO Advanced Drinking Water System can be characterized and judged by the quality and quantity of the water produced by the systems. By measuring the contaminant removal performance and flow rates of the system, its operating status can be easily evaluated.

Factors Which Affect Performance

Performance of the reverse osmosis membrane is affected by several factors which must be considered when judging the condition of the system. The main factors which affect system performance are pressure, temperature, total dissolved solids level, recovery and pH.

Pressure

Water pressure affects both the quantity and quality of the water produced by the RO membrane. Be careful not to exceed 120 psi, the maximum operating pressure of the system.

Total Dissolved Solids

The minimum driving force which is necessary to stop or reverse the natural osmosis process is termed osmotic pressure. As the total dissolved solids level of the feed water increases, the amount of osmotic pressure increases and acts as back pressure against the reverse osmosis process. Osmotic pressure becomes significant at TDS levels above 500 mg/L (ppm).

Hardness

Hardness is the most common membrane foulant. If ignored, this relatively harmless component of feed water will plug a membrane over time. Use of a softener will reduce the fouling effect on a membrane. One way to detect too much hardness in the feed water is the weight of a membrane installed for a period of time. A fouled membrane (dried) will weigh significantly more than a new membrane. The increase in weight is a result of precipitated hardness inside the membrane.

Iron

Iron is another common membrane foulant. There are a variety of types of iron, some of which cannot be removed by an iron filter. Clear water iron can be removed more effectively by a softener. Particulate iron can be removed more effectively by a 1 micron filter. Organic-bound iron can be removed only by activated carbon or macro-porous anion resin. If there is enough iron to exceed the EPA secondary drinking water standard and softening the water is not an option and the iron is soluble, then an iron filter is appropriate. If none of these are an option then regular replacement of membranes will have to be accepted.

Product Water Recovery

Product water recovery plays an important role in determining membrane and system performance. Recovery refers to the amount of water produced in relation to the amount of water sent to drain.

The standard calculation is:

$$\% \text{ Recovery} = \text{Product Water} \div (\text{Product Water} + \text{Waste Water}) \times 100$$

Lights and Indicators

Front Cover Indicator

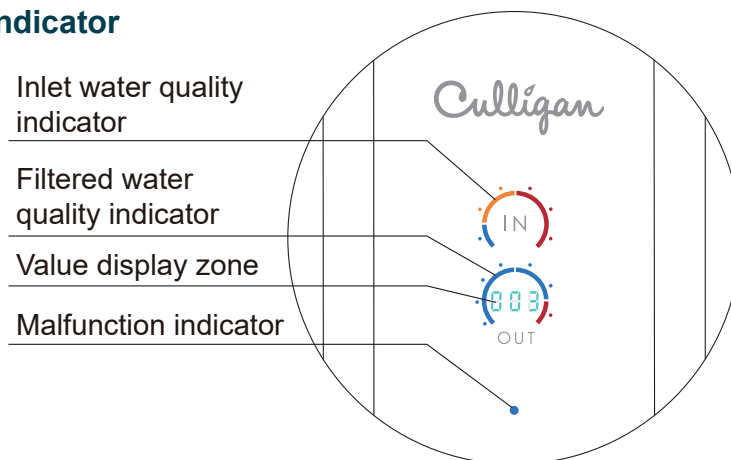


Figure 1. Front Cover Indicator Lights

Table 1. Color Descriptions

The inlet water quality indicators and corresponding filtered water quality points displays the quality of the water by the color of the lights on the front cover.

Color	Water Quality
Blue	Excellent
Orange	Normal
Red	Poor

Table 2. Digital display area description.

003	Real-time TDS monitoring of filtered product water
888	Device malfunction codes.
888	The device is in Flush mode

Table 3. Malfunction indicator description.

Indicator Status	Meaning
Solid Blue	Normal Operation
Blinking Blue	Insufficient Water
Solid Orange	Frequent start and stop protection
Blinking Orange	Continuous work timeout protection
Blinking Red	Water leak

Faucet Display

Figure 2. Filtered Water Indicator

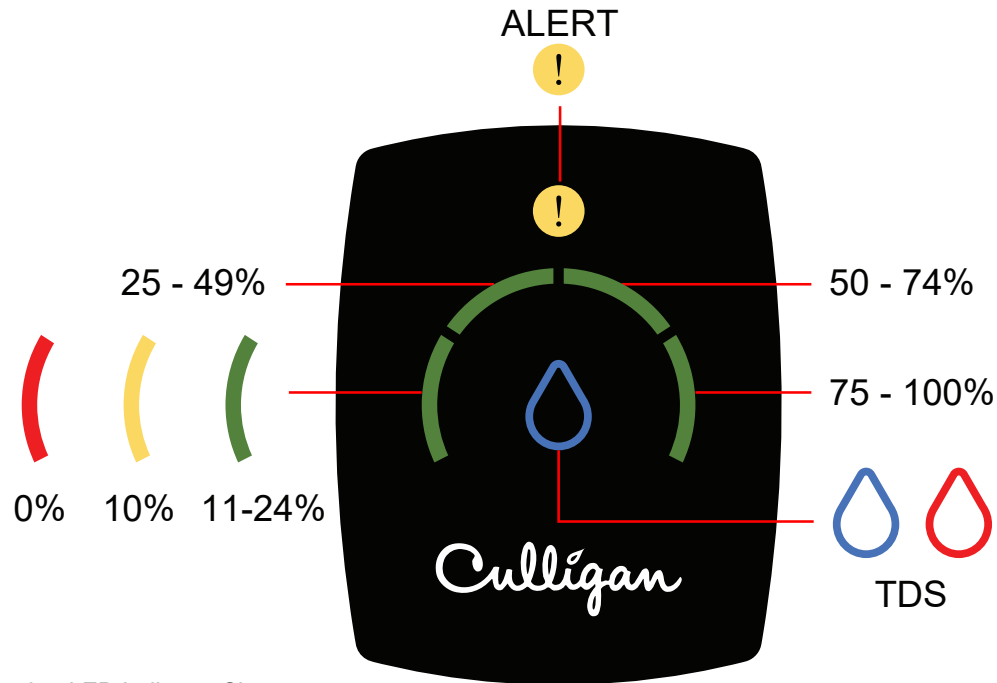


Figure 3. LED Indicator Chart

LED Indicators	Description
	Filter life remaining between 75%-100% in gallons or days
	Filter life remaining between 50%-74% in gallons or days
	Filter life remaining between 25%-49% in gallons or days
	Filter life remaining between 11%-24% in gallons or days
	Filter life remaining between 0%-10% in gallons or days
	0% filter life remaining; Replace filter now
	TDS rejection >75%
	TDS rejection <75%; Check RO membrane

Things to Check Before You Call For Service

- If using the wall power supply, confirm the correct power supply is being used.
- Check all extension cable connections if applicable.
- Check connection at the back of the system.
- Make sure you have cold water going to the unit

No Product Water

Check the water supply to the RO to make sure that it is turned on. Make sure the AC adapter is plugged in and not damaged.

Not Making Enough Water

If the flow rate out of your system has significantly decreased, it may be time to replace your filters and membrane.

Constant Running to Drain

The system should run a small amount of water to the drain while producing your filtered water and during periodic flushing. If the system is constantly running to drain, call your Culligan dealer to check the system and correct the continual running.

Water Leak

Any time you find water around the unit or hear the leak alarm, immediately shut-off the water supply and contact your local dealer.

Water Doesn't Taste Good

If the taste of the water has changed, turn on the faucet and let it run for 15 minutes. If the taste continues, call your local dealer.

Care & Cleaning

To keep your Aquasential™ Tankless RO system operating properly, it is necessary to change the filters and sanitize the system periodically. Typically, this should be done on an annual basis. Service frequency may vary depending on local water conditions. High sediment, chlorine, turbidity, or hardness levels may require more frequent service. Use the following as a guide:

As Needed
Clean the faucet with a soft cloth, avoid abrasive cleaners
Annually
Replace Composite Filter (CF)
Replace Carbon Block Filter (CB)
Replace Mineral Boost+ Filter (MB+)
Check RO Membrane
Check TDS Reduction Performance
Check Flow Rates (including air gap)
Check Drain tubing for back-up

It is recommended to have your local Culligan dealer perform the sanitization process. Your local Culligan man has been specifically trained to test the water quality and efficiency of the system in order to determine when the RO membrane should be replaced and ensure the system is working properly.

Caution



CAUTION!

Anytime the water is going to be turned off to the unit, the power should also be turned off.

CAUTION!

If leaving home for an extended period, the unit should be shut down so it doesn't continue to rinse.

Contact your local Culligan dealer for replacement cartridges and maintenance.

Malfunction Descriptions

In the event of a malfunction, the following indications will be shown on the front cover.

	Malfunction Type	Malfunction codes	Indicator	Buzzer Status	Recovery Method
1	Prompt of insufficient water	E01	Blinking blue	Beeps 3 times	The inlet water pressure returns to normal and the prompt of insufficient water is automatically cleared. The product resumes working normally.
2	Water leak protection	E02	Blinking red	Beeps constantly	The water leak is eliminated and the product automatically returns to the normal state.
3	Booster pump work timeout protection	E03	Blinking orange	Beeps for 3 minutes	The product needs to be powered up again before returning to the normal state.
4	Protection of frequent starts and stops of the booster pump	E04	Solid orange	Beeps 5 times	The product needs to be powered up again before returning to the normal state.
5	Low temperature protection	E05	Solid red	Beeps constantly	The product needs to be powered up again before returning to the normal state.

Performance Data Sheets

Culligan Aquasential Tankless RO and Aquasential Tankless RO with Mineral Boost+

Culligan knows the more informed you are about your water treatment systems, the more confident you will be about its performance. It's because of this and more than seventy years of commitment to customer satisfaction that Culligan is providing this Performance Data Sheet to its customers.

NOTE! Read this Performance Data Sheet and compare the capabilities of this unit with your actual water treatment needs. It is recommended that before purchasing a water treatment unit, you have your water supply tested to determine your actual water treatment needs.

Manufacturer: Culligan International Company
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Rosemont, IL 60018 USA
(847) 430-2800
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Models: Culligan Aquasential Tankless RO and Aquasential Tankless RO with Mineral Boost+

These systems must be installed according to local plumbing codes on the cold water line.

This system requires regular replacement of all filters to maintain proper operation. Depending on usage and influent water quality, the carbon filters should be changed at least annually and the reverse osmosis membrane should be replaced every 3-5 years. Varying chlorine, sediment, or TDS levels may affect replacement frequency.

Testing Conditions & Results:

Temperature: 77 ± 2°F (25°C) pH: 7.5 ± 0.5
Pressure: 50 psi (345 kg/cm²) Turbidity: <1 NTU

Product Specifications:

Daily Production Rate: 715 gpd Recovery Rating¹: 58.4%
Operating Temp. Range: 40-100°F (5-38°C) Electrical Requirements: 120VAC, 50/60 Hz, 1 Amp
Working Press. Range: 15-120 psi (1-11 kg/cm²) Efficiency Rated²: 65.2%

Substance Reduction

While testing was performed under standard laboratory conditions, actual performance may vary.

Substance Concentration	Influent Challenge Water Concentration (mg/L)	Max. Permissible Water Concentration (mg/L):	Average Percent Reduction
Total Dissolved Solids	750 ± 40	187	81.4%

This system has been tested and certified by the Water Quality Association according to NSF/ANSI 58 and CSA B483.1 for the reduction of the substances listed below. The concentration of the indicated substances in water entering the system was reduced to a concentration less than or equal to the permissible limit for water leaving the system, as specified by NSF/ANSI 58 and CSA B483.1.

The Aquasential™ Tankless RO and Aquasential Tankless RO with Mineral Booster+ have been tested and certified by WQA against NSF/ANSI/CAN 372, CSA B483.1 and NSF/ANSI 58 for the reduction of TDS as verified and substantiated by test data.



CAUTION!

Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts.

¹ Recovery rating means the percentage of the influent water to the membrane portion of the system that is available to the user as reverse osmosis treated water when the system is operated without a storage tank or when the storage tank is bypassed. This system has been tested and shown to operate at its calculated recovery rating under standard laboratory conditions.

This reverse osmosis system contains a replaceable component critical to the efficiency of the system. Replacement of the reverse osmosis component should be with one of identical specifications, as defined by the manufacturer, to assure the same efficiency and contaminant reduction performance.

Refer to your Installation and Operating Instructions and written limited Warranties for more specific product information. To avoid contamination from improper handling and installation, your system should only be installed and serviced by your Culligan dealer. Performance will vary based on local water conditions. The substances reduced by these systems are not necessarily in your water.

² Efficiency rating means the percentage of the influent water to the system that is available to the user as reverse osmosis treated water under operating conditions that approximate typical daily usage.

Date _____

Installed:

For Service

Call Culligan at:

Call Culligan at. _____

[illegible]

Culligan Limited Warranty

Culligan Aquasential™ Tankless RO Reverse Osmosis Systems

You have just purchased one of the finest reverse osmosis water conditioning units made. As an expression of our confidence in Culligan International Company products, your reverse osmosis water conditioning unit is warranted to the original end-user, when installed in accordance with Culligan specifications, against defects in material and workmanship from the date of original installation, as follows:

For a period of FIVE YEARS	System Faucet, Internal plastic components including system manifold, and fittings
For a period of ONE YEAR*	The entire reverse osmosis water conditioning unit

*The CF, CB, & MB+ filters are only warrantied until the end of their useful life which is 4,755 gallons or one year. Once the filters have been used for 4,755 gallons, they are no longer covered under the one year system warranty.

The product label contains the product's serial number. Please do not tear or damage this label, otherwise the product warranty may be affected.

If a part described above is found defective within the specified period, you should notify your independently operated Culligan dealer and arrange a time during normal business hours for the dealer to inspect the water conditioner on your premises. Any part found defective within the terms of this warranty will be repaired or replaced by the dealer. You pay only freight from our factory and local dealer charges.

We are not responsible for damage caused by accident, fire, flood, freezing, Act of God, misuse, misapplication, neglect, oxidizing agents (such as chlorine, ozone, chloramines and other related components), alteration, installation or operation contrary to our written instructions, or by the use of accessories or components which do not meet Culligan specifications, is not covered by this warranty. Refer to the specifications section in the Installation and Operating manual for application parameters.

Our product performance specifications are furnished with each water conditioning unit. TO THE EXTENT PERMITTED BY LAW, CULLIGAN DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE; TO THE EXTENT REQUIRED BY LAW, ANY SUCH IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE PERIOD SPECIFIED ABOVE FOR THE ENTIRE CONDITIONER. As a manufacturer, we do not know the characteristics of your water supply or the purpose for which you are purchasing a water conditioner. The quality of water supplies may vary seasonally or over a period of time, and your water usage rate may vary as well. Water characteristics can also differ considerably if your water conditioner is moved to a new location. For these reasons, we assume no liability for the determination of the proper equipment necessary to meet your requirements, and we do not authorize others to assume such obligations for us. Further, we assume no liability and extend no warranties, express or implied, for the use of this product with a non-potable water source. OUR OBLIGATIONS UNDER THIS WARRANTY ARE LIMITED TO THE REPAIR OR REPLACEMENT OF THE FAILED PARTS OF THE WATER CONDITIONER, AND WE ASSUME NO LIABILITY WHATSOEVER FOR DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL, GENERAL, OR OTHER DAMAGES.

The product and major parts are not covered by this warranty under any of the following circumstances: aging, bumping, scratching, etc. of the product during normal maintenance and use, the warranty period has expired, proof of purchase in the form of customer receipt or invoice cannot be found, any damage caused by installation or disassembly of the product by a non-authorized professional, the consumer has made a warranty claim but no quality problems can be found after testing by Culligan personnel.

Some states do not allow the exclusion of implied warranties or limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Similarly, some states do not allow the exclusion of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Consult your telephone directory for your local independently operated Culligan dealer, or write Culligan International Company for warranty and service information.

Culligan International Company

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