

AVIDITY

SCIENCE

Duo Range

Ultra-Pure Water System

**with Total Organic Carbon Monitoring and
Ultra-Filtration**

DUO10 / DUO10-UF / DUO20 / DUO20-UF

Series 5

Operation Manual

OP-000110

Revision A

March 2020

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Contents

Important Safety and Service Information	iii
RoHS/WEEE Statement	iii
Hazard and Special Safety Notice Definitions	iii
Product Warnings	iii
Product Caution	iv
Contacting Technical Support	iv
Introduction	1
Duo Models	1
Purification Process	2
Feed Water Requirements	4
Product Water Specifications	4
Dispense Controller Primary Operation Menus and Sub-menus	5
Operation	7
Information Screen	7
User Settings	7
System Settings	7
Consumable Timers	8
Alarms (Warnings)	8
Change Language	8
Configure User Settings	9
Dispensing Deionized (DI) Water	10
Dispensing Type 1 Water	10
Warning Messages	14
Routine Maintenance	15
Sanitise the System	15
Sanitize the External Storage Tank (as required)	19
Replace Pre-Treatment Module	24
Replace Endure Purification Pack	26
Autoclave Dispense Controller Ultra Filter (optional)	28
Replace Dispense Controller Standard Filter or Ultra Filter	29
Replace Air Filter on External Storage Tank	29

Consumables and Replacement Parts 31

Consumables 31

Replacement Parts 31

External Storage Tank Replacement Parts 33

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Important Safety and Service Information

The customer should comply with their organization's Electrical Safe Practices as recommended by the Occupational Safety and Health Administration (OSHA), or local and national safety codes.

This equipment must be operated by qualified persons who are knowledgeable and trained in its operation, and its associated hazards.

Use caution when operating, or servicing this equipment. It is the user's responsibility to read and understand the content of this manual before operating this equipment.

SAVE THESE INSTRUCTIONS

RoHS/WEEE Statement

Avidity Science water treatment, automated watering, environmental monitoring, and access control systems specified within this manual are manufactured in compliance with the RoHS Directive (EU Directive 2011/65/EU and subsequent amendments).

Hazard and Special Safety Notice Definitions

Below is a list of definitions of hazard symbols used on this product.



WARNING! Risk of electrocution or electrical shock resulting in death or severe personal injury.



WARNING! Could result in death or serious personal injury or equipment damage.



CAUTION! Minor or moderate injury or equipment damage

This manual may contain the following types of special notices.

IMPORTANT: Indicates information that is necessary to understanding a topic or performing a procedure.

NOTE: Indicates information that may be helpful in understanding a topic or performing a procedure.

Product Warnings



WARNING! Electrical shock. Install this equipment on a ground fault interrupting circuit. Not installing this equipment on a ground fault interrupter circuit can cause electrical shock resulting in severe personal injury or property damage.



WARNING! Electrocutation. Never stand in water when handling electrical equipment. Water is a conductor of electricity. Standing in water while operating this equipment can cause electrical shock or electrocution resulting in severe personal injury.



WARNING! Electric Shock. Disconnect the main power before servicing any electrical components. Failure to do so can cause electrical shock resulting in personal injury.

Product Caution



CAUTION! Equipment damage. Follow all nationally and locally approved electrical codes when installing this equipment. Failure to do so can result in equipment damage.

Contacting Technical Support

For up to one year after your system installation date, you may contact Avidity Science for free technical support. All contact information appears in the tables below.

UK Support

Phone	E-mail	Web Site
01844 201142 (Option 2)	UK.TechSupport@AvidityScience.com	AvidityScience.com

US Support

Phone	E-mail	Web Site
800 558 5913	US.TechSupport@AvidityScience.com	AvidityScience.com

China Support

Phone	E-mail	Web Site
(86) 189 1852 9537	CN.TechSupport@AvidityScience.com	AvidityScience.com



Certificate No: FS 558309



Introduction

The Duo Ultra-Pure Water System provides dual water purification producing both Type 2 and Type 1 water, combined with ultraviolet sanitising and total organic carbon monitoring. Type 2 water is stored in a separate tank and is drawn from the tap on the tank. Type 1 water is drawn from a dispense controller mounted on the Duo unit or an optional Remote Dispenser fitted with an Ultra Filter. The the dispense controller releases a programmed volume of water.

All recorded data, warning messages and dispensing information are viewed from a display on the dispense controller. All components of the system are installed in a metal chassis and protected by a plastic housing that allows for the system to be placed on a bench or wall-mounted. The front panel is removable for access to the consumables.

The system is designed in accordance with the most recent technology and the latest safety regulations. It is recommended that the system is installed and commissioned by the manufacturer or their designated representative.



Duo Models

The content of this manual applies to these models..

Table 1. Duo Models

Model	Product Water Quality	Product Water Flow Rate	Model	Product Water Quality	Product Water Flow Rate
Duo 10 with Standard Filter	Type 1	2 liters/minute [0.53 gal/min]	Duo 20 with Standard Filter	Type 1	2 liters/minute [0.53 gal/min]
	Type 2	10 liters/hour [2.6 gal/hour]		Type 2	20 liters/hour [5.3 gal/hour]
Duo 10-UF with Ultra Filter	Type 1	2 liters/minute [0.53 gal/min]	Duo 20-UF with Ultra Filter	Type 1	2 liters/minute [0.53 gal/min]
	Type 2	10 liters/hour [2.6 gal/hour]		Type 2	20 liters/hour [5.3 gal/hour]

Purification Process

In normal operation, feed water enters the system through the **Inlet Solenoid Valve (V3)**, engaging the **Reverse Osmosis (RO) Pump (P1)**. The conductivity of the feed water is measured by the feed water conductivity sensor (**Q1**) before it reaches the pump.

The untreated water is pumped through the carbon-based, **Pre-Treatment Module (TC001)** to detain larger particles greater than 20 micron and chemicals such as insecticides, pesticides, herbicides and chlorides. The pre-treatment module is essential to protecting the RO membranes and must be replaced at the stated intervals to retain the integrity of the RO membranes as effectively and efficiently as possible.

From the pre-treatment module, water passes over one or two **RO Modules** (membranes) (**TC013**). The membranes reject almost all bacteria, viruses, heavy metal compounds and organics, as well as 98 percent of the salt content from the water. A percentage of the rejected water, referred to as the concentrate, is sent to drain through a **Flow Restrictor (R1)** while the remaining water passes through the membranes again, conserving water usage.

The product water, referred to as permeate, is measured through the **Permeate Conductivity Sensor (Q2)** as it leaves the membrane. Should the water quality measure within the set limits, the **Permeate Solenoid Valve (V5)** is opened and the permeate water reaches the next level of purification. Should the water quality measure outside of the set-limits, the system will display a warning for the user to act accordingly and the permeate is recycled or flushed to drain as part of the **Auto-Flushing** feature.

The accepted water is pushed through the **Endure Purification Pack 1 (TC002)** which contains ion-exchange resins. The deionization process occurs and the permeate water quality is measured by the **Post-treatment (DI) Conductivity Sensor (Q3)**. The permeate water is fed into a *required* storage tank (**TANK**) where it is held as **Type 2** water. The storage tank may be equipped with an **Ultraviolet (UV) Light (TC008)** to maintain bacteria sterilization in the stored water. Type 2 water can be dispensed from the tank through the dispenser tap on the storage tank when required.

Type 1 water is made through a polishing process that begins with the activation of the circulation pump by either the Dispense Controller or the Remote Dispenser to draw Type 2 water from the storage tank. The water flow from the tank is monitored by a flow sensor (**SENS00004**). The polishing process takes the Type 2 water back into the Duo unit, over the UV light (**TC003**), where the conductivity and Total Organic Carbon (TOC) is measured by the **Q4** sensor. The water then passes through the **Endure Purification Pack 2 (TC009)** which is filled with a high grade of mixed bed ion-exchange resins which enables the optimum resistivity of 18.2 MΩ-cm to be reached. The resistivity is verified as it leaves the **Type 1 Conductivity sensor (Q5)** and the temperature is then verified by the temperature sensor (**T1**).

If the temperature is outside the set-limits, then the flushing solenoid valve diverts the water to drain. A warning is displayed on the dispense control display. Flushing will continue until the temperature returns to its normal-operation setting.

When the user activates the dispenser, the dispense solenoid valve (**V8**) opens and desired water volume is dispensed. A standard filter (**TC011**) can be installed for extra filtration.

On Ultra-Filter (UF) Duo units, an **Ultra-Filter (TC004)** is installed on the dispenser to add a final point of filtration to provide water with reduced levels of endotoxins and viruses.

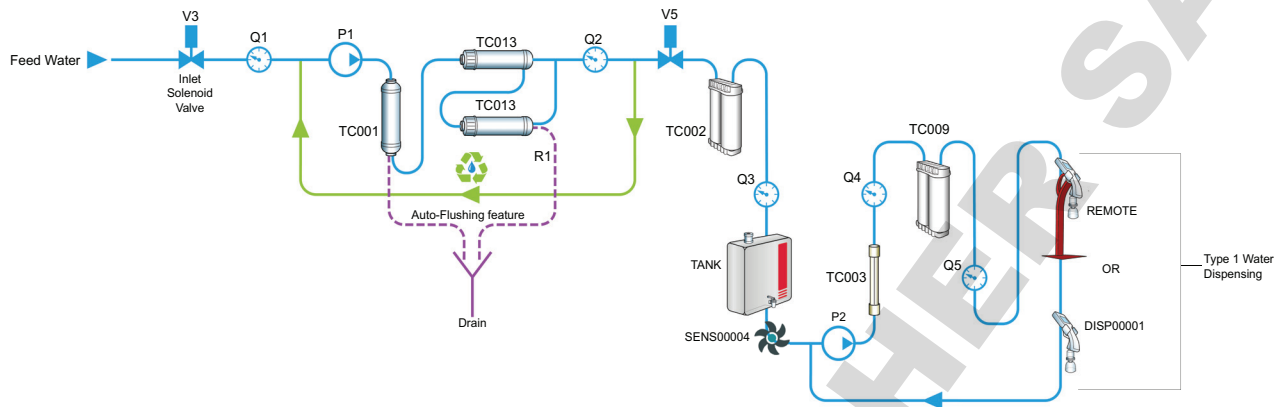


Figure 1. Duo water purification process.

Table 2. Purification Process component descriptions

Component	Description	Component	Description
V3	Inlet Solenoid Valve	SENS00004	Flow Sensor
Q1	Feed Water Conductivity Sensor	TC008	Optional Ultraviolet Lamp (inside the storage tank)
P1	RO Pump	TC003	Ultraviolet Lamp (inside the Duo unit)
TC001	Pre-Treatment Module	P2	Recirculation (Booster) Pump
TC013	RO Module (membrane)	Q4	Conductivity and Total Organic Carbon Sensor
R1	Flow Restrictor	TC009	Endure Purification Pack 2
Q2	Permeate Water Conductivity Sensor	Q5	Type 1 Water Conductivity Sensor
V5	Permeate Water Solenoid Valve	T1	Temperature Sensor (not shown)
TC002	Endure Purification Pack 1	V8	Dispense Solenoid Valve (not shown)
Q3	Post-Treatment Water Conductivity Sensor	DISP00001	Dispense Controller
TANK	Storage Tank (30 litre, 60 litre, or 100 litre)	REMOTE	Remote Dispenser

Feed Water Requirements

The feed water used must meet these requirements.

Pressure: 0.1 to 6 bar [1.5 to 87 psi]

Temperature: 5 to 35 degrees C [45 to 90 degrees F]

Minimum Feed Water Flow:

DUO10/10-UF: 0.833 lpm at 0.1 bar [0.22 gpm at 1.5 psi]

DUO20/20-UF: 1.0 lpm at 0.1 bar [0.27 gpm at 1.5 psi]

Maximum Conductivity: less than 1400 μ S

Free Chlorine: less than 0.1 mg per liter

pH: 3 to 9

Maximum Carbon Dioxide (CO₂): 15 mg per liter

Total Dissolved Solids: 800 ppm

Maximum Silica: 15 mg per Liter

Silt Density Index (SDI): less than 3

Hardness: less than 6 grains per 3.78 Litres [1 gallon] and less than 500 ppm CaCO₃

Langelier Index (LI): less than zero

Turbidity: less than 1 NTU

Iron: less than 0.1 mg per liter

Manganese: less than 0.05 mg per liter

Aluminum: less than 0.05 ppm

Organics: less than 1 ppm

Product Water Specifications

Product (Type 1) Water Flow: 2 Litres/min

Product (Type 2) Water Flow

DUO10/10-UF: 10 Litres/hour

DUO20/20-UF: 20 Litres/hour

Conductivity at 25° C: 0.055 μ S/cm

Resistivity at 25° C: 18.2 M Ω /cm

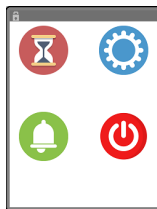
Total Organic Carbon (TOC): 1 to 5 ppb

DNase, RNase, DNA: Free

Rejection Rate for Bacteria: greater than 90 percent

Rejection Rate for Particles: greater than 90 percent

Dispense Controller Primary Operation Menus and Sub-menus



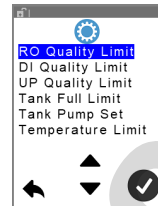
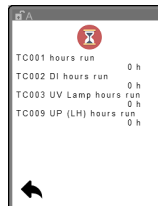
Access Main menu.



View Active Alarms



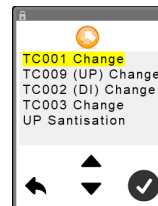
Main Menu



Remote Dispenser Menu



Available only on the primary dispense controller.



Turn off the unit.



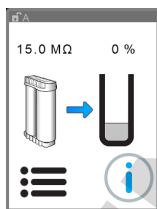
Access factory settings. Password required



Change the current language



Sleep mode.



External storage tank is filling.



Access current readings



Access Main Menu

The Dispense Controller function also applies to the Remote Dispenser.

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Operation

The Dispense Controller function also applies to the Remote Dispenser.

Information Screen

When power is applied to the unit, an information screen appears displaying this information:

Duo Model

Disp software version (Display)

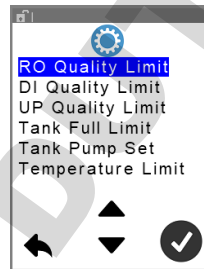
Base software version (Controller)

Manufacturer contact information

User Settings

NOTE: User password **1111** is required to access the user settings.

This is the **User Settings** screen.



RO Quality Limit. Set the required water quality of the Type 3 water

DI Quality Limit. Post-treatment water conductivity setting

UP Quality Limit. Ultra-pure water conductivity setting

Tank Full Limit. Set the Full water level for the external storage tank (if applicable)

Tank Pump Set. Set the 100-litre storage tank pump pressure set point (if applicable)

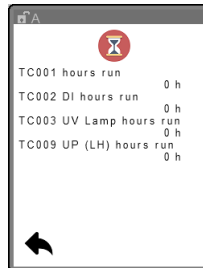
Temperature Limit. Ultra-pure water temperature setting

Flow Calibration. Calibrate the volume of water dispensed

System Settings

Accessible only by qualified technician with a password.

Consumable Timers




Displays the number of hours since these components were installed:

- Pretreatment Module TC001
- UV lamp TC003
- Endure Purification Pack 1 TC002
- Endure Purification Pack 2 TC009

Alarms (Warnings)







Displays active alarms. Alarms will automatically display as they occur. Touch the alarm name to display details.



Touch  to acknowledge the alarm. The alarm will stay in the list until the associated issue has been fixed.

Change Language

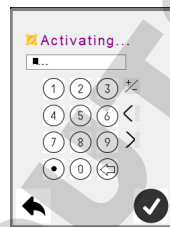
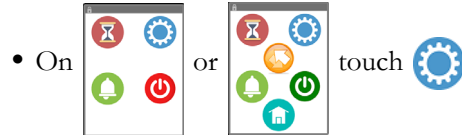
Follow this procedure.

1. On  or  touch , then on , touch .
2. Touch the desired language and touch .

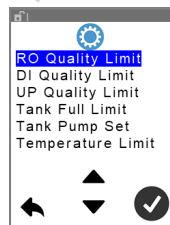
Configure User Settings


Follow this procedure.



1. Take one of these actions:



3. Enter the User password **1111** and touch 




4. Touch the applicable setting and touch 

5. Touch  or  until the desired value is displayed.

6. Touch 

7. Repeat steps 4 through 6 until all applicable user settings are configured.

8. Touch  to return to the Dispense home screen.

Dispensing Deionized (DI) Water

The permeate water is fed into a storage tank (**TANK**) where it is held as deionized water. The water is dispensed from a tap or valve on the tank.

Dispensing Type 1 Water

Type 1 (Ultra Pure) water is drawn from the external storage tank using the dispense controller or the Remote Dispenser. The Dispense menu screen is displayed during normal operation.









The factory settings can be modified by the user as necessary. Below are the tasks required to configure the Dispense Controller.

NOTE: For Type 1 water, the storage tank may be equipped with an **Ultraviolet (UV) Light (TC008)** to maintain bacteria sterilization in the stored water. Section *Purification Process* on page 2 explains of how Type 2 water is converted to Type 1 water.

Setting the Dispense Speed

Follow this procedure.

1. On , select :
2. Touch  or  until the desired speed is displayed.
3. Touch  to return to .




Setting the Dispense Volume and Dispensing Water

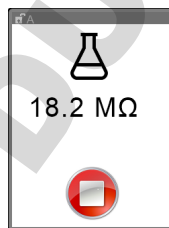
Set the required volume of water to release before activating the dispense controller.

Follow this procedure.

1. On , touch .



2. Touch  or  until the desired number of litres is displayed.
NOTE: Dispense volume can be set up to 25 litres.
3. Touch  to start dispensing water.



NOTE: The water flow will automatically stop when the programmed volume are dispensed.

Touch  to stop the water flow sooner.

Calibrating the Dispense Volume

If the volume of water dispensed does not match the programmed volume, calibration is required.

IMPORTANT: You will need a container that measures in litres and is large enough to hold the required volume of water.

Follow this procedure.


1. Place a graduated cylinder below the dispense controller.

2. On , touch :



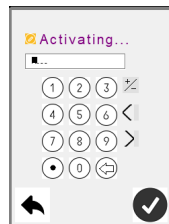
3. Touch . The programmed volume of water is dispensed.

4. Touch .

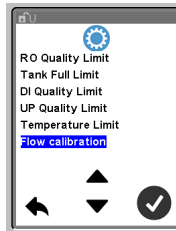
5. Touch .


6. On , touch .

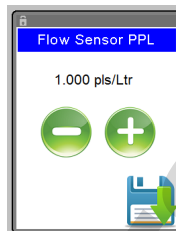
7. On , touch .









8. Enter the User password **1111** and touch 



9. Touch **Flow Calibration** and touch .



10. Observe the volume of water in the graduated cylinder and take one of these actions.

If the volume in the cylinder is...	Then,...	And then,...
The required volume	Touch 	---
Less than required,		Touch  to increase the volume of water dispensed. Touch  . Repeat steps 1 through 8 until the required volume is dispensed into the graduated cylinder.
More than required,	Touch  and empty the container.	Touch  to decrease the volume of water dispensed. Touch  . Repeat steps 1 through 8 until the required volume is dispensed into the graduated cylinder.

Warning Messages

Below is a list of warning messages and solutions.

Description	Error Number	Solution
Water leak (system shuts down)	60	Fix the leak. Dry the leak sensor located on the bottom of the cabinet. Contact Technical Support as necessary.
Permeate ^a	40	Contact Technical Support.
DI Quality Low ^b	41	Follow instructions on the screen.
Loop Resistivity ^c	42	Follow instructions on the screen.
Loop Temperature	43	Follow instructions on the screen.
Tank Empty	50	Follow instructions on the screen.
Tank Low	51	Follow instructions on the screen.
DI Quality Sensor Fault: LOW	62	Follow instructions on the screen.
Loop Conductivity Sensor Fault	63	Follow instructions on the screen.
Temperature Sensor: HIGH	64	Allow system to flush.
Temperature Sensor: LOW	65	Check incoming water temperature.
Level Sensor Fault: HIGH	67	Contact Technical Support.
Level Sensor Fault: LOW	68	Contact Technical Support.
Internal UV Lamp Run Time Expired	4	Contact Technical Support
Tank UV Lamp Run Time Expired	5	Contact Technical Support
Pretreatment Module TC001 time expired	1	Replace.
Endure Purification Pack 1 TC002 time expired	2	Replace.
Endure Purification Pack 2 TC009 time expired	3	Replace.
Inlet Conductivity: HIGH	24	Check conductivity in Feed Water. Contact Technical Support if necessary.
Pressure Sensor Fault: HIGH	69	100-litre storage tank with pump pressure sensor Contact Technical Support
Pressure Sensor Fault: LOW	70	100-litre storage tank with pump pressure sensor. Contact Technical Support
Pressure: HIGH	71	Duo pressure sensor. Follow instructions on the screen. Contact Technical Support if necessary.

- a. When RO pump is ON
- b. When Permeate is ON
- c. When circulation pump is active

Routine Maintenance

Below is a schedule of routine maintenance intervals required to keep the Duo Ultra-Pure Water System operating.

Table 3. Schedule of Routine Maintenance

Maintenance Required	Frequency
Preventive maintenance by an Authorized Technician	6 months
Sanitise the system	6 months
Replace Pre-Treatment Module	6 months ^a
Replace Endure Purification Pack 1	6 months ^a
Replace Endure Purification Pack 2	6 months ^a
Replace Standard Filter or Ultra Filter	6 months ^a
Replace UV Lamp (Duo unit)	12 months by an Authorized Technician
Sanitise External Storage Tank	If evidence of contamination is found
Replace Air Filter on External Storage Tank	12 months

a. Recommended frequency depends on usage and applies to the installed model only, without modification.



Sanitise the System

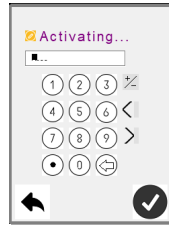
The Duo system must be sanitised every 6 months. You will need a new **Sanitisation cartridge TC010**.





WARNING! Severe personal injury. The sanitisation cartridge contains chlorine. Chlorine causes severe eye and skin irritation or burns. Avoid contact with eyes, skin, and clothing. Wear protective glasses and gloves during the sanitisation process. Wash hands thoroughly at the completion of the process.

1. Remove the left-front panel.

2. On  touch 



4. Enter the User password and touch 

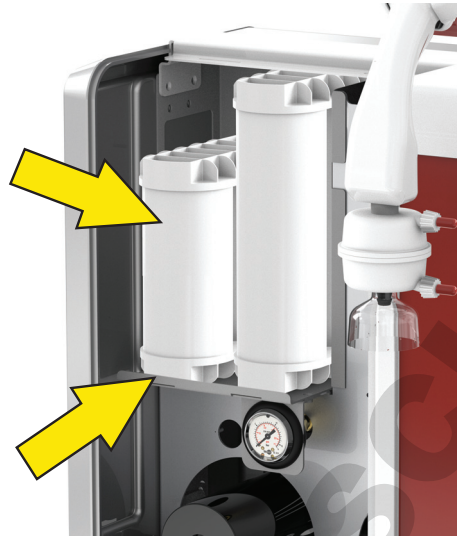
5. On , select **UP Sanitisation** and touch . Sanitising begins. Follow the instructions on the screen.

6. Remove the packaging from the **Sanitisation Cartridge**.

7. Wearing protective gloves, remove the covers from the receptacles on the **Sanitisation Cartridge** shown below.



8. Insert the Sanitisation Cartridge into the **TC009** position as shown below.
9. Be sure the pack is resting against the inside lip of the bracket and not on top of it as shown below.

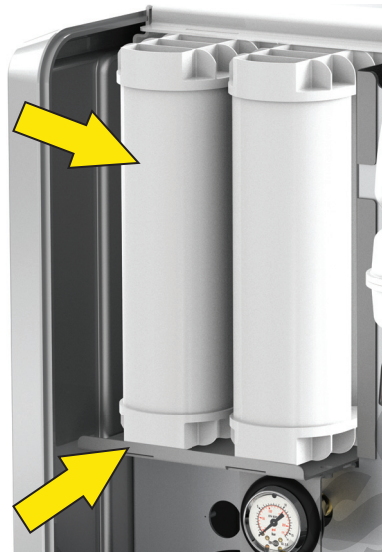





10. When prompted, wearing protective gloves, remove the sanitising cartridge.
11. Remove the packaging from the new **Endure Purification Pack 2 TC009**.
12. Remove the covers from the receptacles on the back of the pack.



13. Place the **Endure Purification Pack 2 TC009** in its defined location.
14. Lift up on the back of the pack to slide the receptacles over the tubes on the back wall.

15. Be sure the pack is resting against the inside lip of the bracket and not on top of it. as shown below.



16. Touch . The message **DI cartridge rinsing WAIT** appears.
17. When the message **DI cartridge rinsing Complete** appears, touch 
18. Take off the protective gloves; they are no longer required.
19. When **Maintenance complete** is displayed, touch .

20. Touch  until  appears.

21. If the site maintenance schedule indicates that it is close to the time to replace the **Endure Purification Pack 1 TC002**, go to procedure *Replace Endure Purification Pack* on page 26. If not, go directly to step 22.

NOTE: Refer to the routine maintenance schedule in Table 3 on page 15.

22. Replace the left front panel.
23. Replace the Dispense Controller ultra filter or standard filter. Refer to section *Replace Dispense Controller Standard Filter or Ultra Filter* on page 29.

Sanitize the External Storage Tank (as required)

The external storage tank must be sanitised when tests confirm high levels of bacterial contamination are found in the stored water..



WARNING! Personal injury. Do not swallow or crush chlorine sanitising tablets. Tablet may be harmful if swallowed. Crushing the tablet can create a dust that is irritating to the nose, eyes, and skin. Wear protective eye wear and gloves when handling tablets. Contact poison control center if swallowed. Wash thoroughly with soap and water after handling, before eating, drinking, chewing gum, using tobacco, or using toilet.

Follow this procedure.



3. At **Tank Level**, be sure the value shown is greater than **60 %**.

NOTE: If the Tank Level is less than 60 percent, reset the **Tank Level Limit** so it is greater than 60 percent to prevent excessive chlorine concentration during the sanitising process. Refer to *Configure User Settings* on page 9.

4. Touch 

5. Remove the left-front panel.

6. Remove the packaging from the **Sanitisation Cartridge TC010**



9. Select **TC009 (UP) Change** for Purification Pack 2.

NOTE: The system will depressurize.

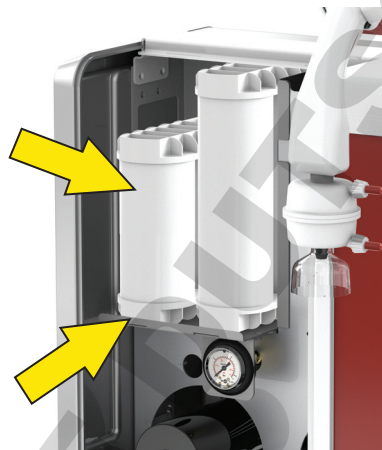
10. When instructed, remove **Endure Purification Pack 2 TC009**.

11. Wearing protective gloves, remove the covers from the receptacles on the **Sanitisation Cartridge**



12. Insert the Sanitisation Cartridge into the location from which you removed TC009.

13. Be sure the pack is resting against the inside lip of the bracket and not on top of it. Refer to the image below.



14. Touch

15. Disconnect power to the Duo unit.

16. Insert the required quantity of **CT3** tablet, or equivalent, into the applicable storage tank. See table below.



NOTE: The number of tablets provides 25 ppm chlorine concentration for the applicable tank size.

Table 4. Quantity of sanitising tablets required for 25 ppm chlorine concentration.

Tank Size	Quantity of CT3 Sanitisation Tablets (or equivalent)	Chlorine Concentration
30-litre	1	25 ppm
60-litre	2	
100-litre (with or without pump)	3	

17. Let the chlorine solution set for 60 minutes.



- 18. Drain reservoir at the plug or dispense tap at the bottom of the tank until the tank is empty.
- 19. If a plug was removed, re-insert it now.
- 20. Apply power to the Duo unit and allow the tank to fill to the Tank Full Limit (greater than 60 percent).

21. While the tank is filling, on  touch 

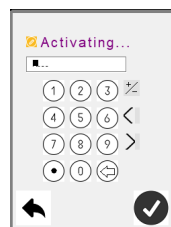
22. On  , touch 

- 23. be sure the **Tank Level** value is greater than **60 %**.
- 24. Disconnect power to the Duo unit and drain the tank again.
- 25. If a plug was removed, re-insert it now.
- 26. Apply power to the Duo unit and allow the tank to fill to the Tank Full Limit (greater than 60 percent).
- 27. With the tank filled with water, use a chlorine test kit to check the residual chlorine concentration.
- 28. Take one of these actions.

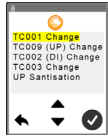

If the residual Chlorine concentration is...	Then,...
Less than 0.05 ppm,	Go to step 29
Greater than 0.05 ppm	Repeat steps 24 through 28.


29. On  touch 

30. On  touch 



- 31. Enter the User password **1111** and touch 

32. On , select **UP Sanitisation** and touch .

NOTE: Continue to touch  until you are instructed to remove the sanitisation cartridge.

33. When prompted, wearing protective gloves, remove the sanitisation cartridge.
34. Remove the packaging from the new **Endure Purification Pack 2 TC009**.
35. Remove the covers from the receptacles on the back of the pack.






36. Place the **Endure Purification Pack 2 TC009** in its defined location.



37. Lift up on the back of the pack to slide the receptacles over the tubes on the back wall.

38. Be sure the pack is resting against the inside lip of the bracket and not on top of it, as shown below.



39. Touch . The message **DI cartridge rinsing WAIT** appears.
40. When the message **DI cartridge rinsing Complete** appears, touch .
41. Take off the protective gloves; they are no longer required.
42. When **Maintenance complete** is displayed, touch .

43. Touch  until  appears.

44. Dispose of the sanitisation cartridge and the Endure Purification Pack 2 following local environmental disposal guideline.

45. Be sure these components are replaced to further eradicate any levels of bacteria

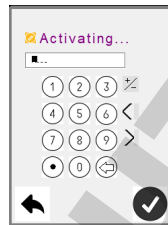
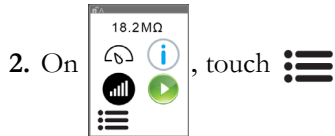
Component	See Chapter...
Endure Purification Pack 1 (TC002)	<i>Replace Endure Purification Pack</i>
Pre-treatment Module	<i>Replace Pre-Treatment Module</i>
Standard Filter or Ultrafilter	<i>Replace Dispense Controller Standard Filter or Ultra Filter</i>

Replace Pre-Treatment Module

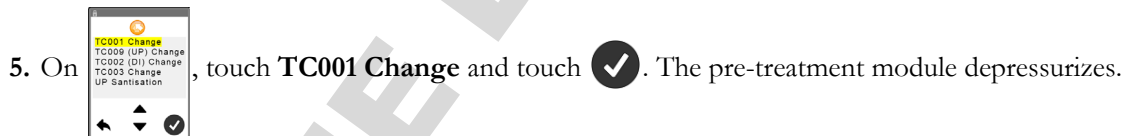
The pre-treatment module should be replaced every 3 to 6 months depending on the quality of the supply water. The module is located behind the front panel of the RO machine. You will need **Pre-Treatment Module TC001**.

Follow this procedure.


1. Lift the left front panel and remove.



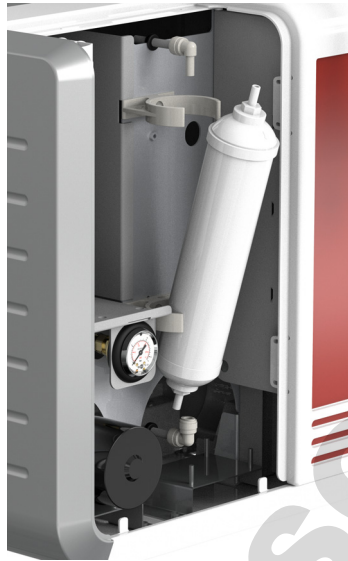
4. Enter the User password **1111** and touch .



NOTE: Use  or  as necessary to make the selection.

6. When **Disconnect TC001 and remove** is displayed, remove the module from it's brackets and disconnect the elbow fitting at each end.
7. Place the module to the side for proper disposal.
8. On the control screen, touch .
9. When **Install new module** is displayed, position the new module with the printed arrows pointing up.

10. Connect the applicable elbow fitting to each end of the module as shown below.



11. Secure the module to the two brackets.

12. Replace the left front panel.

13. On the control screen, touch . The module is flushed to the drain.

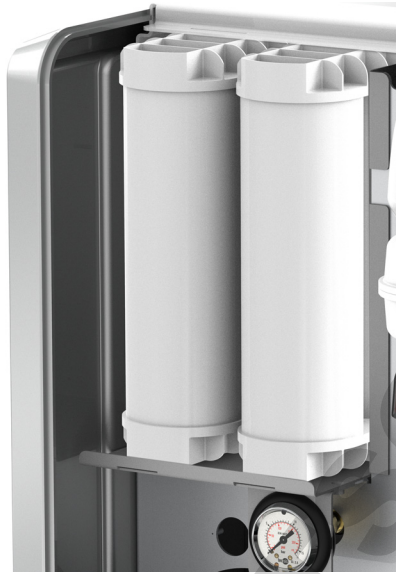
14. When **Maintenance complete** is displayed, touch .

15. Touch  until  appears.

16. Dispose of the used module following local environmental disposal guideline.

Replace Endure Purification Pack

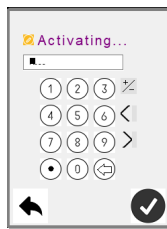
Follow this procedure to replace either **Endure Purification Pack TC002** or **TC009**.




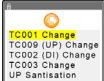
1. If you have not already done so, remove the left front panel.

2. On , touch .

3. On , select .




4. Enter the User password and touch .

5. On  touch **TC002 (DI) Change** for Purification Pack 1

or touch **TC009 (UP) Change** for Purification Pack 2

NOTE: Follow the prompts on the display.

6. Touch 
7. Remove the packaging from the applicable **Endure Purification Pack**.
8. Remove the covers from the receptacles on the back of the pack shown below.




9. Place the applicable purification pack in its defined location.



10. Lift up on the back of the pack to slide the receptacles over the tubes on the back wall.

11. Be sure the pack is resting against the inside lip of the bracket and not on top of it as shown below.



12. On the **TC002 (DI) or TC009 (UP) Replacement** screen, touch .

13. When **Maintenance complete** is displayed, touch .

14. Repeat steps 5 through 13 to replace the second purification pack.

15. Touch  until  appears.

16. Replace the left front panel.

17. Dispose of the used purification packs following your site requirements for disposal.

Autoclave Dispense Controller Ultra Filter (optional)

On Duo Ultra Filter models only, the Ultra Filter can be autoclaved. If the Ultra Filter is not going to be autoclaved, it must be replaced annually.



CAUTION! Equipment damage. Do not autoclave the Standard filter. Autoclaving will damage the filter material.

Follow the autoclaving guidelines included with the Ultra Filter.



CAUTION! Equipment damage. Autoclave at 125° C for 30 minutes. Do not inline-steam sterilize. Failure to follow these guidelines will damage the Ultra Filter.

Replace Dispense Controller Standard Filter or Ultra Filter



Follow this procedure.

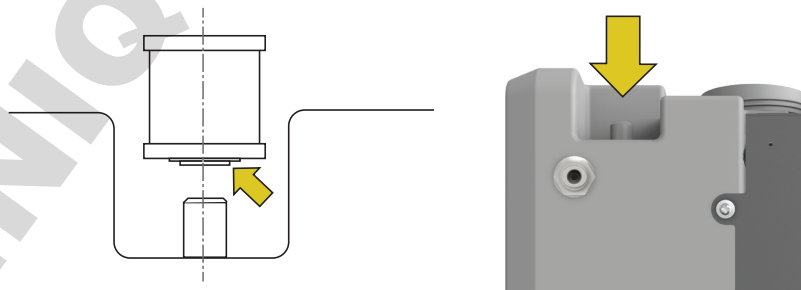
1. Unscrew the existing filter.
2. Remove the filter from its packaging.
3. Wrap 5 turns of pipe tape around the filter threads.
4. Screw the filter into the bottom of the Dispense Controller.
5. Remove the plastic cap from the clear plastic filter shroud.

Replace Air Filter on External Storage Tank

All tanks use air filter (TC005). The air filter connects to the top of the storage tank.

Follow this procedure.

1. Remove the new air filter from its packaging.
2. Pull the existing filter off the top of the tank.
3. Turn the new filter so the flange-end faces down toward the filter-connection tube as shown below.
4. Place the filter over the tube on the tank. and press down.



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DOMINIQUE DUTSCHER SAS

Consumables and Replacement Parts

These are the consumables and parts for replacement on the Duo unit.

Consumables

Below is a list of items that require regular replacement.

Table 5. Consumable items.

US Part Number	European Part Number	Description	Recommended Stock Quantity
7120-2200-101	TC001	Pre-Treatment Module	---
7120-3500-101	TC002	Endure Purification Pack 1	---
7120-4000-204	TC009	Endure Purification Pack 2	---
7120-4000-205	TC010	Sanitisation Cartridge	---
7120-4000-201	TC003	UV Lamp	---
2200-7120-010	TC008	UV Lamp, External Storage Tank	---
7120-3500-102	TC005	Air Filter, External Storage Tank	---
7120-4000-202	TC004	Dispenser Ultrafilter	---
7120-4000-203	TC011	Dispenser Standard Filter	---
7120-2200-102	TC013	RO Membrane	2

Replacement Parts

Below are the replacement parts that are available. Parts will be replaced by an Authorized Technician as necessary or as part of a Preventive Maintenance program.

Table 6. Replacement parts.

US Part Number	European Part Number	Description	Recommended Stock Quantity
7120-4000-207	HOUS00006	UV Housing	1
7120-4000-208	THIM00001	UV Thimble	1
7120-4000-209	UVBA00001	UV Ballast	1
7120-3000-111	SENS00003	Total Organic Carbon Conductivity Sensor	1
		Ultra Pure Permeate Conductivity Sensor	1
		Post-Treatment Conductivity Sensor	1
7120-3500-103	SENS00002	Temperature Sensor	1
7120-4000-211	DISP00001	Dispenser Gun Assembly	1
7120-4000-212	STRA00001	Strainer	1
7120-4000-213	VALV00001	Dispense Solenoid Valve	1

Table 6. Replacement parts. (Continued)

US Part Number	European Part Number	Description	Recommended Stock Quantity
7120-2200-107	VALV00004	Ring main Solenoid Valve	1
		Inlet Solenoid Valve	1
		Flushing Solenoid Valve	1
		RO Permeate Solenoid Valve	1
7120-4000-214	VALV00011	Pressure Control Valve	1
7120-2200-118	CONT00001	Main Control Board	1
7120-2200-119	BATT00001	Main Control Board Battery	1
7120-2200-120	CONT00002	Dispense Controller	1
7120-3500-104	SENS00007	Leak Detector	1
7120-2200-126	ADAP00002	Power Supply Unit	1
7120-2200-105	VALV00003	Pressure Reducing Valve	1
7120-2200-106	VALV00002	Inlet Check Valve	1
		Pulsation Dampener Check Valve	1
7120-2200-111	SENS00005	Inlet Conductivity Sensor	1
		RO Permeate Conductivity Sensor	1
7120-2200-108	PUMP00001	RO Pump	1
7120-2200-110	DAMP00001	Pulsation Dampener	1
		RO Housing	1
7120-2200-106	VALV00002	Pulsation Dampener Check	1
7120-2200-112	GAUG00001	Pressure Gauge	1
7120-2200-115	REST00002	Concentrate Flow Restrictor, 10 to 20 litres per hour (Green)	1
7120-2200-114	VALV00005	Pressure Control Valve	1
7120-2200-113	VALV00008	Check Valve, 10 psi	1
7120-4500-201	VALV00010	Check Valve	1
7120-4000-206	SENS00004	Flow Sensor	1
7120-2200-109	PUMP00002	Circulation Pump	1
7120-2200-121	DISP00004	Display Touchscreen	1
1600-3000-002	TUBE00002	Tube 1/4-inch, white (1-metre section)	2
1600-3000-001	TUBE00001	Tube 5/16-inch, white (1-metre section)	2
1600-3000-003	TUBE00003	Tube 3/8-inch, white (1-metre section)	2
7120-2200-128	LEAD00001	Power Cord (UK)	1
7120-2200-129	LEAD00002	Power Cord (EU)	1
7120-2200-127	LEAD00004	Power Cord (US)	1

Table 6. Replacement parts. (Continued)

US Part Number	European Part Number	Description	Recommended Stock Quantity
7120-2200-131	LEAD00005	Power Cord (China)	1
7120-4000-215	WIRE00001	UV Lamp to UV Ballast Wiring Harness	1
7120-4000-219	WIRE00007	UV Fault Wiring Harness	1
7120-2200-124	WIRE00014	Power-In Wiring Harness	1
7120-4500-202	LOOM00007	Wiring Loom for Sensors	1
7120-4500-203	LOOM00008	Wiring Loom for Solenoids	1
7120-4500-205	DISP00016	Dispense Gun complete	1
7120-4500-206	DISP00017	Dispense Gun complete, Remote	1
7120-4500-204	DISPENSEGUNKIT	Dispense Gun Kit	1

External Storage Tank Replacement Parts

Below are the available external storage tanks for replacement.

Table 7. Storage Tank Replacement Parts.

US Part Number	European Part Number	Description	Recommended Stock Quantity
2311-7120-030	TANK30	Tank, 30 litre	---
2311-7120-060	TANK60	Tank, 60 litre	---
2311-7120-100	TANK100	Tank, 100 litre	---
2311-7120-102	TANK100P-01	Tank, 100 litre with integral pump, 230V	---
2311-7120-101	TANK100P-02	Tank, 100 litre with integral pump, 115V	---
6830-2311-102	CONT00003	Controller (power inverter) for 230V pump	---
6830-2311-101	CONT00005	Controller (power inverter) for 115V pump	---
2300-2311-101	PUMP00005	Pump, 100-litre tank	---
7120-2200-129	LEAD00002	Power cord for 100-litre Tank with pump (EU)	---
7120-2200-128	LEAD00001	Power Cord for 100-litre Tank with pump (UK)	---
7120-2200-127	LEAD00004	Power Cord for 100-litre Tank with pump (US)	---
7120-2200-131	LEAD00005	Power Cord for 100-litre Tank with pump (China)	---
7120-2200-130	SENS00006	Water Level Sensor	1

Table 7. Storage Tank Replacement Parts. (Continued)

US Part Number	European Part Number	Description	Recommended Stock Quantity
2400-2311-101	SENS00009	Pressure Sensor (0 to 10 bar), 100-litre Tank with pump	1
6700-2311-102	FUSE00002	Fuse, 100-litre Tank with 230V pump	1
6700-2311-101	FUSE00003	Fuse, 100-litre Tank with 115V pump	1
6420-2311-102	WIRE00013	Water Level Sensor Wiring Harness for TANK 100-litre with pump	---
6420-2311-101	LOOM00009	Internal Wiring Harness for 100-litre Tank with pump	---
2200-7120-001	AV012	UV Lamp Assembly (includes transformer and UV lamp) NOTE: See <i>Consumables</i> on page 31 for UV lamp part number.	---
2200-7120-004	AV013	Ultraviolet upgrade Kit for 100-litre Tank	---
4230-2311-101	LABL00043	Label for 100-litre Tank	---