

Fantasea Line
FRX100 VA R Housing

(Cat. No. 1512)

for Sony RX100 VA, V, RX100 IV and RX100 III

Instruction Manual





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DISCLAIMER

While every effort has been made in order to ensure that the information included in this instruction manual is accurate and complete, no liability will be accepted for any errors or omissions. Fantasea Line reserves the right to change product specifications and features described herein at any time without prior notice. No part of this instruction manual may be copied, translated or reproduced without the prior written permission of Fantasea Line. Fantasea Line makes no warranties aside from limited product warranty as described at the end of this manual.

INTRODUCTION

Note

Please read this manual carefully in order to properly operate the **FRX100 VA R Housing**. Store this manual in a safe place for further reference once you have read it.

General Information

The **FRX100 VA R Housing** features a stylish and ergonomic design, specifically created for the **Sony RX100 VA, RX100 V, RX100 IV** and **RX100 III** digital cameras. The **FRX100 VA R Housing** is manufactured to the highest professional standards of function, style and durability. It is depth rated to 60m/200 feet and features ergonomically designed and labeled controls. The Fantasea **FRX100 VA R** is the ultimate waterproof home for the **Sony RX100 VA, RX100 V, RX100 IV** and **RX100 III**.

The **FRX100 VA R Housing** is ideal for outdoor and underwater photography. Underwater photographers can dive or snorkel and capture all the excitement of this fascinating world, while outdoor photographers also have the option of capturing the action of outdoor and water sports activities, such as paddle sports, sailing, boating, surfing, fishing, hunting, backpacking and camping. The **FRX100 VA R Housing** is shock resistant and protects the camera from water, sand, dust, frost, impact, as well as other damaging elements and harmful occurrences. The **FRX100 VA R Housing** was designed to be compatible with a complete accessory system, enabling photographers to enhance the quality of their images.

Features & Specifications

- M16 port for optional Vacuum Safety System*
- Moisture detector and alarm included
- Depth rated to 60m/200 feet
- Made from durable injection molded Polycarbonate
- Access to all essential camera controls and functions with clearly labeled controls
- Shock resistant
- Double O-ring main seal
- Special cold-shoe mount for lighting accessories
- Removable double fiber optic cable connection plate
- Removable flash diffuser
- Removable anti-glare hood for the LCD screen
- Easy and secure installation of camera
- Lens Port Cover
- Compatible with a wide range of underwater photo accessories
- Weight (with camera on land): 900g
- Weight (without camera on land): 600g
- Dimensions (without accessories): 15.5 x 14.5 x 12 cm \ 6.25 x 5.75 x 4.75 inch (W x D x H)
- Manufacturer's warranty

* Vacuum valve and vacuum pump are not included with this housing and can be ordered separately.

Note	If using the housing to accommodate the RX100 III camera, please follow the instructions provided in the section "When installing the RX100 III Inside the Housing" prior to installing the camera inside the housing.
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INCLUDED IN PACKAGE

1. FRX100 VA R Housing
2. Removable flash diffuser with secure line
3. Hand lanyard
4. Silicone grease
5. Anti-glare hood for LCD screen
6. Small plastic C-shaped washer
7. Screwdriver
8. Silica gel packs
9. O-ring remover
10. Spare back door O-ring seal
11. Diffuser quick release secure string
12. Lens Port Cover



Camera not included

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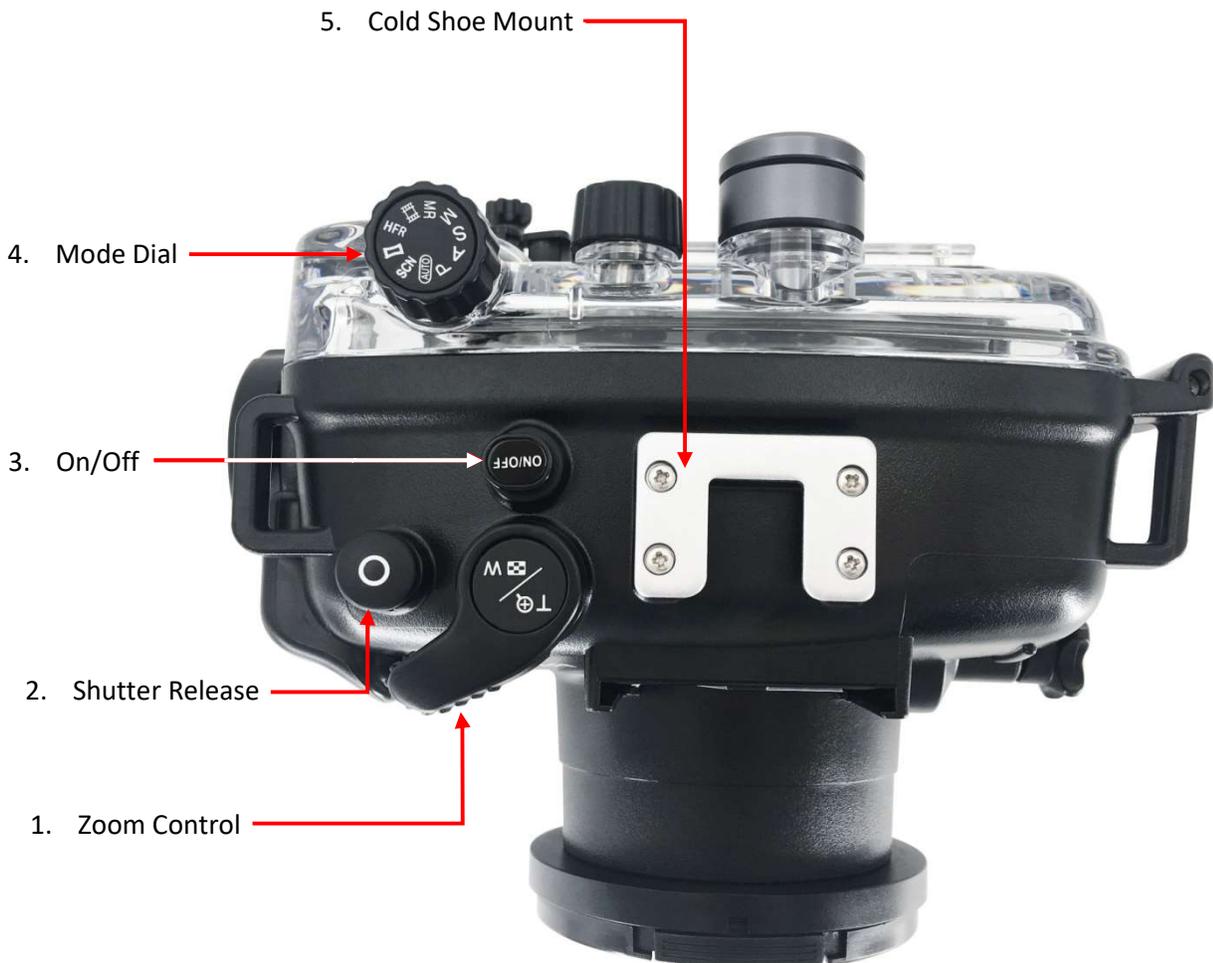


IDENTIFICATION OF HOUSING PARTS

Note

1. Please refer to the Sony RX100 VA / V / IV / III camera instruction manuals for detailed descriptions and instructions regarding all camera controls and functions.
2. It is strongly recommended that you familiarize yourself with all the controls topside before using these controls underwater.

Top of Housing - Corresponding numbered descriptions are found on the following page



Numbered descriptions below refer to corresponding numbers on the top housing graphic (previous page):

1. **Zoom Control** – Turning this control activates the camera zoom button.
 - a. In Shooting Mode –
 - i. Turn the zoom control clockwise to zoom out, increasing the area visible in the frame.
 - ii. Turn the zoom control counterclockwise to zoom in, so that the subject fills a larger area of the frame and for close-up and macro images to be taken.
 - b. In Playback Mode - use the zoom control as an index or playback lever.
2. **Shutter Release** – Activates the camera shutter release button and auto focus prior to taking the picture.
3. **On/Off**- Pushing this control activates the camera power switch button and turns the camera on/off.
4. **Mode Dial** – Turn this dial to change shooting modes.

Important Notice! It is recommended to align housing and camera mode dials prior to installing the camera inside the housing. Please refer to the section “Installing the Camera” for more information.
5. **Cold-Shoe Mount for Lighting Accessories**- Enables mounting a flash, video light, torch or focus light on top of the housing by using a dedicated connector. For further information regarding such connectors, please visit the Fantasea website – www.fantasea.com

Front Side of Housing - Corresponding numbered descriptions are found below the image



6. Fiber Optic Cable Plate-

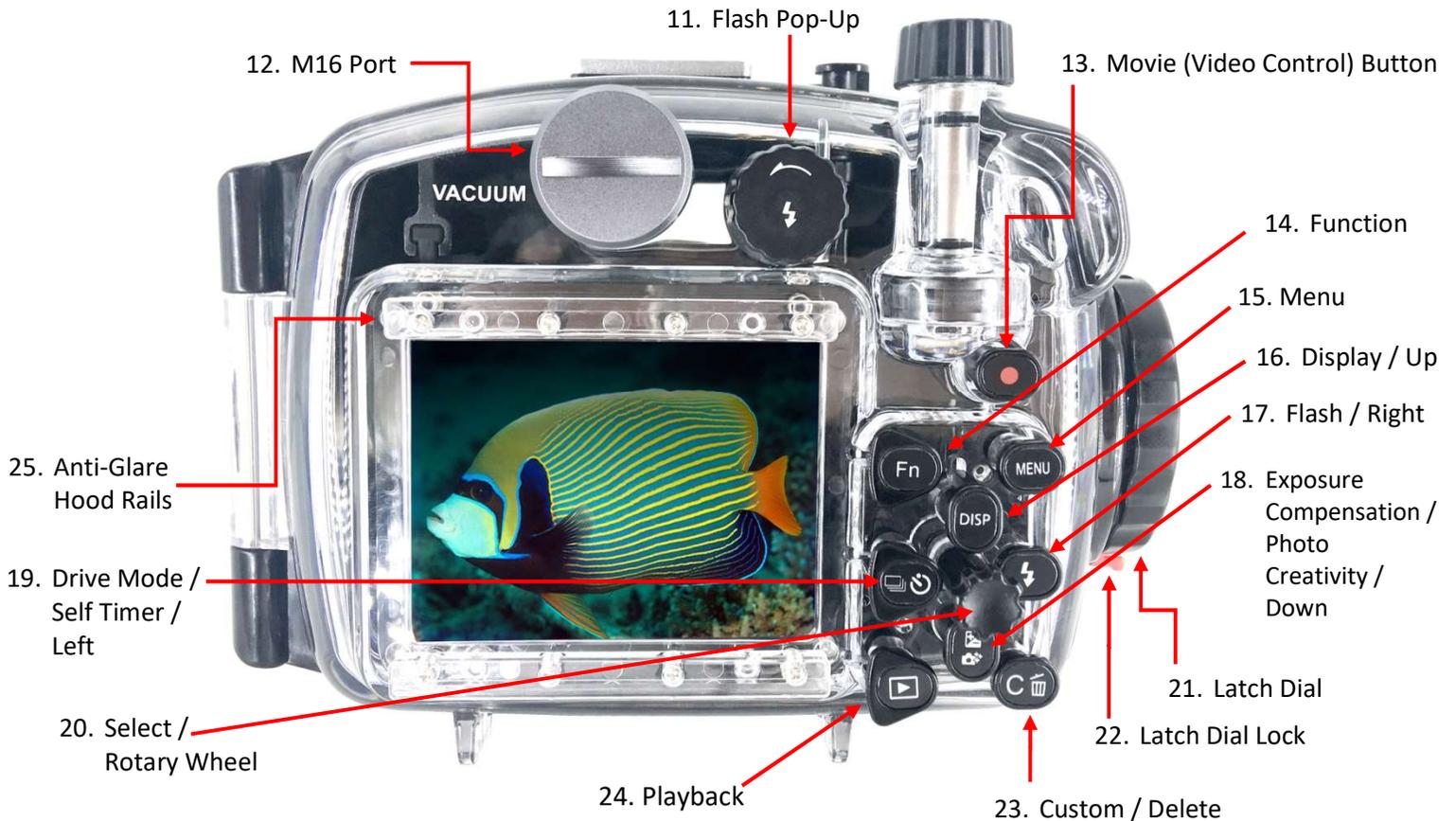
- a. When installed on the housing, the fiber optic cable plate and the two adaptors inserted inside it allow for an easy attachment of 2 fiber optic cables to the housing. For further instructions, please refer to the section “External Flashes”.
- b. Remove the fiber optic cable plate from the housing in order to make use of the internal camera flash during your dive. In order to remove the plate, insert your fingers beneath the adaptors installed inside the plate and pull the plate upwards till it is removed from its slot. Note that when photographing using the camera built-in flash only, the flash diffuser accessory should be installed, or else unwanted shading will occur in most images taken.
- c. Make sure the fiber optic cable plate is secured to the housing by its secure line in order to avoid losing it during the dive.
- d. If using only one external flash, make sure the second fiber optic cable adaptor remains in its place to block any light coming out of the exposed adaptor hole.

7. **Control Ring** – Turning this control activates the control ring around the camera lens. Your favorite functions can be assigned to the control ring and when shooting, established settings can be changed just by turning the control ring.
To edit the settings of the control ring, enter the Menu → Custom Settings → Custom Key Settings → Control Ring, and select the desired function.
8. **Lens Port**- The housing lens port features a 67mm thread and it's compatible with a wide variety of "wet" accessory filters and lenses, including macro lenses, wide angle lenses and color correction filters. In order to maintain the threads of the lens port, it is recommended to apply a small amount of silicone grease to the threads on the housing port and on the accessory lens prior to installation. For a selection of lens accessories available, visit the Fantasea website www.fantasea.com
9. **Tripod Mounting Screw Holes** – Enable mounting the housing on a tray, thereby allowing for the addition of various image enhancement accessories to your underwater photo system. By choosing any one of 3 adjustment positions, you can better determine how and where to position the housing on the tray. This configuration also allows for the use of 2 set screws for the tray mount, thereby preventing any swiveling of the housing on the tray.

Important Notice	<i>Screws longer than 7mm should not be screwed into the housing Tripod Mounting Plate, as they might damage the plate and housing.</i>
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10. **Lanyard Loops** – The 4 lanyard loops featured on the housing are used to attach a Hand Lanyard or Hand Strap to the housing, as well as to secure accessories using snap cords or secure strings.

Back Side of Housing - Corresponding numbered descriptions are found below the image



11. **M16 Port** – Allows installing the *Fantasea Hybrid Vacuum Safety System* valve on the housing. The *Hybrid Vacuum Safety System* is an optional pre-dive vacuum test and leak detector safety system, which allows confirming the watertight seal of the housing prior and during the dive. Note that the **FRX100 VA R Housing** includes several components of the *Hybrid Vacuum Safety System*, which allow use of the Moisture Detector. However, in order to make use of the Vacuum Safety System, a **Vacuum Valve (and Vacuum Pump)** should be separately ordered and installed. For smooth and safe operation of the system, make sure to order the original Fantasea Vacuum Valve and Pump. For further information and installation instructions, please refer to the section “Fantasea Hybrid Vacuum Safety System”.

Important Notice

Prior to opening a vacuumed housing, the vacuum should be released using the Vacuum Valve.

12. **Flash Pop-Up** – Turning this control counterclockwise will pop-up the camera built-in flash.
Note that once the camera built-in flash has been popped up, it can be disabled again using the *Flash / Right* control (no. 15) and selecting “flash disabled” on the flash mode menu. Turning the Flash Pop-Up control clockwise will not have any effect on the built-in flash.
Note: When shooting in M (Manual), A (Aperture priority) or S (Shutter Speed priority) shooting modes, please take into consideration that once the flash has been popped up – it cannot be disabled. Therefore, in such cases, it's recommended to switch to Auto shooting mode to eliminate the flash after it has been popped up.
 13. **Movie (Video Control) Button** –
 - a. Push the Movie (video) Control in any shooting mode to start recording a video. The record symbol (REC) appears and displayed with the elapsed time. To record a video in HFR shooting mode, first push the Select (center) control and then the Movie Control.
 - b. Push the Movie Control again in order to stop recording.
 14. **Function** – Allows you to register 12 functions and recall those functions when shooting.
 - a. Push the Function control.
 - b. Select the desired function by using multi-selector controls.
 - c. Select the setting value by turning the control ring or by using multi-selector controls.
 15. **Menu** - Pushing this control activates the camera menu button.
- Multi-Selector buttons (16-20)**
16. **Display / Up** – Pushing this control activates the camera Display / Up button.
 17. **Flash / Right** – Pushing this control activates the camera flash mode / right button.
 18. **Exposure Compensation / Photo Creativity / Down** – Pushing this control activates the camera exposure compensation / photo creativity / down button.
 19. **Drive Mode / Self Timer / Left** – Pushing this control activates the camera drive mode / left button.
 20. **Select / Rotary Wheel** –
 - c. Pushing this control activates the camera Select (confirm selection) button.
 - d. Rotating this control operates the camera rotary wheel, thereby enabling to alter exposure values, navigate through menus and other functions assigned to the rotary wheel.
 21. **Latch Dial** – This dial ensures the housing is properly closed and watertight sealed, when locked fully into place. For further instructions, please refer to the sections "Opening the Housing" and "Closing

the Housing”.

22. **Latch Dial Lock (red lever)** - Ensures the secure dial doesn't accidentally open during the dive. For further instructions, please refer to the sections "Opening the Housing" and "Closing the Housing".
23. **Custom / Delete –**
 - a. In playback mode, push this control to delete images.
 - b. To assign additional functions for this button, enter the Menu → Custom Settings → Custom Key Settings → C Button, and select the desired function.
24. **Playback –** Pushing this button allows you to enter the playback mode and to review images or videos stored on the memory card.
25. **Removable Anti-Glare Hood –** The anti-glare hood enables a better view of the LCD screen when shooting in bright conditions. It can be removed and installed during the dive. For further instructions, please refer to the section "Preparing the Housing".

SETTING UP THE HOUSING

Note

It is important that a first dive is always carried out with the housing empty (no camera installed inside) in order to verify that the housing watertight seal has not been affected during transport and after long periods of storage.

PREPARING THE CAMERA

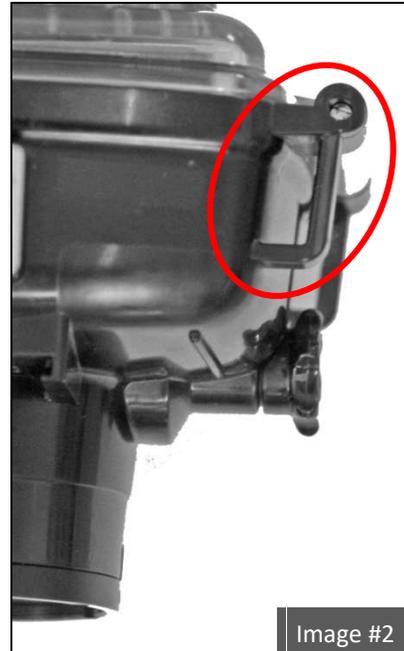
1. Install a (preferably empty) memory card (16 GB+ capacity recommended) and a fully charged battery inside the camera. Note that SDXC Class10 or UHS-I compatible memory cards are required for high frame rate recording with the RX100 IV and RX100 V.
2. Remove the camera strap from the camera if one was installed.
3. Turn the Mode Dial so the Auto (green symbol) shooting mode is selected and aligned with the white mark on the left of the wheel. This will allow for the camera and housing mode dials to be aligned, so the housing mode dial will indicate the proper mode selected by the camera dial.
4. It is recommended to program the camera to the most frequently used underwater photo mode, lighting and other key settings prior to installing the camera in the housing.

PREPARING THE HOUSING

1. When using the housing for the first time-
 - a. Peel the transparent plastic screen protector off the back door exterior of the housing.
 - b. Install the hand lanyard on the housing by inserting it through the lanyard loop on the bottom right of the housing (facing from back), then pulling it through itself and testing it in order to make sure it is secure (image #1 on the following page).
 - c. Install the housing side of the diffuser quick release secure line by tying it around the upper rectangular loop at the top left side of the housing, where the Fiber Optic Cable Plate secure string is attached to as well (image #2 on the following page). Please note that this line may come assembled and then there is no need for installation.
 - d. If making use of the Hybrid Vacuum Safety System, install the vacuum valve on the housing. Please refer to the “Hybrid Vacuum Safety System” section for instructions.
 - e. Open the housing (see section “Opening the Housing” and “Hybrid Vacuum Safety System”) and remove the anti-glare hood out of the housing. Secure the anti-glare hood

to the housing by tying its secure string around the lower rectangular loop at the bottom left side of the housing. Install the anti-glare hood over the anti-glare hood rails at the back of the housing. First install the anti-glare hood over the top rail (image #3) and then gently and carefully stretch it downwards to install it on the bottom rail, making sure it's sitting securely on both upper and lower rails (image #4).

- f. **It is important that a first dive with the housing is always made without the camera in order to verify that the housing watertight seal has not been affected during transport and after long periods of storage.**

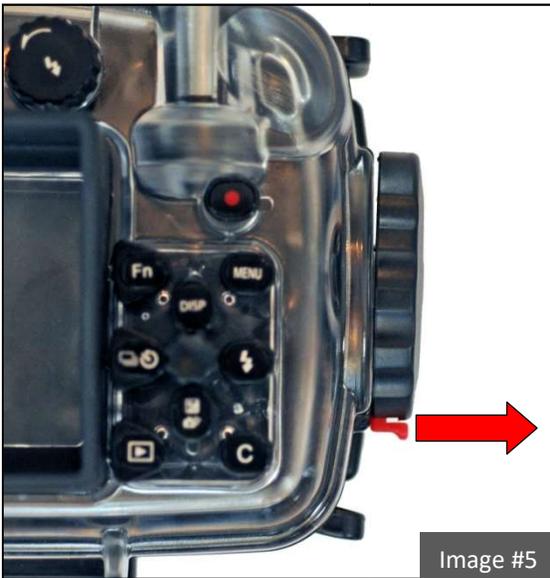


OPENING THE HOUSING

Important Notice

Prior to opening a vacuumed housing, the vacuum should be released using the Vacuum Valve. For further instructions, please refer to the section “Fantasea Hybrid Vacuum Safety System”.

1. Pull the small red tab located at the bottom of the latch dial outwards (up and away from the housing), as indicated by the arrow direction (image #5). There is no need to apply any force.
2. While holding the lock dial up, turn the latch dial counterclockwise until the red latch tab is located at the top of the latch and cannot be turned any further (image #6). There is no need to apply any force.
3. Carefully open the back side of the housing.



4. Note that when opening the housing for the first time or when opening it after airplane trips, increased resistance might be encountered. **Therefore, it is important not to lock the housing and to leave it slightly open when transporting by air.**

CHECKING THE O-RING

1. Prior to each closure of the housing, the back door **black** O-ring should be visually inspected. If there is any debris present, including dirt, sand, dust, hair or any other matter, it must be cleaned to ensure a proper watertight seal.
2. In order to clean the **black** O-ring, first remove it from the housing:
 - a. Insert the O-ring remover between the black O-ring and the groove it is seated in (image #7 on the following page).
 - b. Slip the tip of the inserted O-ring remover below the black O-ring, while making sure the O-ring doesn't get damaged (image #8 on the following page).
 - c. Carefully hold the O-ring with your fingertips in order to remove it from the groove.



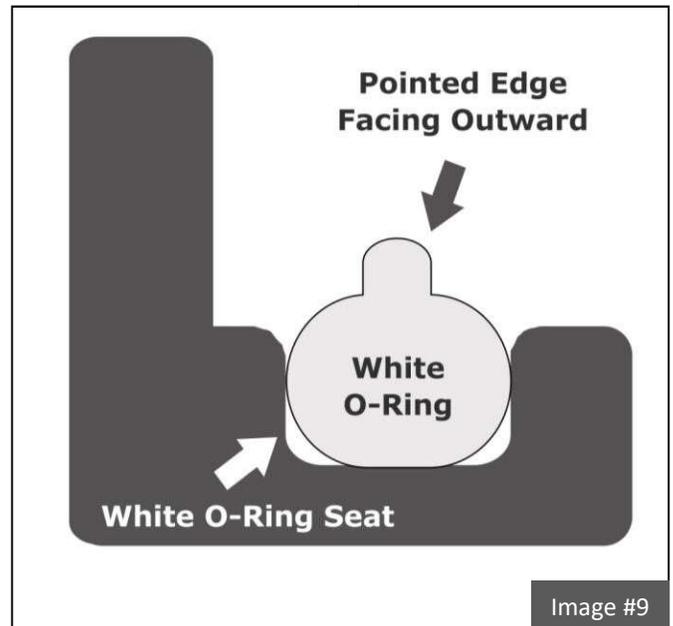
Image #7



Image #8

3. Cleaning the O-ring is a simple matter of wiping it with a damp, soft cloth to remove the foreign matter. **Be careful the cloth you use does not leave any of its own material behind as this can also affect the effectiveness of the seal.**
4. Apply a slight layer of silicone grease on the black O-ring. Please note that the amount of lubrication required on the O-ring is only enough to allow it to slip into place without friction, so it does not twist or become dislodged. More grease is not necessarily better, and in some cases might interfere with the watertight seal of the housing.
5. When replacing the O-ring, place it back into the groove starting at one corner and gently pressing it into the groove all around the housing until it is all seated in the groove and no part of it is sticking up or out of the groove.

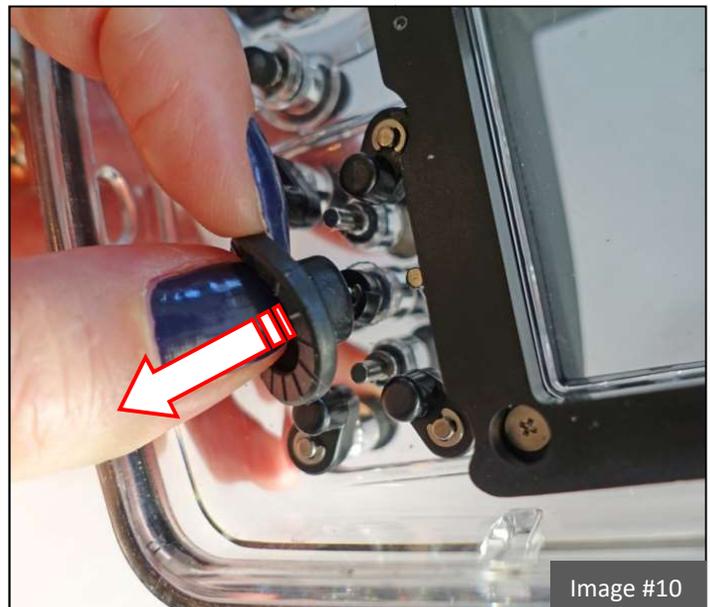
6. The white O-ring featured on the back side of the front door should be visually inspected prior to each dive. If there is any debris present, gently wipe the area with a soft microfiber cloth in order to cleanse it.
7. **The white O-ring featured on the back side of the front door shouldn't be removed unless it's damaged.**
8. If the white O-ring is removed and replaced, note that it is not symmetrical and should be inserted with its rounded edge facing inward (into its seat) and its pointed edge facing outward (image #9). Improper installation of the white O-ring may affect housing functionality and watertight seal.



WHEN INSTALLING THE RX100 III CAMERA INSIDE THE HOUSING

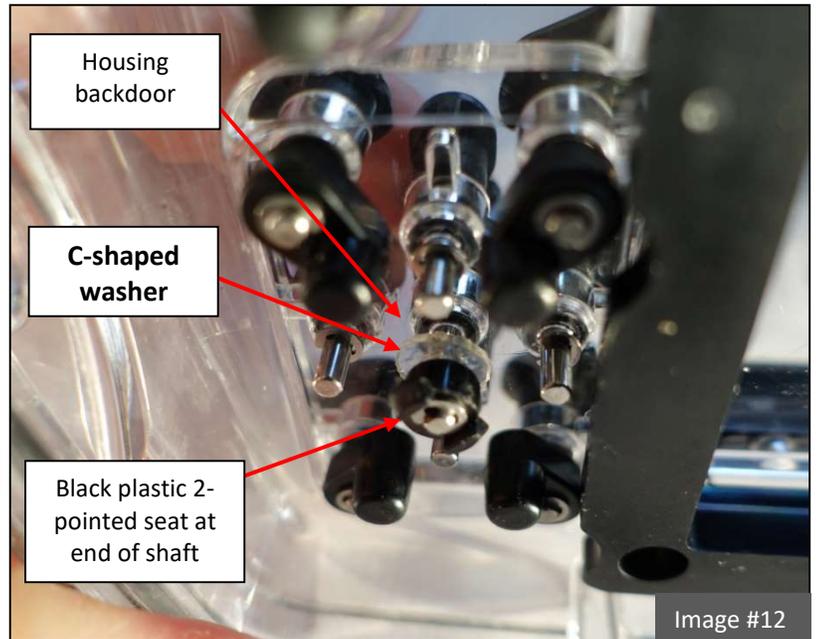
If using the housing to accommodate the RX100 III camera a small plastic C-shaped washer (included) should be installed on the Select / Rotary Wheel control of the housing prior to installing the camera inside. This C-shaped washer enables an easier and smoother use of this control with the RX100 III camera. The C-shaped washer should only be installed once following this procedure:

1. Open the back side of the housing.
2. Identify the Select / Rotary Wheel control on the interior back side of the housing.
3. Gently remove the black rubber disc installed at the end of this control by pinching it and then gently pulling it out using your fingers. Pull it away from its black plastic 2-pointed seat (image #10).
4. Remove the plastic C-shaped washer out of its bag and use small needle nose pliers to securely hold it without damaging it (image #11).
5. Using one hand, press the Select / Rotary Wheel control from the exterior side of the housing, so the metal shaft sticks out from



the inside.

6. Using your second hand, install the plastic C-shaped washer on the control shaft. First, using small needle nose pliers, hold the C-shaped washer against the shaft so it's positioned between the housing backdoor and the black plastic 2 pointed seat installed at the end of the shaft. Then push the C-shaped washer against the shaft until it snaps securely into place (image #12).



7. Finally, re-install the black rubber disc at the end of the control by pushing it against the shaft until it is fully and securely seated. Do so by mounting the 2 holes on the disc center onto the 2 protruding points at the end of the black plastic 2-pointed seat.
8. Once complete, install the camera inside the housing and test to control. If properly installed, the control should work smoothly when turned or pushed against the camera button.
9. The C-shaped washer should remain in this position as long as the housing is used to accommodate the RX100 III camera. In case of using the housing to accommodate the RX100 IV or RX100 V camera, the C-shaped washer should be removed.

Important Notice: This procedure should only be followed if using the housing to accommodate the RX100 III camera. Installing the C-shaped washer when using the housing with the RX100 IV / RX100 V camera will interfere with housing functionality and potentially damage the camera and/or housing!

INSTALLING THE CAMERA

Since the **FRX100 VA R Housing** is specifically designed for the **Sony RX100 V, RX100 IV** and **RX100 III** digital cameras, installing the camera in the housing is quite simple.

1. Make sure the camera is turned off.
2. Hold the camera parallel to the housing and then gently install it inside (image #13). Avoid inserting one side of the camera prior to the other, as this will make the installation difficult and might cause damage to the camera or housing.
3. **Take special care not to touch or damage the Vacuum System signal board when installing the camera.** The board is located inside the housing on the inner right side of the housing, opposite the latch dial (image #14).



Image #13

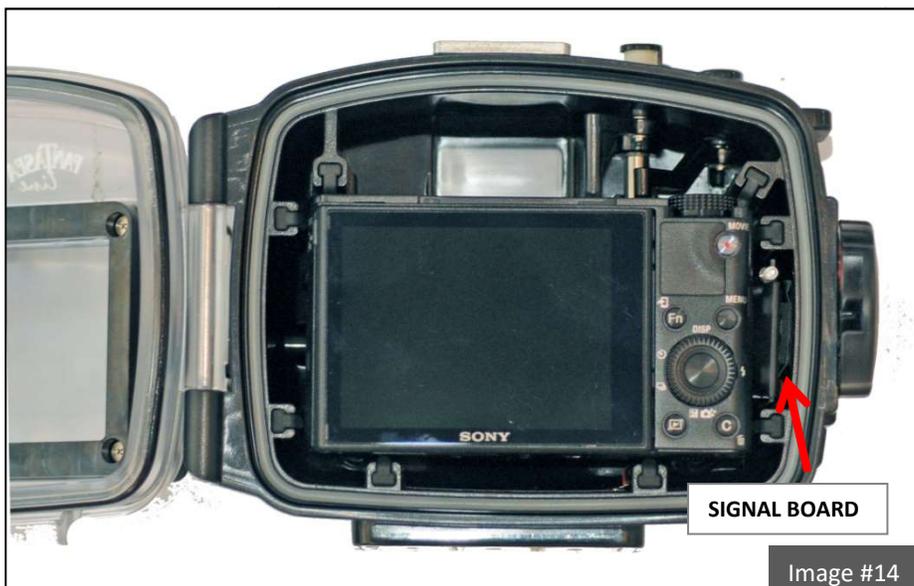


Image #14

4. If inserting a silica gel pack inside the housing in order to prevent moisture, it is best to insert it on the left side of the camera, in the slot midway up between the two rubber shock absorber mounts, where it doesn't interfere with proper housing operation. It is important to make sure that the silica gel pack doesn't stick out, or else it might interfere with the watertight seal of the housing.
5. If making use of the Vacuum System, make sure it is fully charged and turn it on prior to closing the housing (see section "Hybrid Vacuum Safety System").

CLOSING THE HOUSING

1. Turn the housing Control Dial till the *Auto* shooting mode symbol is positioned at the left (image #15). Make sure not to accidentally turn this control any further before closing the housing.
2. If making use of the Hybrid Vacuum Safety System, turn the vacuum system on using the power switch on the Signal Board prior to closing the housing (see section "Hybrid Vacuum Safety System").
3. Turn the latch dial so that the small red tab located on the latch is pointed towards the front side of the housing (image #16).
4. Carefully close the back door of the housing, pushing it against the front door, while making sure there is nothing sticking out of the housing or impairing the smooth closure of the back door. Then firmly press the back door against the forward section of the housing.
5. Turn the secure dial clockwise till the lock dial clicks. The small red tab should then be pointed towards the bottom of the housing (image #17).



Image #15

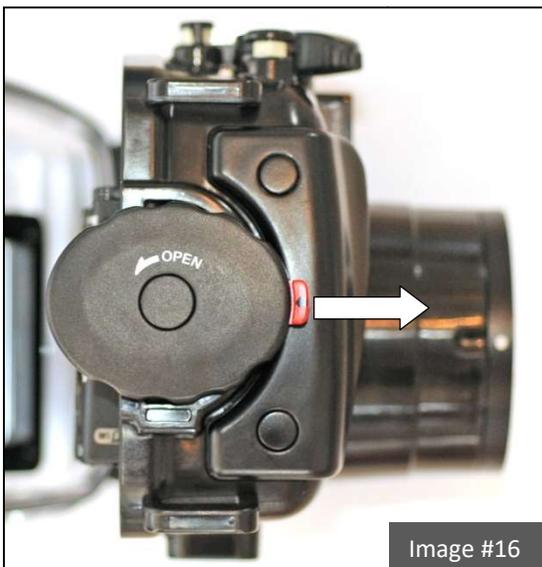


Image #16



Image #17

6. Gently try pulling the back door away from the front door. If the housing is properly closed, it should be impossible to open the back door.
7. Visually inspect the black O-ring through the transparent back door for proper closure. Make sure it isn't twisted or out of the groove and that no foreign matter has been caught in the seal, such as secure lines, sand, grit, hairs or any other foreign substance.
8. Turn the camera on and check that the extended camera lens does not catch or bend the black rubber seat on the inside of the lens port. It is vital that this rubber seat does not disturb the lens (image #18).
9. Test housing control buttons to make sure that the camera was properly installed inside the housing and that nothing interferes with normal operation of the camera. It is recommended to take a few images once the camera has been installed inside the housing and prior to the dive in order to ensure proper operation.
10. If making use of the internal camera flash, install the removable flash diffuser on the housing and attach the flash diffuser quick release secure string in order to avoid losing it underwater.
11. Prior to diving with the housing, submerge it in a shallow tub of water or rinse tank. Carefully look at the housing to make sure no bubbles are escaping from it and that no water is entering.
12. If a Vacuum Safety System is made use of, perform a pre-dive check to confirm the watertight seal of the housing. See "Hybrid Vacuum Safety System" section for further instructions.



Image #18

REMOVING THE CAMERA FROM THE HOUSING

1. After use, thoroughly rinse the housing fresh water. Prior to opening the housing, make sure both your hands and the housing are clean and dry. It is recommended to have a clean, dry and soft towel handy in order to dry your hands and the water drops on the housing.
2. Prior to opening a vacuumed housing, the vacuum should be released using the Vacuum Valve. For further instructions, please refer to the section "Fantasea Hybrid Vacuum Safety System".
3. When opening the housing, it is important to hold it so the lens port is facing down. This will prevent the camera from slipping out of the housing while being opened.

4. Open the housing as described in the section “Opening the Housing” and carefully remove the camera from the housing. Take sufficient care that no water drips from your hair and body onto the housing and camera.

USING THE CAMERA BUILT-IN FLASH

1. Sony RX100 cameras have a built-in flash capable of illuminating nearby underwater subjects. For stronger lighting, illuminating subjects that are farther away, avoiding backscatter, eliminating shadowing effects and photographing in deep water, an accessory slave flash is recommended. For further information, please refer to the section “External Flashes”.
2. In order to make use of the built-in camera flash, remove the Fiber Optic Cable Plate from the housing. Insert your fingers beneath the adaptors installed inside the plate and push the plate upwards till it is removed from its slot. Make sure the fiber optic cable plate is secured to the housing by the dedicated secure line in order to avoid losing it during the dive.
3. The removable flash diffuser included assists with softening the built-in flash output, increasing its angle of coverage and decreasing the amount of *backscatter* in the images (the unattractive snowstorm effect of the flash reflecting off suspended particles in the water).

- a. In order to install the removable flash diffuser, hold the diffuser above the housing lens port with the diffuser pointing upwards (image #19).
- b. Gently push the diffuser ring downwards and against the housing lens port until it clicks (image #20).
- c. Attach the flash diffuser quick release secure string to the other side of the string connected to the housing in order to avoid losing the flash diffuser underwater.
- d. In order to remove the flash diffuser from the housing, gently pull it upwards and away from the lens port until it snaps out of place.



Image #19



Image #20

e. During the dive, in order to disable the flash diffuser, the diffuser can be turned clockwise around the lens port until it reaches a horizontal position and clicks (image #21). This rest-point of the diffuser eliminates the need to completely remove it from the housing during the dive.

4. It is best to set the camera flash mode to “Flash Always” as artificial light is required in most compositions for the purpose of color and light reproduction. This will ensure the built-in camera flash fires on every image taken regardless of ambient light available. Please refer to the camera instruction manual for further instructions regarding such settings.
5. Turn the Flash Pop-Up dial counterclockwise in order to pop up the camera built-in flash.
6. Note that once the camera built-in flash has been popped up, it can be disabled again using the *Flash / Right* control and selecting “flash disabled” on the flash mode menu. Turning the Flash Pop-Up control clockwise will not have any effect on the built-in flash.

When shooting in M (Manual), A (Aperture priority) or S (Shutter Speed priority) shooting modes, please take into consideration that once the flash has been popped up – it cannot be disabled. Therefore, in such cases, it's recommended to switch to Auto shooting mode to eliminate the flash after it has been popped up.



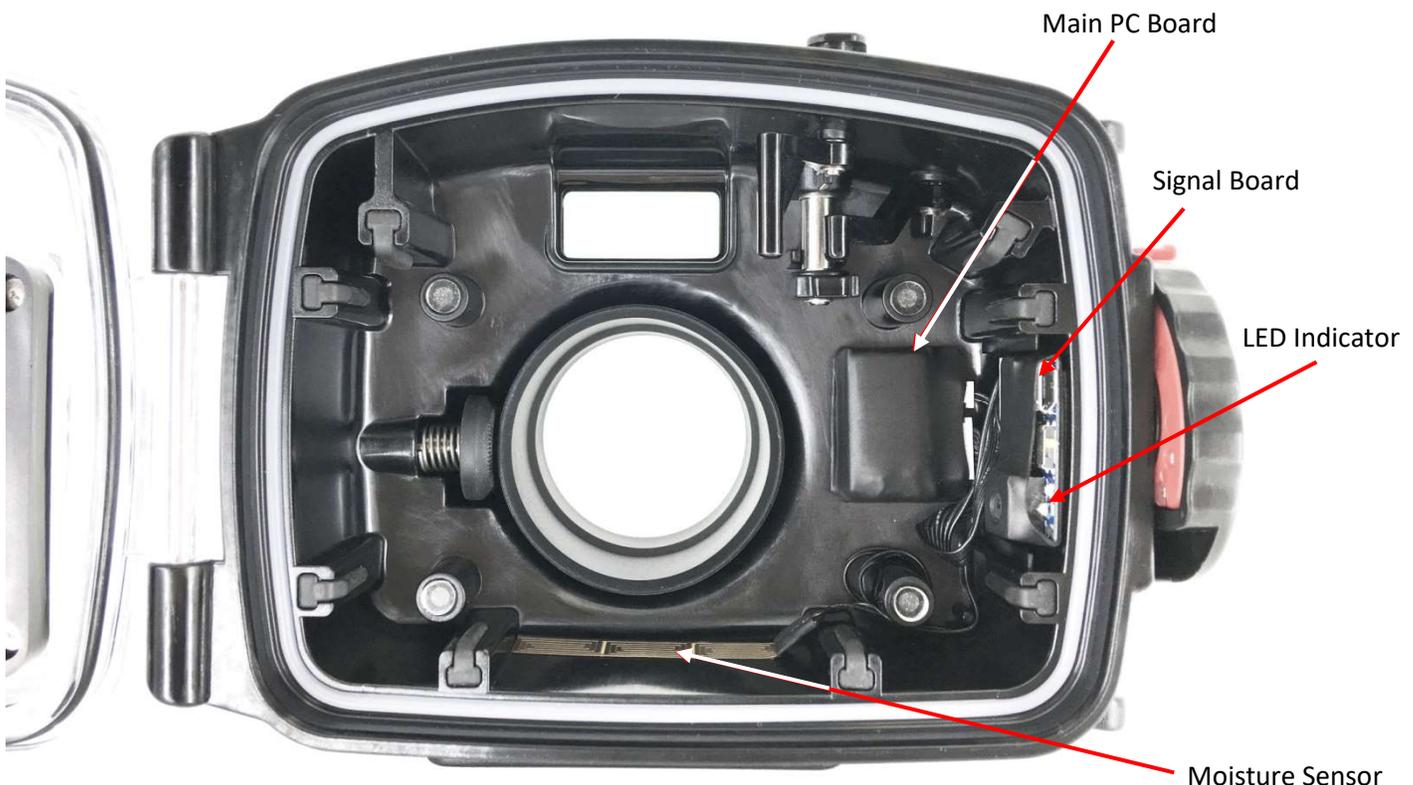
FANTASEA HYBRID VACUUM SAFETY SYSTEM

Important Notices

1. The **FRX100 VA R Housing** includes several components of the *Hybrid Vacuum Safety System*, which allow use of the Moisture Detector. However, in order to make use of the Vacuum Safety System, a **Vacuum Valve (and Vacuum Pump)** should be separately ordered and installed. For smooth and safe operation of the system, make sure to order the original Fantasea Vacuum Valve and Pump.
2. Use of the Hybrid Vacuum Safety System must not replace any of the other safety measures conducted in order to ensure a complete watertight seal of the housing before and during the dive.

The Fantasea Hybrid Vacuum Safety System is an optional pre-dive vacuum test and leak detector safety system. The system allows confirming the watertight seal of the housing prior to the dive using the vacuum system and monitoring the housing seal during the dive using the moisture detector. Follow the instructions below to safely charge and use the system.

Identification of System Parts (Housing Front Door Interior)



Identification of System Parts (Housing Back Door Exterior)*

* With a Vacuum Valve installed on the housing's dedicated M16 port



Charging the Unit

1. Turn the unit on using the power switch featured on the Signal Board.
2. The LED Indicator will start flashing blue:
 - a. Slow flashing (approx. 1 flash per second) indicates a charged battery.
 - b. Rapid flashing (approx. 4 flashes per second) indicates low battery.
3. To charge the unit, connect it to a USB charger using a standard Micro-USB cable (not included). Note that it is best using an android phone charger unit for this purpose.
4. Connect the micro-USB end of the cable to the Micro-USB port on the Signal Board (image #22). Connect the other end of the cable to a USB port or USB charger.
5. The unit should start charging and the LED Indicator should start flashing green.
6. **Make sure to keep the unit turned on during charging.**
7. When charging is complete, the LED Indicator stops flashing and remains green.
8. Disconnect the cable and turn the unit off using the power switch on the Signal Board to save battery power. If the unit is left turned on, the battery will drain within a few days.
9. During charging, keep the charger away from highly flammable materials or products and never leave the charger unattended when in use.
10. Never apply any type of pressure on the battery, expose it to direct heat or chemicals.



11. Battery must not be charged in temperatures below freezing or above 50°C (122°F).
12. To extend the battery's lifespan:
 - a. Avoid draining the battery all the way to 0%. Even though the unit can handle a few more dives even when the LED Indicator starts rapidly flashing blue, it is best to connect the unit to a charger at this point.
 - b. During long periods of storage, the unit should be stored partially charged in a cool and dry area.

Moisture Detector

The Moisture Detector allows monitoring the watertight seal of the housing during the dive. Moisture detectors are very sensitive, so whenever moisture is detected by the sensor, the LED Indicator starts flashing red and a warning alarm starts beeping, thereby alerting of a possible leak.

1. You can test the Moisture Detector (image #23) by placing a wet finger over the moisture sensor unit at the bottom of the housing.
2. In order to silence the alarm after it starts beeping:
 - a. Gently wipe the Moisture Sensor unit with a soft dry cloth in order to dry it off.
 - b. Switch the Vacuum System off using the power switch on the Signal Board.
3. **Never soak or wash the interior of the housing with water. This will cause irreparable damage to all Hybrid Vacuum Safety System electronic components!**



! Hybrid Vacuum System instructions provided in the sections below refer only to housings which **a Vacuum Valve is installed on and made use of.**

Installing the Vacuum Valve

1. Remove the M16 Cap from the M16 port by screwing it all the way out. Store it in a secure place for possible future use.
2. Install the Vacuum Valve by screwing it inside the dedicated M16 port at the back of the housing. Carefully tighten the Vacuum Valve by fitting the wrench around the edges of its base and gently

turning it clockwise until reaching a point of resistance. Use only the wrench included and do not over tighten the Vacuum Valve to prevent the port, valve or housing back door from being damaged.

Performing a Pre-Dive Check

1. Prior to closing the housing, turn the unit on using the power switch on the Signal Board. The switch should be pushed leftwards in order for the unit to be turned on. Make sure the unit is properly charged and that the LED indicator flashes slowly (approx. 1 flash per second).
2. Lock the housing and all other accessories which their installation might have an effect on the watertight seal of the housing. **Camera should be turned off prior to the pre-dive check.**

Important Notice

The housing should be completely set up for the dive prior to performing the vacuum pre-dive check. Any modifications carried out on the housing after the pre-dive test has been completed necessarily turn the check results irrelevant and require performing an additional pre-dive check.

3. Remove the protective cap from the Vacuum Valve by gently turning it counterclockwise and screwing it out (image #24). Make sure you're only removing the protective cap when turning it, rather than the complete valve. If the valve screws out together with its cap, use the wrench included in order to tighten the valve inside the port. This will allow for easy and safe removal of the protective cap when screwed out.

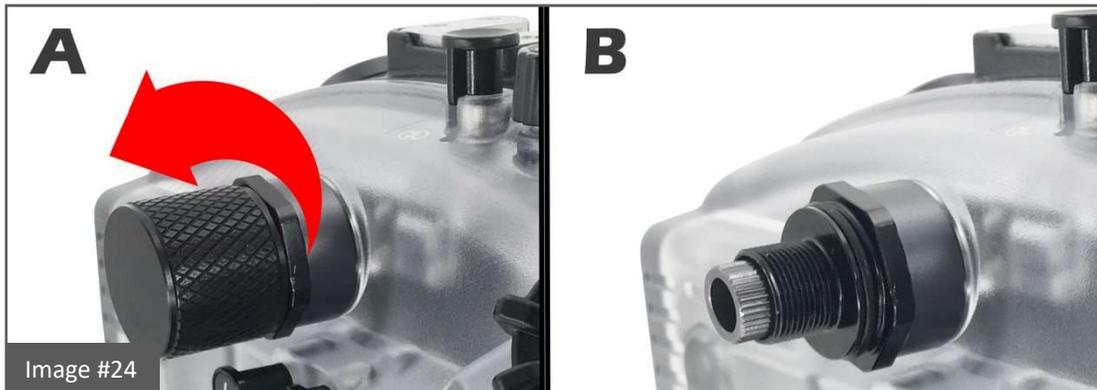


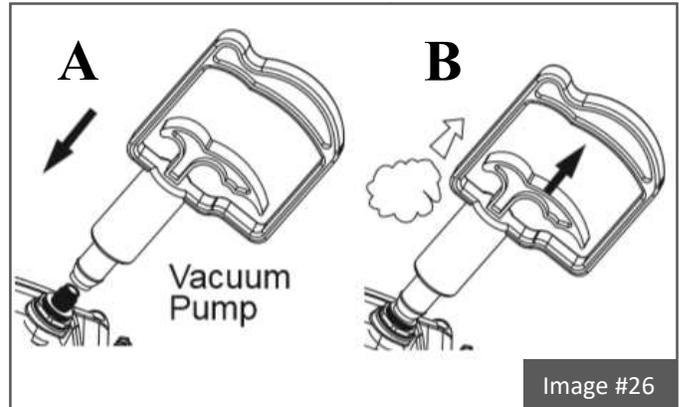
Image #24

4. Install the Rubber Fitting on the Vacuum Pump. Hold the Rubber Fitting against the Vacuum Pump so its wide opening faces the funnel of the pump. Insert the funnel of the pump into the Rubber Fitting and then push the fitting against the funnel until it is fully inserted (image #25).



Image #25

5. Place the housing on a flat surface in a shaded area and in a manner that enables the housing to be left stable and uninterrupted during the pre-dive check.
6. Connect the Vacuum Pump to the Vacuum Valve by gently pushing the exposed valve all the way into the Rubber Fitting of the pump.
7. Use the Vacuum Pump to pump air out of the housing by gently and steadily pulling and releasing its handle (image #26). While doing so, carefully watch the LED Indicator through the back door of the housing to monitor the air pressure inside the housing as it progresses through the following stages:

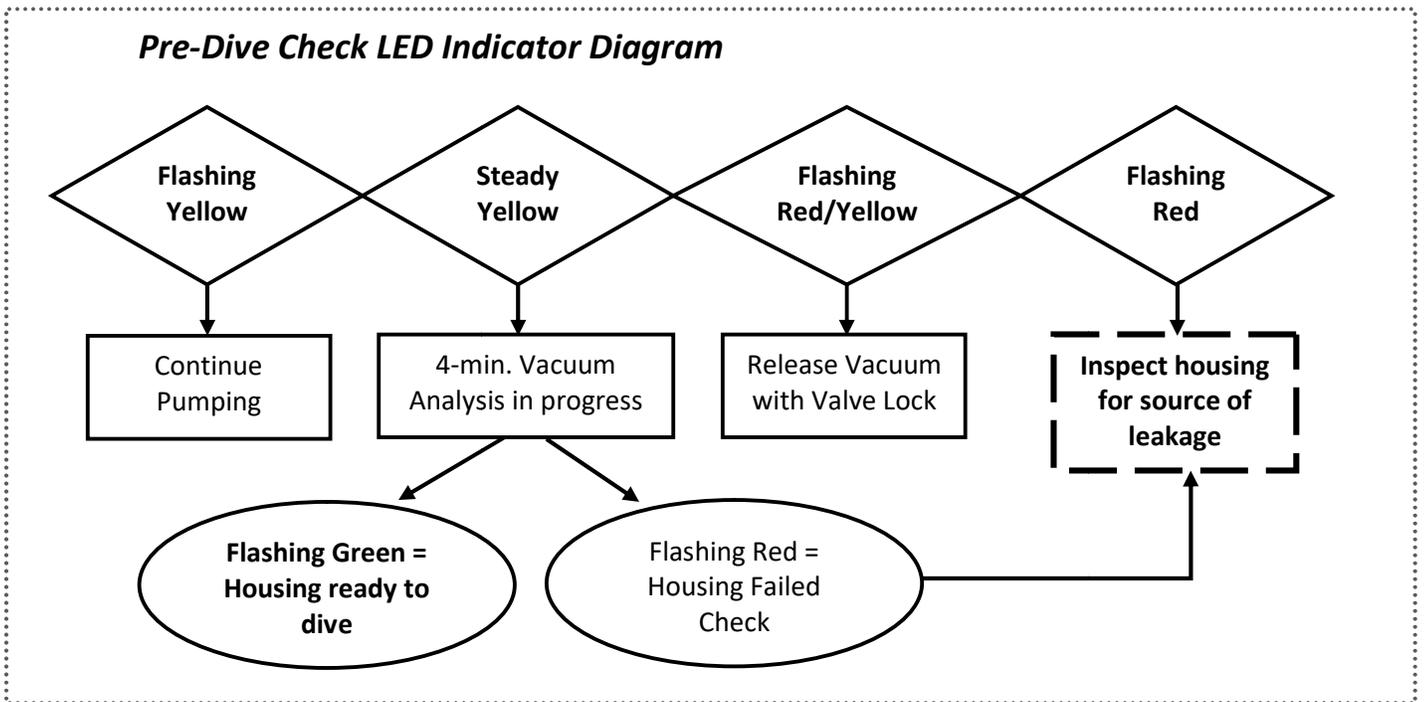


- a. Yellow flashing rapidly – air pressure has started to drop. Continue pumping.
- b. Yellow flashing slowly – air pressure continues to drop. Continue pumping. Note that that pumping should be carried out at a slower pace as the Indicator LED flashes slower and air pressure approaches the optimal level.
- c. Steady yellow (no flashing) – air pressure has reached the optimal level. Stop pumping and allow the analysis to begin.
- d. Yellow & Red flashing alternately – indicates over pumping and under pressure inside the housing. Stop pumping and carefully release a bit of the vacuum by turning the Vacuum Release Tip counterclockwise and pulling it out (image #27)



- until the LED Indicator turns steady yellow, indicating a proper pressure for the check. If the LED Indicator starts flashing yellow again, overpressure has been produced inside the housing due to excessive vacuum release. Use the Vacuum Pump to extract air again until the LED indicator turns steady yellow.
8. The analysis begins once the LED Indicator turns steady yellow. Carefully disconnect the Vacuum Pump from the Vacuum Valve and reinstall the Protective Cap over the valve.
9. **Analysis duration is approx. 3-4 minutes. During this time, the housing must be left uninterrupted.** Avoid moving the housing or pushing any of the housing controls during the analysis.
10. Once the analysis is complete, the LED Indicator will turn either red or green, depending on the results:
 - a. Green flashing – The housing passed the check. It is watertight sealed and ready for the dive.

- b. Red flashing – The housing failed the check. Inspect the housing for potential leakage sources. If failing to find the source, it is recommended to reinstall and lock all system components, visually inspect all o-rings and make sure nothing interferes with the watertight seal of the housing.
11. If during the analysis the LED Indicator starts flashing in yellow or alternately red and green, the analysis has been interrupted by over-pressure or under-pressure correspondingly. Follow the steps below to allow the analysis to properly continue:
 - a. Yellow flashing - Use the Vacuum Pump to extract air again until the LED indicator turns steady yellow.
 - b. Red and Green flashing - Release a bit of the vacuum by turning the Vacuum Release Tip counterclockwise and pulling it out (image #27) until the LED Indicator turns steady yellow.
12. In case of a significant air leakage detected anytime during the process, the LED Indicator will turn flashing red.



13. Once the pre-dive check is complete and the watertight seal of the housing has been confirmed:
 - a. Reinstall the Protective Cap over the Vacuum Valve if it hasn't been reinstalled yet. Note that the Vacuum Valve is watertight even without the Protective Cap, as long as the Vacuum Release Tip isn't pulled out during the dive. However, the Protective Cap ensures

the Vacuum Valve remains locked during the dive, so it's recommended to reinstall it prior to diving with the housing.

- b. Dive with the housing without detaching or attaching any accessories which their installation might have an effect on the watertight seal of the housing.

Important Notice	<p>The <u>Vacuum Safety System</u> was designed to test and confirm the watertight seal of the housing <u>prior to the dive only</u>.</p> <p>Monitoring the watertight seal of the housing <u>during the dive</u> is carried out using the <u>Moisture Detector</u> included in the system. See “Moisture Detector” section below for further information.</p>
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14. After the dive:

- a. **Prior to opening the housing, make sure to completely release the vacuum** by turning the Vacuum Release Tip counterclockwise and pulling it out (image #27). This prevents stressing the housing Latch Dial.
- b. Turn the system off using the power switch on the Signal Board to save battery life.

System Care & Maintenance

- 1. In between the dives, use the wrench included to make sure the Vacuum Valve is tightly screwed into its port and was not accidentally loosened when unscrewing the Protective Cap. Fit the wrench around the edges of the Vacuum Valve base and turn it clockwise until encountering fair resistance (image #28). Do not over tighten the Vacuum Valve to prevent the port or valve from being damaged.

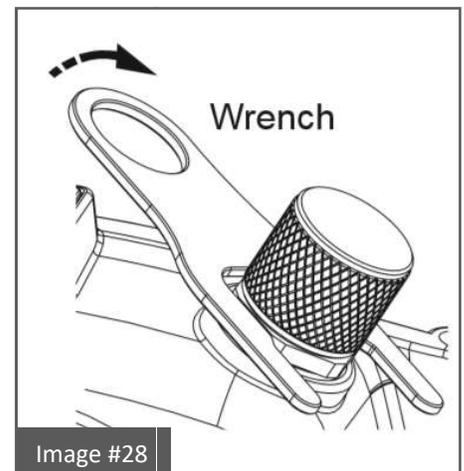


Image #28

- 2. The O-ring positioned between the Vacuum Valve and its port should be annually maintained:
 - a. Remove the Vacuum Valve from its port using the wrench. Fit the wrench around the edges of the Vacuum Valve base and turn it counterclockwise until the valve has been completely unscrewed.
 - b. Visually inspect the O-ring featured at the base of the Vacuum Valve. If there is any debris present, including dirt, sand, dust, hair or any other matter, it must be cleaned to ensure a proper watertight seal.
 - c. In order to clean the O-ring, first remove it from the Vacuum Valve.

- d. Cleaning the O-ring is a simple matter of wiping it with a damp, soft cloth to remove the foreign matter. Be careful the cloth you use does not leave any of its own material behind as this can also affect the effectiveness of the seal.
 - e. Apply a slight layer of Fantasea Silicone Grease on the O-ring. Note that the amount of lubrication required on the O-ring is only enough to allow it to slip into place without friction, so it does not twist or become dislodged. More grease is not necessarily better, and in some cases might interfere with the watertight seal of the housing.
 - f. Reinstall the O-ring and then reinstall the Vacuum Valve using the wrench.
 - g. Confirm that the housing watertight seal hasn't been interfered using the vacuum pre-dive check prior to diving with the housing again.
3. **Never soak or wash the interior of the housing with water. This will cause irreparable damage to all Hybrid Vacuum Safety System electronic components!**

Vacuum Valve Removal

1. In case of removing the Vacuum Valve for whatever reason, follow the steps below:
 - a. Remove the Vacuum Valve from its port using the wrench. Fit the wrench around the edges of the Vacuum Valve base and turn it counterclockwise until the valve has been completely unscrewed.
 - b. Install the M16 Cap (previously removed) on the Vacuum Valve port by screwing it all the way in (image #29).



Image #29

Important Notices

1. Once the Vacuum Valve has been removed and an M16 port cap has been installed on the port, it is important to carry out the first dive with the housing empty (no camera installed inside) in order to verify that the housing watertight seal has not been affected during the replacement.
2. The Vacuum Valve port was designed to accommodate the Vacuum Valve only and any other components should not be installed on this port.

OPTIONAL ACCESSORIES

FOR THE FULL SELECTION OF FANTASEA ACCESSORIES COMPATIBLE WITH THE FRX100 VA R HOUSING, PLEASE REFER TO THE FANTASEA WEBSITE – WWW.FANTASEA.COM

EXTERNAL FLASHES

Underwater flashes and strobes were designed to improve the color, lighting and quality of your underwater images. Since light and color are absorbed by water, using an external flash is recommended in all depths, during daylight and night dives. In addition to retrieving the color and light absorbed by water, underwater flashes also allow for creative lighting, assist in reducing the amount of backscatter and prevent the shadowing effect caused by the housing lens port when using the built-in camera flash, especially when accessory lenses are mounted on the housing.

The **FRX100 VA R Housing** can be used with underwater slave flashes. These external flashes feature a slave sensor which triggers the external flash to fire in sync with the internal camera flash.

Most underwater slave strobes are capable of synchronizing with the internal camera flash without any cables under certain diving conditions. They feature a slave sensor that triggers the strobe to fire in sync with the camera built-in flash as long as the strobe and the camera are positioned on the same axis and as long as there is not much ambient light available. However, if the strobe slave sensor isn't pointed directly at the internal camera flash, or when photographing during daylight, in clear water and bright conditions, the slave sensor might fail recognizing the output of the internal camera flash. Connecting a fiber optic cable between the internal camera flash and the slave strobe ensures full synchronization in all angles and diving conditions.

Attaching Fiber Optic Cables to the Housing

1. When installed on the housing, the fiber optic cable plate allows for an easy attachment of up to 2 fiber optic cables to the housing.
2. Remove the Fiber Optic Cable Plate from the housing. Insert your fingers beneath the adaptors installed inside the plate and push the plate upwards till it is removed from its slot.
3. The Fiber Optic Plate receives most fiber optic cable brands, including Sea&Sea. In most cases, the plugs installed inside the plate can be removed and the fiber optic cable can be installed using the plug it comes with. If attaching fiber optic cables which already feature an adaptor:
 - a. Housing adaptors should first be removed from the fiber optic cable plate. Use a pen or screwdriver to gently push them out of the plate. The adaptors should be pushed from the back of the plate and pulled out from its front side. Make sure not to damage the fiber optic cable plate when doing so.
 - b. It's recommended to apply some silicone grease on the small o-rings of the adaptors installed on your fiber optic cables, so they can be installed and removed more easily.

- c. Simply push the adaptor featured at the end of the cable into the dedicated slots on the front side of the plate, instead of the adaptors you've just pulled out, until they are fully fitted inside. Gently pull the fiber optic cable in order to make sure that it doesn't come off easily.

4. If installing exposed fiber optic cables (without adaptors):

- a. Prior to installing the fiber optic cable on the Fiber Optic Cable Plate, make sure that the two black adaptors are firmly and properly installed inside the plate (image #30).
- b. Insert the exposed end of the fiber optic cable into the small hole of the adaptor unit, starting from the end that features a screw and pushing it towards the end that features an O-ring (image #31), until the fiber optic cable reaches the end of the adaptor, which can be verified by looking from the other side of the Fiber Optic Cable Plate. The fiber optic cable should be extending out no more than 1mm (image #32).



Image #30



Image #31



Image #32

- c. Use the screwdriver included in order to tighten the screw on the adaptor (image #33). Tighten it enough to stabilize the fiber optic cable inside the adaptor, but don't tighten it too strongly. **Tightening the screw too much might damage the fiber optic cable.**

5. Once the fiber optic cable has been installed on the Fiber Optic Cable Plate, install the Fiber Optic Cable



Image #33

Plate by inserting it inside the dedicated slot on the housing and pushing it all the way in.

6. When installed on the housing, the Fiber Optic Cable Plate blocks the internal camera flash, so only the external slave flash illuminates the subject. This diminishes the effects of backscatter, as well as eliminates any shadowing effect caused by housing lens port, especially when lens accessories are mounted on the housing.
7. Follow the instructions in your strobe manual on how to synchronize your camera with the external strobe and to select the proper pre-flash program for your camera. It is recommended to test the synchronization when photographing opposite a mirror. In this case, the output of both the built-in camera flash and the strobe should be visible in the test shot taken.

LENS ACCESSORIES

The FRX100 VA R Housing lens port features a 67mm thread, which can accommodate all 67mm conversion lenses and color correction filters, such as:

- **Optical Wide Angle Wet Lenses:** Wide angle lenses allowing for high quality wide angle images up to 14mm.
- **BigEye Wide Angle Lenses:** Perfect for shooting seascape, divers, ship wrecks and schools of fish, without moving further away from the subject, thereby still taking full advantage of water clarity and artificial light sources.
- **SharpEye Macro Lenses:** Perfect for shooting close-up images of fish, corals, textures and more. These macro lenses magnify the subject and enable the camera to focus on short distances for creating super sharp images.
- **RedEye & PinkEye Color Correction Filters:** Used to restore the colors absorbed by the water. In shallow depths, these filters can serve as an attractive alternative to artificial light sources. These filters can be mounted directly on the housing lens port, and can also be installed inside BigEye and SharpEye accessory lenses.
- **EyeGrabber Lens Holders:** Attach to Flex or Ball & Joint arms, enabling safe, secure and easily accessible storage for your lens accessories when not in use during the dive.

CARE & MAINTENANCE

The Fantasea **FRX100 VA R Housing** requires only a minimum amount of care for safe and reliable performance. The following tips will enable you to get the best results:

1. Always rinse your housing in streaming fresh water and if possible soak the housing in a fresh water tub or rinse tank for about 20 minutes after every dive in order to dissolve the salt water crystals from around the controls and openings of the housing. Manipulate each of the movable controls to assist the removal of salt particles from these tight areas.
2. Allow the housing to dry thoroughly before packing away for the day or for the trip home. You may use a soft towel or cloth to dry the housing. Be sure there is no grease or other debris on the towel.
3. Visually check the condition of the black O-ring before every dive. If it is dirty, clean it with fresh water and dry it with a soft cloth as described throughout the manual. If it is damaged in any way, such as cut or perforated, replace it before using the housing again.
4. It is recommended to slightly lubricate the black O-ring periodically. It's important to note that the amount of lubrication required on the O-ring is only enough to allow it to slip into place without friction, so it does not twist or become dislodged. More grease is not necessarily better, and in some cases might interfere with the housing watertight seal.
5. Use only the supplied silicone grease for lubricating the back door black O-ring. Use of any other grease might impair the watertight seal of the housing.
6. Avoid removing the white O-ring featured on the back side of the front door unless it's damaged.
7. Be careful not to get greasy fingerprints or dirt on the lens port. This will affect the image quality. Wipe any dirt or grease off with fresh water and a soft cloth.
8. Never handle the housing with your hands coated in suntan, oil or cream. Avoid getting any oils, creams or petrol-related substances or liquids on the housing surface, as this can distort and damage the housing materials.
9. Do not drop the housing on hard surfaces, it could crack and its watertight seal might be damaged.
10. Do not disassemble or modify the housing, as this may cause leaks.
11. Do not leave the housing in direct sunlight, inside a car in hot weather, or near a heater. Heat may warp the housing and cause leaks. If you have to leave the housing in the sun, it is important to cover it with a towel.

12. Travel with the housing protected in a padded case. It is best to remove the camera from inside the housing when traveling and to provide it with its own protective case or compartment.
13. Always leave the housing slightly open when transporting by air.
14. Never dive with the Fantasea **FRX100 VA R Housing** to a depth greater than 60 meters/200 feet.
15. It is important to carry out the first dive without the camera inside the housing. Check that the watertight seal has not been affected during transport and long periods of storage.
16. It is likewise recommended to visually monitor the housing during every descent, especially for the first 10 meters/33 feet. If water is observed entering the housing or bubbles escaping from it, the housing should be rotated to a *port down position* and held that way as you return to the surface immediately and get it out of the water.
17. When mounting wet lenses on the housing lens port, it is recommended to follow the guidelines below in order to avoid wearing out the threads of the housing lens port and lenses over time:
 - a. Prior to installing the lens on the housing, it is recommended to apply a small amount of silicone grease on the threaded area of the lens (and adaptor, if used) to reduce the amount of friction.
 - b. Install the lens on the housing lens port underwater only and remove it prior to ending the dive. Once removed, the lens can be mounted on a lens holder. Avoid having the lens assembled on the housing on land as much as possible, as it is heavier and exerts more pressure on the threads.
 - c. It is recommended to reduce wearing of the threads by using lens mounting accessories such as bayonet mounts or flip adaptors.
 - d. These guidelines apply to all wet lenses brands and models, but especially important when making use of relatively heavy wet lenses.



FANTASEA PRODUCT CONSUMER LIMITED WARRANTY

“Fantasea” warrants this Fantasea Line branded product against defects in materials and workmanship under reasonable use for a period of ONE (1) YEAR, (two years, where required by law as determined by the origin of the authorized dealer). This warranty is effective from the date of retail purchase from Fantasea or an authorized Fantasea dealer, by the original end-user purchaser (“Warranty Period”). This warranty does not cover any commercial use of the product. If a product defect arises and a valid claim is received within the Warranty Period, at its option, Fantasea, or its authorized service facilities will either (1) repair the product defect at no charge, (2) exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product. The warranty will not extend beyond the original warranty period. Your Fantasea Product should be registered within 30 days of purchase. You must keep the proof of purchase which indicates the date on which the purchase was made; as you may be required to show proof of purchase if you need warranty service. The following conditions apply: 1. This warranty extends to the original purchaser only. It is not assignable or transferable. 2. The warranty does not cover damage resulting from misuse, abuse, negligence, or accidents. Proper maintenance of the Product is the responsibility of the owner. 3. The warranty does not cover damage directly or indirectly resulting from the use of unauthorized replacement parts or service performed by unauthorized facilities. 4. This warranty does not cover any damage to any other product used in conjunction with the Fantasea product, including cameras and lenses, and resulting from any defect in the product materials or workmanship. 5. The cost of sending the product back to Fantasea or its authorized service facilities is the responsibility of the customer. 6. The warranty does not cover any incidental damages resulting from any defects in the product. This expressly includes any travel reimbursements or any other costs associated with the purchaser’s optional use of the product. The conditions of this warranty are expressly in lieu of all other expressed warranties, including the payment of consequential or incidental damages for the breach of any warranty. Please register your product on line at this URL:

<http://www.fantasea.com/registration>.

For further information, please visit our website www.fantasea.com or contact us at info@fantasea.com