

# AOI VWS-02-M16

## Instruction Manual

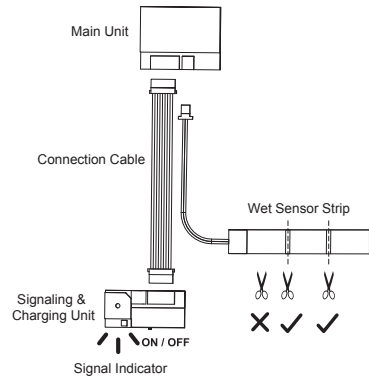
AOI Vacuum Analyzer and Wet Detection System VWS-02-M16 is for confirming the water sealing of your housing prior to the water. Also, it will monitor your housing from leakage in water. The system can be flexibly installed in the most of camera housings which are equipped with a M16 port and an appropriate space inside the housing.

## Installation

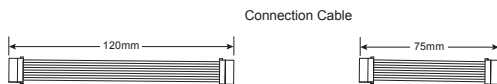
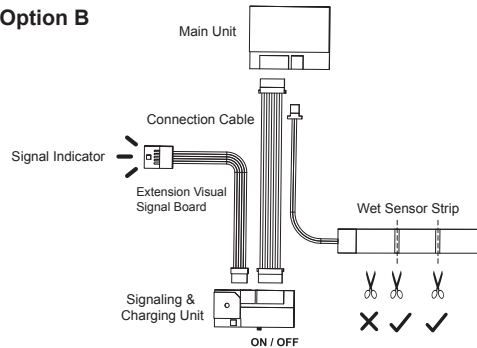
### 1. Installing the electronic modules inside the housing

a. There are two options for the set-up, select the option which will be best fitted to your waterproof housing.

#### Option A



#### Option B



b. If you select Option A, the Signal Indicator on the Signaling & Charging Unit should be able to point outside of the rear cover and also can be easily observed and monitored from the outside of the housing.

c. If you can't find a location placing the Signaling & Charging Unit with the Signal Indicator pointing outside, you can select the Option B. From Option B, it will be more flexible to position the Extension Visual Signal Unit with the Signal Indicator pointing outside.

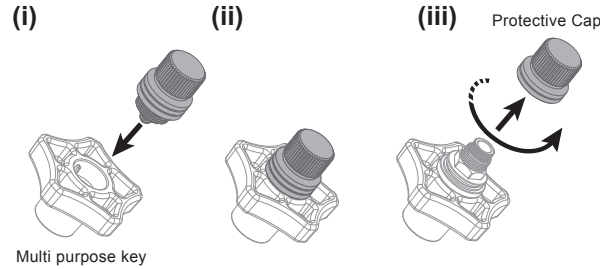
- d. The Signaling & Charging Unit should be positioned in a way that it can be easily accessed to its Power Switch and Micro USB Port.
- e. You can select a proper length of Connection Cable (140mm or 75mm) for your own System set-up requirement.

### 2. Wet Sensor Strip connection

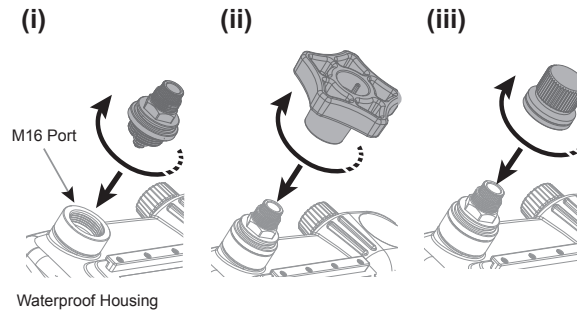
Connect the Wet Sensor Strip Cable to the Main Unit and place the Wet Sensor Strip at the lowest point of the housing in order to ensure that any water droplets leak into the housing will be reached and accumulated in that position.

### 3. Vacuum Valve mounting

a. Protective Cap Removal

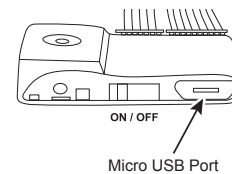


b. Mount the Vacuum Valve to the M16 Port on the housing



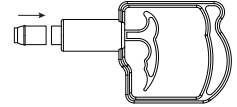
## Battery Charging

- a. Turn on the power switch on the Signaling & Charging Unit, if the Signal Indicator starts Fast Blinking (4 times per second), it indicates low battery.
- b. Turn off the Signaling & Charging Unit and connect it with a USB charger (not provided) through the Micro USB Port on that Unit.
- c. If battery charging is in progress, the Signal Indicator will be in Blinking Green. When charging is completed, the Signal Indicator will be in Still Green.

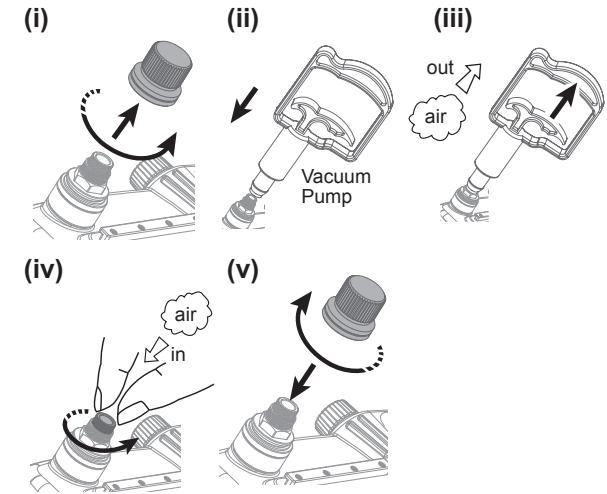


## Pre-Dive Check by Vacuum Analyzer

- a. Turn-on the power, if Signal Indicator shows slow Blinking Blue (1 time/sec), VWS-02-M16 is in the stand-by mode. Close the Rear Cover of the Waterproof Housing and make sure the whole housing is in air tight status.
- b. Install the rubber Pump Adapter onto the Vacuum Pump tip.



c. Take off the Protective Cap from the Vacuum Valve and connect the Vacuum Pump onto Vacuum Valve knob. Pull the Pump handle gently and repetitively. During the vacuum pumping process, check carefully in the color changes of the Signal Indicator:



- **Fast Blinking Yellow-** Internal pressure has started to drop. Continue pumping.
  - **Slow Blinking Yellow-** Internal vacuum is closed to the desired level. Slow down pumping.
  - **Still Yellow-** The desired vacuum level has been reached. Stop pumping and the vacuum analysis process is in progress.
  - **Blinking Yellow - Red alternately-** Internal Vacuum is above the desired level. Stop pumping and carefully release air by turning the Vacuum Release knob counterclockwise a little bit until the Signal Indicator turns Still Yellow.
- If excess air is released into the housing, the Signal Indicator will have the Blinking Yellow again. Vacuum pumping again until Signal Indicator turns Steady Yellow.
- d. The Vacuum analysis Process will start once the Signal Indicator turns Steady Yellow. Disconnect the Vacuum Pump from the Vacuum Valve carefully and then put back the Protective Cap onto the Vacuum Valve.
  - e. The Vacuum analysis Process takes approx. 4 minutes. Once the process is completed, the Signal Indicator will turn either Red or Green, depending on the results:
    - **Blinking Green-** Housing Test is passed and it is ready to go into water.
    - **Blinking Red-** Housing Test is failed and inspection for leaking is required.

In case of a significant air leakage detected anytime during / after the Vacuum analysis Process, the Signal Indicator will turn Blinking Red.

## After Usage

- Before opening the housing rear cover, make sure to reset the vacuum completely by turning and holding the Vacuum Release knob COUNTERCLOCKWISE. Otherwise, the rear cover will be vacuum locked.
- When you release air back to the housing cavity, Signal Indicator will turn to Blink Red.
- Turn-off and turn-on the Power in order to reset the System before you re-start the Vacuum analysis Process again.

## Wet Sensor Strip

Wet Sensor Strip is the Wet Detector in the system. Water droplet / moisture be detected sensitively and the Signal Indicator will change into Still Red and Beeping audio alert signal will be heard.

Wet Detection is always on when you turn on the power. It can be worked independently without the vacuum valve.

In order to reset the Wet Detection alarm signals:

- Wipe and dry the Wet Sensor Strip with a soft dry tissue.
- Switch the System Off and On

## Specifications

Model		AOI VWS-02-M16	
Description		Vacuum Analyzer and Wet Detection System for Waterproof Housing	
Valve Fastening		M16	
Valve Material		Black Anodized Aluminum Alloy	
Depth Rated		100M / 330Ft	
Charging Time		1.5 Hours	
Charging Port		5V, 0.3A Micro-USB charging Port	
Power Switch		Sliding ON / OFF Switch	
Operation Time Per Full Charge		4 Days (Powered by 3.7V 110mAH Lithium Polymer Rechargeable Battery)	
Vacuum Analyzing Time		Approx. 4 Minutes	
Wet Detection		All time Operation independently	
Indicator Signal Output		Piezo Buzzer (Audio Signal) Tri-color LED (Blue, Yellow, Red & Green Visual Signals)	
Signal Indicator	Fast Blinking Blue (4 times/sec)	System needs power charge	Connect it to a USB charger to charge battery
	Fast Blinking Green	Charging in progress	Continue charging
	Still Green	Charging is completed	Stop charging
	Slow Blinking Blue (1 time/sec)	Ready for Making Vacuum analysis Process	Vacuum Pumping
	Blinking Yellow	Vacuum below desired level	Continue pumping
	Blinking Red - Yellow Alternately	Vacuum above desired level	Turning the Vacuum Release knob Counterclockwise
	Still Yellow	Vacuum analysis in progress	Wait for 4 minutes for vacuum analysis
	Blinking Red	Vacuum analysis test is Failed	Inspect the housing for any potential air leakage sources
	Still Red with audible alarm	Wet Sensor Strip detects water droplet or moisture	Inspect the housing for any potential water leakage sources
Slow Blinking Green	Vacuum analysis test is Passed	Ready for going into water	
Dimension	Vacuum Valve	Φ 22 x 34 mm (H)	
	Main Unit	28 mm (L) x 18mm (W) x 7 mm (H)	
	Signaling & Charging Unit	30 mm (L) x 14mm (W) x 7 mm (H)	
	Long Connection Cable	140 mm (L) x 5 mm (W)	
	Short Connection Cable	75 mm (L) x 5 mm (W)	
	Extension Visual Signal Board Cable	120 mm (L) x 3 mm (W)	
Weight	Vacuum Valve	16.5 grams	
	Main Unit	5.5 grams	
	Signaling & Charging Unit	2.8 grams	
Accessories		Vacuum Pump Multi Purpose Key	