

Vivid Leak Sentinel version V6

by Tim Gurney

‘Nothing is certain except death and taxes’. As underwater photographers, we can add ‘and leaks’. If you’re an underwater photographer that hasn’t yet experienced the horrors of a leak, you will.

With the best will in the world, leaks are inevitable. The best solution that underwater housing manufacturers currently offer is to mitigate any water damage with a leak alarm. Often this involves a buzzer and flashing LED, inside the housing, that warns when water has worked its way inside. Whilst this might help prevent catastrophic damage from a full flood, as little as a spoonful of salt water can wreck delicate electronics. Even a trickle can cause significant damage. The size of the ‘trickle’ merely determines the size of the repair bill.

The solution to housing leaks

The solution: the good news is that systems do exist to monitor the seal of a housing before it goes in the water. This creates a more effective safeguard, reduces the risks of the dreaded ‘Owner Setup Error’ and enables greater peace of mind. Enter

the vacuum valve.

A vacuum valve uses a small hand or electric pump that sucks air out of your housing. This creates a vacuum which is monitored by the valve’s electronics. If, for any reason the vacuum reduces, the valve will give a warning indicating a leak. The housing can be set up and tested before diving and the valve’s indicator can confirm that the housing has been sealed properly.

One such system is the Vivid Leak Sentinel vacuum valve which I’ve been using in Subal housings since 2014. I started with Sentinel version 3 and worked my way, over 700+ dives, through versions 4, 5XB and now 6XB and can confirm, I’d never leave home without one.

Installation of the Leak Sentinel

The Leak Sentinel system is simple to install. The valve is screwed into an empty bulkhead on the housing so that the warning LED is visible when diving. In earlier models (versions 1 to 4) the battery was part of the Leak Sentinel’s valve assembly and sat on the exterior of the housing.



Vivid Sentinel V5XB with the battery on a printed circuit board connected by wire to the valve

From version 5, called the 5XB (i.e. eXternal Battery), the battery was part of a circuit board inside the housing with a wire connection to the valve. This avoided the need to disassemble the valve to change battery; a feature of the earlier models.

Depressing a button on the Leak Sentinel activates a flashing red LED. Using a small hand-pump, of the type used with Vacuvin wine corks, you pump air out of the housing through the valve (a small battery-operated pump is also available).

As air is removed, the LED will change to flashing red/green until the vacuum is established. The LED will then flash green. This usually takes about 20, or so, pumps depending on the volume of the housing and port.

If the housing has not sealed properly because of a fault, or more likely user-error, the valve LED will either stay red or flash red/green,



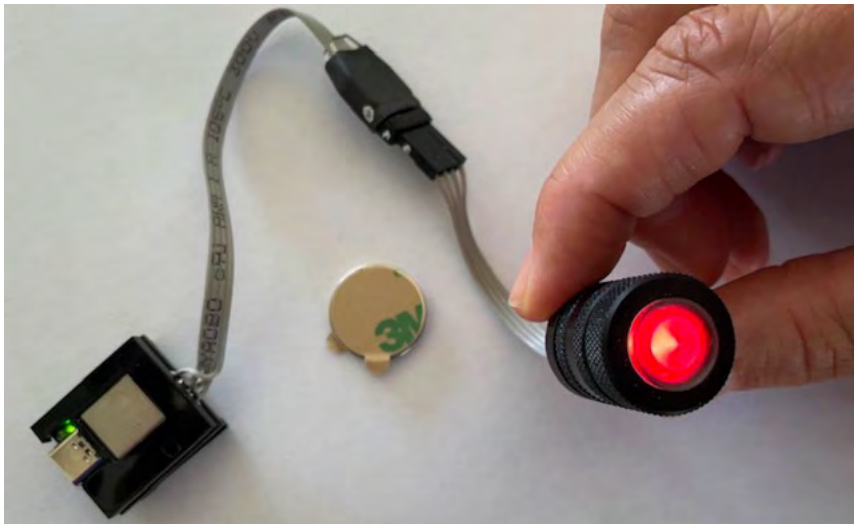
The manual hand pump for the Leak Sentinel system

indicating a problem. If so, check your housing for possible problems – perhaps a hair or sand, or incorrect positioning of an O-ring - and retry.

Vacuum valves are great devices to help avoid user-errors and, more importantly, warn of an issue before the housing gets wet or leaks. It is this feature which makes them even more valuable than a housing leak detector which only works when water is already in the housing. You might decide the detector avoids the need for a pre-dive rinse tank test.

Leak Sentinel have just released version V6. Like the 5XB, the electronics are inside the housing. A cable with a connector links the valve to the electronics which is powered by a rechargeable battery. The connector makes installing and removing the valve and its electronics from the housing straight-forward.

Like the 5XB, once a vacuum



Vivid Sentinel V6. A connector allows easy removal of the system if necessary. The coin-shaped disk in the middle is a magnet which holds the square circuit board inside the housing



The electric pump for the Leak Sentinel system

is established and the LED blinks green for a reasonable length of time (I usually wait an hour), the Leak Sentinel can be switched off by pressing the LED button and left until dive time. This saves battery life. Switch it back on pre-dive and the LED will reappear and should blink green. If the LED flashes red, there is a leak.

I find it efficient to set my system up the night before, check the vacuum is solid and then turn off the system. However, one caution: once in a while when reactivating the valve next morning, I have found the LED might flash red/green. This does not necessarily mean there has been a leak. Whilst the Leak Sentinel electronics allow for an element of temperature variation, a warning can be triggered if, for example, the system is setup in an air-conditioned room and then moved into a higher ambient temperature. To counter this I have found it helps to add an extra 3-4 pumps once the red/green

LED flashing turns to a green blink. This usually manages temperature variation issues.

I have had dives with the 5XB when the difference between water and air temperatures has caused the LED to switch from green to red/green at depth. If this happens to you, try not to panic. If you have completed your set up correctly and the LED green light showed for a decent time during the setup process and there are no physical signs of anything untoward, then you should be fine to continue. On resurfacing the LED may well return to green.

The 3-4 extra pre-dive pumps usually prevents this (once you know it can happen!) and I understand improvements have been made to the 6XB to temperature variation management.

Earlier versions of the Leak Sentinel used readily available, disposable batteries that offered dozens of dives, lasting many hours. I have not

yet been able to field test the run time for the rechargeable V6, but it has just gone past 10 hours on my bookcase with the LED blinking away. So enough, at least, for a full day's diving – probably several.

Customer Support

On the very rare occasion when I've had a question or an issue, the Leak Sentinel's producer, Miso Milivojevic of Vividhousings, has been unfailingly helpful at finding a solution in response to my emails.

In summary, the Leak Sentinel is:

- easy to install • easy to maintain • provides extra peace of mind • is relatively inexpensive

Is it worth installing one on your system? No question.

I'd suggest the Leak Sentinel is one of the best "investments" to make in your underwater housing setup. Who doesn't want to reduce the risks of a flood and enjoy the additional reassurance a vacuum valve provides?

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