SHEARWATER

SWIFT GPS

OPERATING INSTRUCTIONS

POWERFUL | SIMPLE | RELIABLE

TABLE OF CONTENTS

Doc. 57049-01 RevA (2025-10-22)

WARNING

This device can fail. It is possible that it can stop reporting gas pressures or report an incorrect pressure. Never risk your life on only one source of information. Use a backup gauge for critical gas information. If you choose to make riskier dives, obtain the proper training and work up to them slowly to gain experience.

This device will fail. It is not whether it will fail but when it will fail.
Do not depend on it. Always have a plan on how to handle failures.
Automatic systems are no substitute for knowledge and training.
No technology will keep you alive. Knowledge, skill, and practiced procedures are your best defense.
The use of this device requires appropriate diver training.

Conventions Used in this Manual

INFORMATION
Information boxes contain useful tips for getting the most out of your Peregrine TX.

CAUTION
Caution boxes contain important instructions for operating your dive computer.

WARNING
Warning boxes contain critical information that may affect your personal safety.

INTRODUCTION

The Shearwater Swift GPS is an advanced air integration transmitter for measuring scuba cylinder gas pressure and transmitting this information to a compatible dive computer, as well as providing location information. Please take some time to read this manual to get the best performance from your new transmitter. Diving involves risk and education is your best tool for managing this risk.

This manual provides installation and operating instructions for the Shearwater Swift GPS. The Swift GPS transmitter models to which this manual is applicable have a model and part number of 17004-xx where different values of xx indicate cosmetic differences only.

FEATURES

- Compatible with all air integrated Shearwater dive computers
- Randomized transmit interval allows reliable simultaneous use of multiple Swift and Swift GPS transmitters
- Advanced interference avoidance system ensures reliability using multiple transmitters
- Location information broadcasting using the following Global Navigation Satellites Systems (GNSS): GPS, Galileo, and BeiDou
- Location is broadcast, so any compatible Shearwater dive computer can receive the location, even without pairing
- Small size 76 x 34 mm
- Easy ‘no tools’ installation and removal on regulators
- LED status indicator
- Depth rating 200 m
- User replaceable CR2 battery

Doc. 57049-01 RevA (2025-10-22)

DIFFERENCES BETWEEN THE SWIFT AND SWIFT GPS MODELS

There are many similarities between the two models. The Swift GPS is built on the same hardware platform as the Swift, using the same case, high pressure sensor, and general construction. Both models transmit the same cylinder pressure messages.

The Swift GPS adds a Global Navigation Satellite System (GNSS) receiver that determines geographical location and transmits this location to compatible Shearwater dive computers. The dive computer writes the location to the dive log for automatic dive location tracking.

The location is only available when above water, since the radio frequencies used by GNSS are quickly stopped by water. To save battery power, the GNSS receiver is shutdown when submerged. Battery life of the Swift GPS will be shorter than the base Swift model due to running the GNSS receiver when on the surface.

MORE THAN JUST GPS

We named the product “Swift GPS” because the Global Position System (GPS) is the most widely known of the Global Navigation Satellite Systems (GNSS). However, the Swift GPS also supports the Galileo and BeiDou constellations for improved global coverage. Selection of which satellites are used is automatic, requiring no user intervention.

AIR INTEGRATION (AI)

The Swift GPS connects to Shearwater dive computers to provide air integration capability.

AI stands for Air Integration. This refers to a system that uses wireless transmitters to measure the gas pressure in a scuba cylinder and transmit this information to the dive computer for display and logging. Data is transmitted using low frequency (38 kHz) radio communications. A receiver in the dive computer accepts this data and formats it for display. The communication is from the transmitter to the computer without requiring a response. Two (or more) dive computers may be programmed to receive the same transmitter(s).

Although the feature is named “Air” Integration, other gas mixtures can be used with the system as well. When using gas mixtures with oxygen content above 22%, be sure to have proper training on such mixtures, and follow proper cleaning and material compatibility guidelines. Swift GPS transmitters are built with O2 compatible materials.

NOTE FOR PRESSURE MEASUREMENT WIRELESS TRANSMITTERS

A component of self-contained breathing apparatus as defined by EN250:2014 is: Pressure Indicator, intended for use with air only. Products marked EN250 are intended for use with air only. Products marked EN13949 are intended for use with gases containing more than 22% oxygen and must not be used for air.

Doc. 57049-01 RevA (2025-10-22)

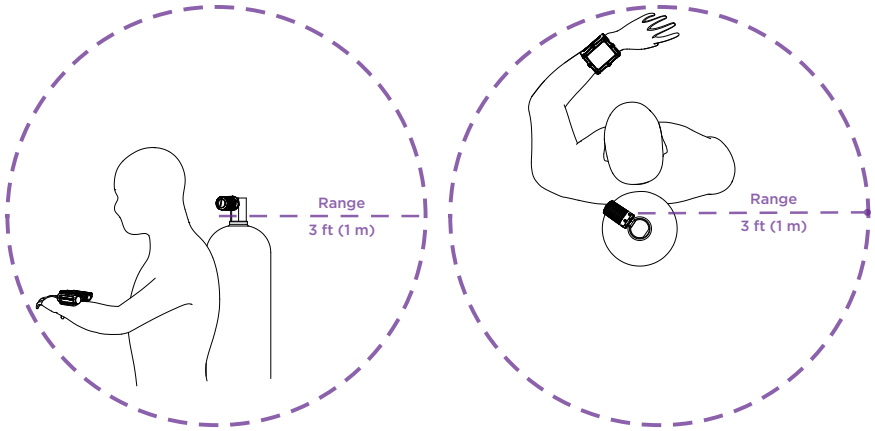
Installing the transmitter

Before using the AI system, you will need to install one or more transmitters on the HP (high pressure) port of the scuba cylinder first stage regulator. Use a first stage regulator with at least two HP ports, so that a backup submersible pressure gauge (SPG) can be used.

Installation torque should be hand-tightened to snug, excessive force is not required. An 11/16” or 17 mm wrench may be used if desired.

Position the transmitter such that it is on the same side of your body as you wear the dive computer. Range is limited to approximately 1 m (3 ft).

A high-pressure hose may be used to relocate the transmitter for better reception or convenience. Use hoses rated for a working pressure of 300 bar (4350 psi) or higher. **If using a hose the use of a ‘spool’ insert is required (not included). In this case the spool holds the air pressure and the transmitter base o-ring prevents water ingress to the hose fitting threads.**



Always use a backup pressure gauge

Historically, wireless gas pressure transmitters have been reliable. However, like all other electromechanical systems they will eventually fail. When this happens, they might report a higher or lower gas pressure than remains in a SCUBA cylinder or they may report no pressure at all. Unlike a mechanical pressure gauge, the failure of a transmitter will normally produce error messages on the attached dive computer. However, there could be failures that produce no error messages and result in a sudden unexpected out of gas emergency that every diver must be prepared to manage. Shearwater recommends using a backup submersible pressure gauge (SPG) as a redundant source of gas pressure information and regularly confirming the agreement of the gas pressure reading of the SPG and wireless transmitter.

USE A BACKUP ANALOG SPG

Always use a backup analog submersible pressure gauge as a redundant source of gas pressure information.

Turn on the Transmitter

Turn on the transmitter by opening the cylinder valve. The transmitter will automatically wake up when it detects pressure over 7 bar (100 psi). Pressure data is transmitted approximately every 5 seconds.

LED Indicator

The LED indicator on the top of the Swift GPS will flash green when a transmission is sent. This helps to indicate that the transmitter is operating properly. The LED will flash red if an interfering signal is detected. The Swift will try to transmit again when the channel is free.

LOCATION IS BROADCAST TO ALL

Pairing is only needed for the pressure function. The location is broadcast, so any compatible Shearwater dive computer can log the location from any in-range Swift GPS. The location logging can be turned off in the dive computer menus if it is not wanted.

Setting up AI on the Dive Computer

- Enable AI on the dive computer
- Pair the Swift GPS transmitter
- Configure AI display on home screen

Refer to the dive computer manual for details on setting up the AI system.

Pairing the Transmitter

Each transmitter has a six-digit serial number etched on its body. AI communications are coded with this number so that the source of each pressure reading can be identified. Enter the six-digit serial number (including any leading zeros) into the transmitter serial number setting of the dive computer menu. Enter the rated (full cylinder) pressure value as well as desired reserve pressure level.

Turning off the Transmitter

To turn off the transmitter, close the cylinder valve and purge the second stage regulator to drain pressure from the hoses. The transmitter will automatically power down after 1 minute of no applied pressure (less than 3.5 bar or 50 psi).

Purge Air from regulator when not in use

We recommend purging the air from the regulator when the system is not in use. This extends the battery life of the transmitter (as it will continue transmitting any time there is air pressure in the regulator system), as well as lowering the risk that a diver might enter the water with the air pressure turned off. Please ensure the air is turned back on before donning the gear.

CHECK THAT YOUR CYLINDER VALVE IS OPEN

Always take a few breaths from your regulator or purge your regulator's second stage while monitoring your cylinder pressure for a full 10-15 seconds prior to entering the water to ensure your cylinder valve is turned on.

If the first stage regulator is charged but the cylinder valve has been closed, the breathing gas available to the diver will decrease rapidly and within a few breaths the diver will face an "out of air" situation. Unlike an analog gauge, the air pressure reported on the dive computer will only update every 5 seconds, so the pressure must be monitored for longer than that (we suggest 10-15 seconds) to ensure the cylinder valve is open.

Including a regulator purge test followed by 10-15 seconds of air pressure monitoring before entering the water as part of your pre-dive safety check is a good way to mitigate this risk.

Using Multiple Transmitters

The Swift GPS is designed to work reliably in configurations that use multiple transmitters. The transmit interval of each transmitter varies within a 4.8 to 5.2 second time period and each Swift GPS includes a receiver used to check for other transmitters and avoid colliding with their data. Four or more transmitters may be used simultaneously, without the need to use multiple transmitter types (colors used on legacy Shearwater transmitters). It is important to ensure the transmitter identification displayed on the dive computer matches the cylinder the transmitter is attached to. It may be useful to apply identifying paint or tape to transmitters if using multiple units. Legacy Shearwater transmitters may be used with the Swift GPS in multiple transmitter configurations, although the maximum should be two (one grey, one yellow). Best results will be obtained by using all Swift or Swift GPS transmitters, as the legacy transmitters do not avoid collisions and will increase the amount of lost data.

Using Swift GPS with other brand dive computers

Swift GPS transmitters may be used with other brands of dive computers that are compatible with Shearwater transmitters for HP pressure information only. However, this operation cannot be guaranteed. Location information will not be read by other brands' dive computers.

IS MORE THAN ONE SWIFT GPS NEEDED?

No.

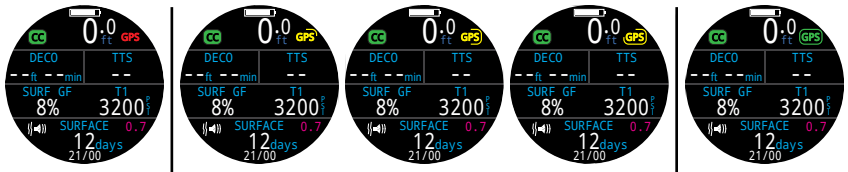
If you are using multiple transmitters, we recommend one Swift GPS and the rest as base model Swift units. There is no benefit to having multiple sources of the same location information, so the extra cost is unnecessary. Further, the Swift GPS uses more power than the base Swift, so battery changes will be more frequent.

Doc. 57049-01 RevA (2025-10-22)

LOCATION FROM GPS/GNSS

When the Swift GPS is on (pressure above 3.5 bar / 50 psi) and it is not submerged, it will automatically determine location and begin broadcasting this location to nearby compatible Shearwater dive computers.

When first turned-on, the Swift GPS will not yet have a location fix and will transmit the progress of the fix determination instead of location. This GPS status can be viewed on the dive computer as shown below. The GPS status is only shown when on the surface. The length of time taken to achieve a fix will depend on factors such as quality of the sky view, geographic location, weather, and local interference. Generally, with a good sky view the location fix should be achieved in under one minute.



Red –
No Border
A Swift GPS is present and communicating, but no satellites seen.

Yellow –
1/4, 1/2, or 3/4 border
Location fix is in progress.

Green –
Full border
Location has been found. Dive log will include location.

When you start a dive with the green full border status displayed, the location of the dive start will be written to the dive log. The most recent valid location received within 30 minutes of starting the dive will be logged. After surfacing at the end of a dive, the first valid location received within 30 minutes of the end of the dive log will be logged as the end of the dive location.

Setting up the Dive Computer

Before the dive computer will receive and log the location, the feature must be enabled. In the AI Setup menu, the AI Mode option has the following options: Off, On no GPS, On + GPS. Only when the AI Mode is “On + GPS” will the location information be received and logged.

POWER SAVING AND STALE LOCATION DATA

The Swift GPS will enter power saving mode to preserve the battery when a regulator is pressurized for a long period of time. If the transmitter detects no pressure change for 20 minutes, the pressure transmission rate will reduce to once every 15 seconds and the GNSS location feature will be disabled. Taking a couple breaths from the regulator will drop the pressure sufficiently to reengage normal transmission timing and location messages.

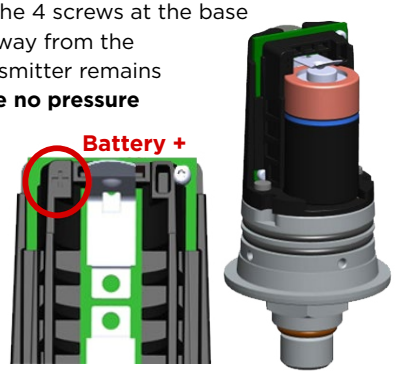
The primary goal of the GPS system is to capture the dive site, so a general location is better than no location, even if slightly inaccurate. As such, the system allows location data that is up to 30 minutes old to be used. Therefore, the GPS indicator may appear green when a GPS location was recorded up to 30 minutes prior and the transmitter has since entered power saving mode. This may result in an inaccurate entry location being recorded. This most commonly happens when dive gear is setup and pressurized while the dive boat is on the way to the dive site.

Performing a regulator purge test followed by 10-15 seconds of gas pressure monitoring immediately prior to entering the water is recommended to ensure that your cylinder valve is open. This procedure should also ensure the correct entry location is recorded.

For certainty, pressing the info button a few times on any shearwater computer will bring up the location info row. This row displays the most recently received location coordinates and the time since last update.

CHANGING THE BATTERY

Remove the cover
Using the tool provided, loosen and remove the 4 screws at the base of the transmitter. Grasp the cover and pull away from the base. This operation may be easier if the transmitter remains attached to the HP port of a regulator. **Ensure no pressure is present at the HP port during the battery change operation.**



Exchange the battery
Remove the existing battery from the battery clip. Dispose of the battery properly according to local regulations. It is recommended to leave the battery out for at least 1 minute to allow internal circuits to reset. Insert a new battery, negative towards the base, positive towards the top (a small + is marked at the top end). Push the battery down gently in to the clip. The status LED sequence red, yellow, green shows good battery contact.

Replace the cover
Ensure the base o-rings are clear of debris and are not damaged. Replace o-rings (see specifications page for dimensions) if damaged, using a small amount of O2-compatible lube. Carefully align the cover so the circuit board fits in the wide part of the case. The cover should slide down easily until the base o-rings engage. Do not force the cover down if it is not aligned. Press the cover down firmly until the screw holes line up with those in the base. Using the tool provided, replace the 4 screws and tighten to a snug level.

Caution: Do not over-tighten screws. Screws should be tightened to a maximum of 3 in-lb to prevent damage to the screw heads.

Check Transmitter Operation
To ensure the new battery is installed properly and the Swift is working, install the regulator on a scuba cylinder and pressurize the system. Check that the pressure reading is reporting correctly.

LED Indicator
Normal transmit operation shows a quick green flash upon transmitting.
A red flash indicates a detected collision, and if followed by a green flash this indicates the transmission was successfully delayed. Occasional red flashes when transmitting are not normally a cause for concern. Consistent red flashes at transmit interval indicate strong interference, and this should be resolved for best results from the Swift transmitter. Repeating red flashing after battery change indicates a self test failure – this could be due to a bad battery or other internal problem – **do not dive the unit if continuously flashing red.**

LED Flash Pattern	When Displayed	Meaning
Red, Yellow, Green	At battery change	Self Test
Yellow flashes	At battery change or wakeup from inactive	Firmware version code
Repeating Quick Red Flashes	Any time	Self Test failure – do not dive
Quick Green Flash	Transmitting	Normal Transmit
Quick Red Flash	Transmitting	Interference Detected

TROUBLESHOOTING

Battery life is short
Many divers will find the battery will last several years before requiring replacement. However, frequent use with long dive times or leaving the regulator charged when not diving could drain the battery more quickly. Ensure the regulator is purged when not in use. The Swift GPS will continue to transmit if gas pressure is above 3.5 bar (50 psi). Ensure the use of a good battery. Counterfeit batteries are sometimes a problem. Test the battery with a load if unsure.

Battery warning levels (test with a 1 mA load)
2.75 V yellow (low) battery warning.
2.50 V red (critical) battery warning.

Frequently dropped signals
Range is limited to about 1m and may be affected by alignment of the transmitter or receiver. Try to reposition the transmitter closer to the receiver or change its orientation so that it 'points' (body aligned towards) the receiver. A small HP hose may be useful for this purpose (if a hose is used, ensure a 'spool' is used on the inner diameter of the hose to transmitter coupling).

Interference
It is possible for high energy lights, scooters, or heated undergarments to generate interference in the RF frequencies used by the Swift transmitter. This can be checked by turning those devices off for 10-15 seconds to see if the signal returns. Keep interference generating devices away from the dive computers (the receivers are the most sensitive to interference) as much as possible.

Location information not available
The GPS (GNSS) receiver is turned off when diving. The Swift GPS determines the diving state by using capacitive sensing to detect submergence in water. If the Swift GPS is held in the hand, is under a wet wetsuit, or wrapped by a cover that holds water it may think it is submerged and turn-off the receiver. Ensure nothing is covering or draped over the Swift GPS.

The GPS (GNSS) receiver requires a clear sky view to receive satellite signals. If operated indoors, under a canopy, inside a boat, or is otherwise obstructed from a clear sky view, then it may not be possible to acquire a location fix. Water also blocks radio frequency signals used by global positioning systems. If you want location fixes when swimming on the surface, the Swift GPS must be above of the water surface. Otherwise, obtain the location fix first while on shore or on a boat before entering the water.

Battery life is shorter than expected
GNSS receivers are power hungry compared to the basic Swift transmitter. The base Swift model gets about 300 hours of dive time. When diving the Swift GPS detects submergence to turn off the GNSS receiver and so would get 300 dive hours as well. However, when the Swift GPS is powered-on while at the surface, the GNSS receiver is running, consuming several times the power as the base Swift functions. This power consumption is highest before the location fix is achieved and drops lower once the fix has been acquired.

The Swift GPS will enter a low-power state, with the GNSS receiver powered down, when the cylinder pressure is turned off. Avoid leaving the Swift GPS turned on, especially when in a location where a location fix is not possible (for example, indoors).

STORAGE AND MAINTENANCE

- The Swift GPS should be stored dry and clean.
  Battery may be left installed if desired.
- Do not allow salt deposits to build up on your Swift GPS.
  Rinse in fresh water to remove salt and other contaminants.
  Allow to dry naturally before storing.
- Clean with water ONLY. Any solvents may damage the transmitter.
- Clean only when installed on a regulator.
  Do not allow water or other debris to enter the high-pressure port.
- Do not wash under high pressure jets of water as it may cause damage.
- Store the Swift out of direct sunlight in a cool, dry and dust free environment.
- Avoid continuous exposure to direct ultra-violet radiation and radiant heat.
- Avoid touching the GNSS receiver antenna when changing the battery.

SERVICING

Service of the Swift GPS may only be done at Shearwater Research, or by any of our authorized service centers. Your nearest service center can be found at:

www.shearwater.com/service

Doc. 57049-01 RevA (2025-10-22)

SPECIFICATIONS

Depth Limit	200 m
Operating Temperature Range	+4 °C to +34 °C
Short-Term (hours) Temperature Range	-10 °C to +50 °C
Long-Term Storage Temperature Range	+5 °C to +20 °C
Battery	CR2 3 V User replaceable
Battery Operating Life	100 Dive Hours 2 year storage time
Power save mode	Extends non-diving pressurized time 2-3x
Weight	135 g
Size (L x D)	76 mm X 34 mm
Pressure port	7/16”-20 UNF
Rated Air Pressure	300 bar / 4350 psi
Pressure resolution	0.14 bar / 2 psi
Pressure reporting interval	4.8 – 5.2 seconds
HP port proof pressure	450 bar / 6525 psi
Overpressure port	Included
Accuracy	5% full scale
Zero offset	Less than 3.5 bar / 50 psi
Activation pressure	7 bar / 100 psi
De-activation pressure	3.5 bar / 50 psi
Cover screws	1.5 mm hex 316SS
Spool recommended for hose use	21 x 4.25 mm
Body o-ring	24 x 1.5 mm
HP port o-ring	AS568-904 75A Viton
GNSS Constellations	GPS L1C/A, Galileo E1-B/C, BeiDou B1I
Location resolution	2 m
Location accuracy (condition dependent)	4 m
Location reporting interval	4.8 – 5.2 seconds

REGULATORY

FCC WARNING

a) USA-Federal Communications Commission (FCC)

Responsible Party-U.S. Contact Information:
Violette Engineering Corporation
313 Park Avenue Suite 300
Falls Church, VA 22046
Info@Violetteengineering.com

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES.
OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED,
INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

Changes to or modification of this equipment are not authorized, doing so may void the user’s authority to operate this equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

The Swift GPS contains a 38 kHz transmitter with FCC ID 2AO24-17001.

INDUSTRY CANADA WARNING

b) Canada - Industry Canada (IC)
This device complies with RSS 310 of Industry Canada.
Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of this device.

L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes :
(1) il ne doit pas produire d'interference, et
(2) l'utilisateur du dispositif doit être prêt à accepter toute interference radioélectrique reçu, même si celle-ci est susceptible de compromettre le fonctionnement du dispositif.

Caution: Exposure to Radio Frequency Radiation.
The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website.

EU Conformance Statements

- This device conforms with Regulation (EU) 2016/425 on Personal Protective Equipment (PPE).
- This device is certified under EN 250:2014 to a depth of 50 m. While EN 250:2014 certification is valid up to 50 m, Shearwater's specified maximum operating depth for this product is 200 m.
- High pressure gas sensing components are in conformity with EN250:2014 – respiratory equipment -open-circuit self-contained compressed air diving apparatus – requirements, testing and marking – clause 6.11.1 Pressure Indicator. Pressure indication is designed to protect a trained diver from the risk of drowning.
- EN 250:2014 is the standard describing certain minimum performance requirements for SCUBA regulators to be used with air only sold in EU. A component of self-contained breathing apparatus as defined by EN250:2014 is: Pressure Indicator, for use with air only. Products marked EN250 are intended for air use only. Products marked EN 13949 are intended for use with gases containing more than 22% oxygen and must not be used for air.
- The air used must comply with EN 12021. EN 12021 is a standard that specifies the allowable contaminates and component gases that make up compressed air. This is the equivalent of the USA Compressed Gas Association's Grade E air. Both standards allow very small amounts of contaminants that are not harmful to breathe but can cause a problem if present in systems using gases with a high percentage of oxygen.
- This device conforms to Radio Equipment Directive 2014/53/EU (RED).
- This device conforms to Directive 2011/65/EU Restriction of the use of certain hazardous substances in electrical and electronic equipment (ROHS).
- EU Type examination conducted by: SGS Fimko Oy Ltd, Takomotie 8, FI-00380 Helsinki, Finland. Notified Body No. 0598.

Shearwater Authorized Representative:
24hour-AR
Van Nelleweg 1
3044 BC Rotterdam
The Netherlands
compliance@24hour-ar.com

- Shearwater's EU Declaration of Conformity is available at: **https://shearwater.com/pages/certifications**

WARNING: Transmitters marked EN 250 are certified for use with air only. Transmitters marked EN 13949 are certified for use with Nitrox only.

CE

CONTACT

Shearwater Research Headquarters
10200 Shellbridge Way
Richmond, BC
V6X 2W7
T: +1 604.669.9958
E: **info@shearwater.com**

Doc. 57049-01 RevA (2025-10-22)