GPT-T1 Gpacers Poseidon Tracker
User Guide

Gpacers Technology

FCC WARNING

15.19

- 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.

15.105 (for FCC 15B devices)

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.

15.21 (information for user)

- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.
- This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
- End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.
- For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible

FCC RF Radiation Exposure Statement:

Portable Device

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment for body-worn configuration in direct contact to the phantom.

IMPORTANT NOTES

Radio Frequency Safety Statement

The Gpacers Poseidon Tracker is a radio frequency product developed with the IoT technology and should comply with RF regulations when using.

- Misuse of GPT's DISTRESS Function may cause unnecessary rescue efforts. Please ONLY use the DISTRESS Function in case of emergency and only use the Call Function during actual situations.
- The antenna and the batteries are assembled and sealed inside the waterproof housing. If any component needs to be replaced, please ship the product back to Gpacers Technology or qualified distributors. Any modification or customization without permission might harm the product or violate the regulations. Please DO NOT replace the antenna or battery without authorization.
- This product uses lithium batteries. Please refer to the relevant airline regulations when flying.

ONLINE DESCRIPTION OF GPT SYSTEM

www.gpacers.com>>
Poseidon Tracker>>
GPT System Introduction
GPT App Smart Safety Monitoring
GPT Rescue and Transmission Distance
Gallery>>Main product catalog
Technical Support>>
Tutorial_GPT Initial Setup
Tutorial_GPT Wireless Charging
Tutorial_GPT OLED Display
Tutorial_GPT Maintenance Transportation Warranty
Tutorial_GPT App Installation and Tips
Tutorial GPT App User Guide
Video Learning>>

1. GPT SYSTEM SUMMARY

- The portable Gpacers Poseidon Tracking and Rescue System, known as GPT. The GPT devices provide divers with a real-time, long range, location index, mesh networking capacity and smart safety monitoring service. This fully autonomous system can be easily deployed in any remote area when needed.
- Unlike other safety equipment only sends a distress signal after hazard occurred, it's unclear who will receive the signal and if a rescue operation will be launched.
- However, the GPT devices perform safety monitoring tasks before starting activities with multiple precautionary alerts for taking preventive measures to avoid danger.
- GPT system can be applied to group activities such as sailing team, mountaineering team and army, multi-point to multi-point monitoring allows each member to know the status of others all the time.
- Alerts can be sent by a diver in distress or used with a smart set up to include precautions for

  (1) diving outside a certain zone

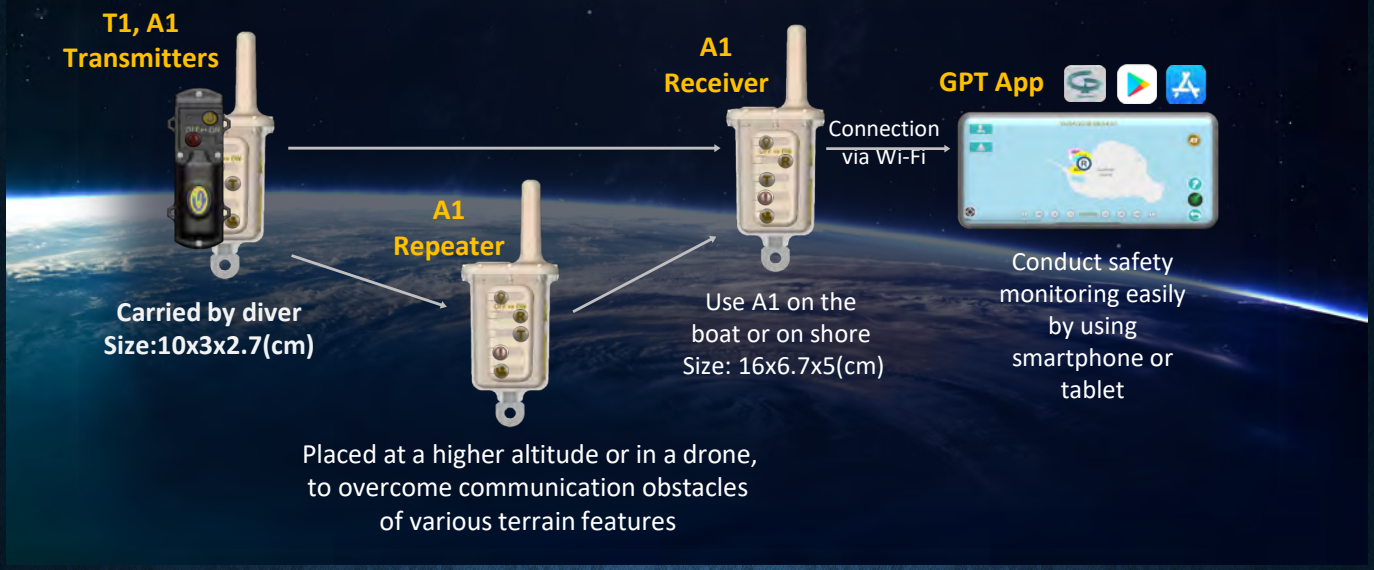
  (2) a poor or lost signal

  (3) vessel proximity notification. All data is recorded and can be replayed or shared later for additional analysis.
- Optional to purchase a built-in satellite communication module or connect to an external satellite equipment, in addition to sending distress data to satellite, it can also communicate short messages via satellite with others at remote location.
- Other features include wireless charging, battery endurance lasting up to 4 days in continuous transmitting mode and a built-in LED light. Waterproof tested to 100~150m.

GPACERS POSEIDON TRACKER
FULLY AUTONOMOUS DIVER TRACKING SYSTEM

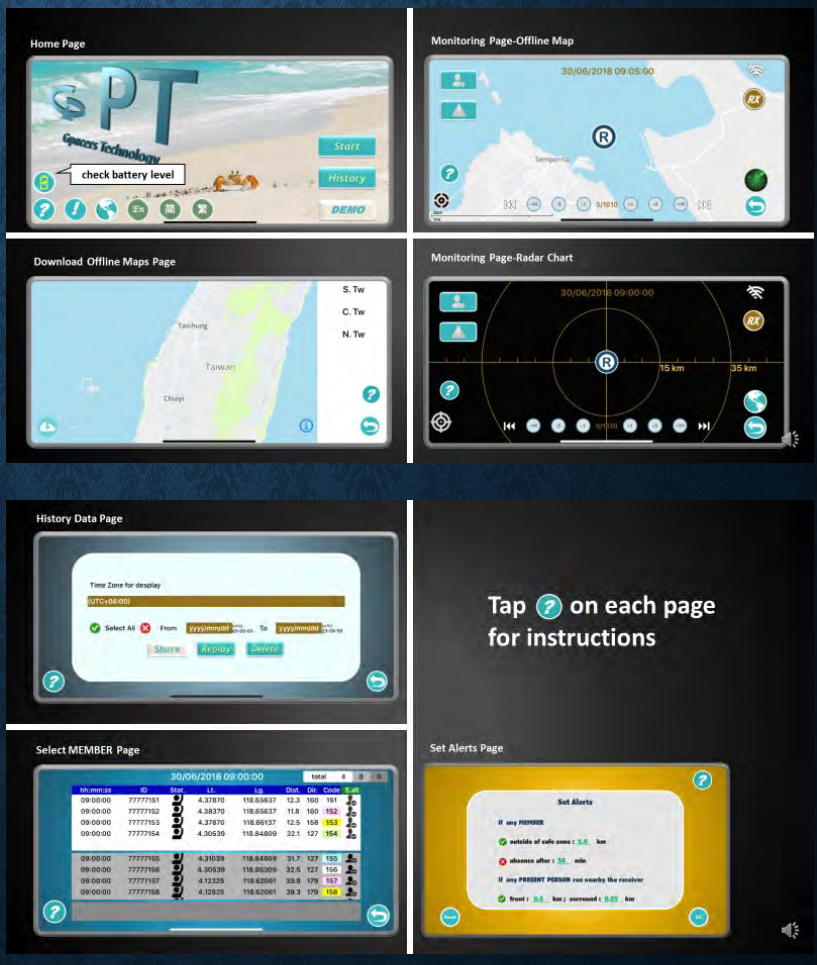
Gpacers Poseidon Tracking And Rescue System

Portable, Real-time, Easy To Operate



Main features

1. Simultaneously tracking and monitoring up to 100 transmitters
2. Capable to check battery level of all GPT devices
3. Detailed maps available for downloading and using offline
4. Capable to run in the background
5. Built in alerts and diver activated distress functions
6. All data recorded and viewable on the App
7. User interface available for English, Traditional Chinese and Simplified Chinese languages



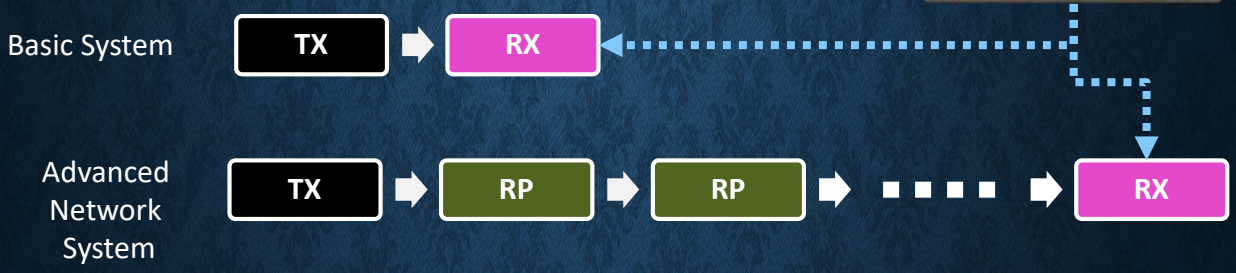
GPT: A fully autonomous, networkable safety monitoring system

GPT-A series models (A1; A2; AS) have multiple function modes:

- TX-transmitter mode : is a terminal equipment carried by personnel; sending out signals to report the identity, coordinates, and status of personnel. There are two statuses: OK, distress
- RX-receiver mode : transmits monitoring data to the GPT App on cellular phone or tablet via Wi-Fi to perform backend monitoring tasks;
- RP-repeater mode : is used to establish the data transmission network for extending the monitoring range.
- TRX-Transceiver mode : will turn on the receiver and transmitter functions at the same time. This function allows each member of the team to monitor other team members on the GPT App. Usually apply to various team activities, such as mountaineering teams, sailing teams, army or navy, etc.
- SAT-satellite communication mode : GPT-AS can be built-in a satellite communication module or connected with external satellite equipment. In addition to sending distress data to satellite, it can also communicate short messages via satellite with others at remote location.

GPT-T series models (T1; T2) are pure terminal equipment (transmitter)

- Install GPT App on mobile devices
- Connect the receiver with Wi-Fi
- ➔ Form a smart monitoring station
- Select TXs to display on App



GPT function mode of series products

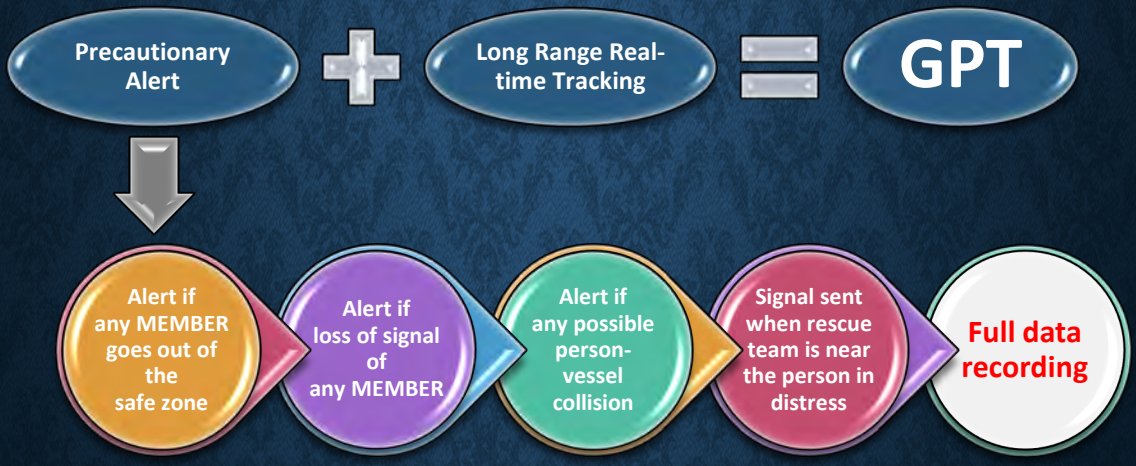
Function		TX-AUTO Auto water trigger transmitter	TX Transmitter	RX Receiver	RP Repeater	TRX Transceiver	SAT Satellite
Model	A1		✓	✓	✓		
	A2		✓	✓	✓	✓	
	AS		✓	✓	✓	✓	✓
	Ar				✓		
	T1		✓				
	T2	✓	✓				

Technical Specification and User Guide please refer to :

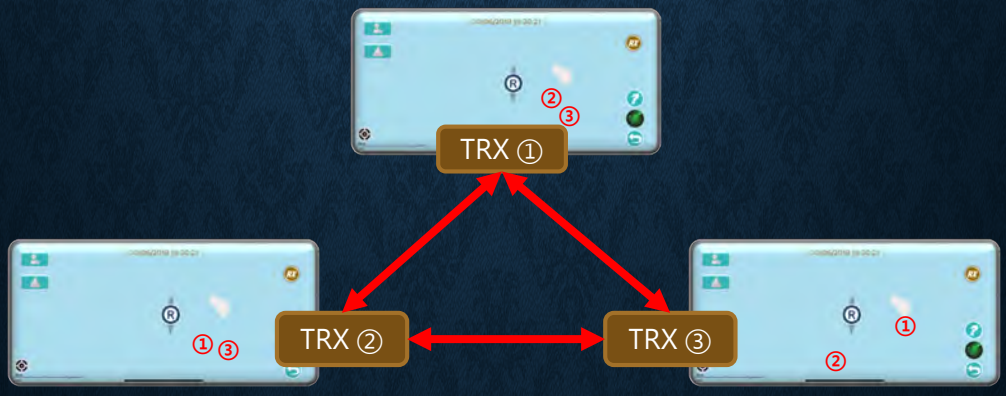
- https://www.gpacers.com/home/gallery/main-product-catalog/
- https://www.gpacers.com/home/technical-support/

APPLICATIONS : DIVERS, SEAFARERS, SAILING TEAMS, MOUNTAINEERING TEAMS, ARMY AND NAVY, FIRE BRIGADE, FOREST FIRE RESCUE...

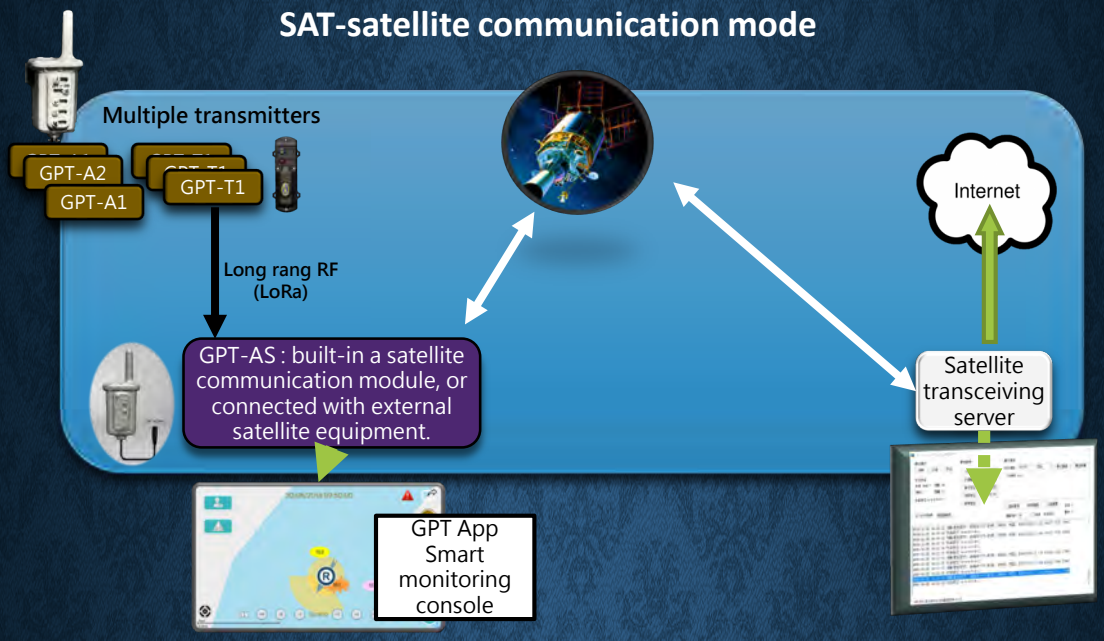
GPT Safety Monitoring Design



TRX-Transceiver mode



SAT-satellite communication mode



Function Mode

- **Transmitter function :**
  - *Can be released from underwater by hanging on a buoyancy rings (GPT-A1, A2) or buoyancy bags (GPT-T1, T2) to the surface to transmit data: identity, status, and coordinates.*
- **Receiver function**
  - *Placed at a higher altitude on the vessel or on the shore.*
  - Dumps the received data to the GPT App via Wi-Fi to fulfil safety monitoring task for all members throughout whole activity.
- **Repeater function**
  - Placed at a higher altitude or in a drone, to overcome communication obstacles of various terrain features
  - When using a repeater, the receiver can be placed on the ground or any place where the repeater signal can be received.

Data Flow Diagram

ID、Location、Status

Receiver/Repeater Placed on board or onshore at a higher altitude

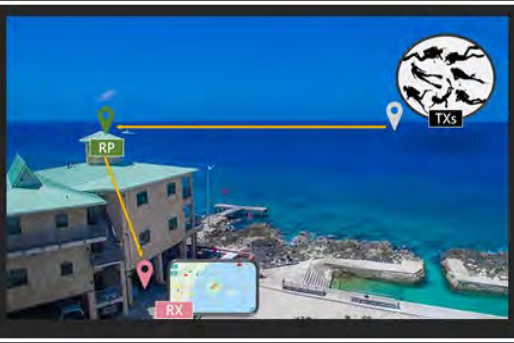
Real Time Tracking+ Danger Precaution + History Record

Simple system suitable for small ships

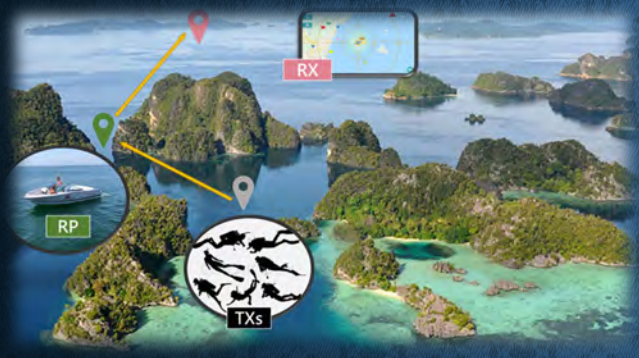
Recommend to install repeater on the top of large ships

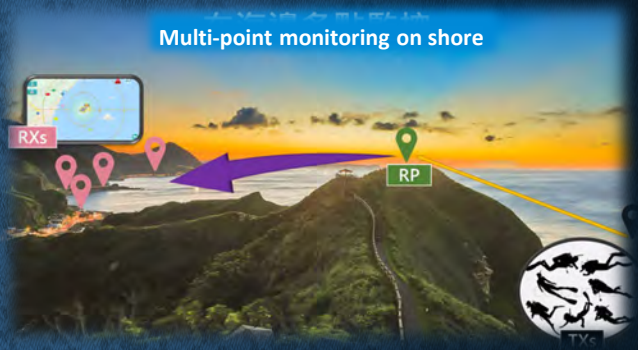
Remarks: The example here is explained with GPT-A1

GPT Advanced Applications

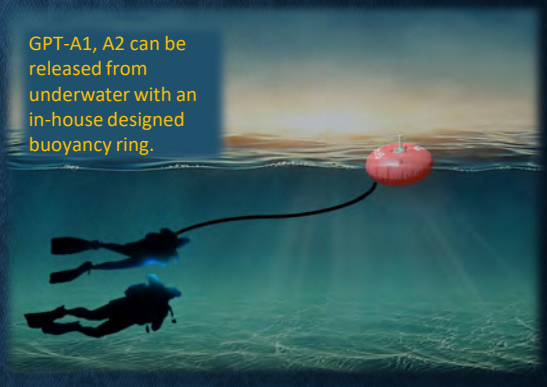


Archipelago Environment





Sea World Diving Company released GPT-T1 from underwater on September 11, 2020, to actually verify the superior performance of the GPT system.



2. Initial Setup

STEPS	TODO	TIPS
1	• **Download+Install+Open GPT App**	• Search "GPT" at the Play Store (Android) or Apple Store (Apple). • For each function page of GPT App, tap on the help "?" button for instructions. • On the GPT App homepage, tap on the "DEMO" button to practice various functions.
2	• **Turn on the receiver, connect with the cell phone/tablet via Wi-Fi**	• The Wi-Fi password is "Gpxxxxxxxx" and 8 digits are the receiver's identity code displayed on the receiver.
3	• **Turn on the transmitter and check the battery level on the App** • **Select team members you want to track in Monitoring page>>Select member page on the App.**	• The battery needs to be charged or replaced if the power level is less than 40%. • When crossing time zones, GPS positioning may take several minutes. • Charging is completely unaffected by wind and waves: The GPT designed holder for wireless mat is specially designed on a rolling boat in big waves.
4	• **Team members carry the transmitters.** • **Receiver/repeater placed on the higher location on the ship/shore** • **Onboard/shore teammates use App to fulfil safety monitoring task for all members throughout whole activity.** **Enjoy diving and go home safely!**	• The GPT devices are radio transmitters that need to be kept above the water to be effective. • It is recommended to attach the transmitter to the shoulder area of BCD. As long as the diver keeps floating upward, the transmitter can be easily maintained above water. • Start the transmitter before the activity, and shut it down at the end, there is no need to do any operation if no distress occurred.

3. Function and technical specification

Technical Specification-TX mode only	
Function	• GPT-T1 is a transmitter of GPT system carried by personnel, especially for seafarers and divers, for safety monitoring by remote real-time tracking + precautionary danger alerts. • It is the lightest transmitter for divers on the market, weighing only 65 grams (including battery).
RF modulation	LoRa
RF frequency	920.5~924.5 MHz
Transmission power	19.5 dBm EIRP
Duty cycle	Within 2 hours after start, 1 emission per 10 sec. and 0.3 seconds for each emission; After that, send 3 consecutive data every 3 min.
Transmission distance	80 km (LoS)
Working Temperature	-20°C ~60°C
Battery	CR123A lithium Battery, 1400 mAh x 1
Battery endurance	TX mode: 52 h
Housing IP	Resistant to > 150m underwater pressure
Dimensions (L x W x H)	30x100x27 mm

4. Appearance and functional mode

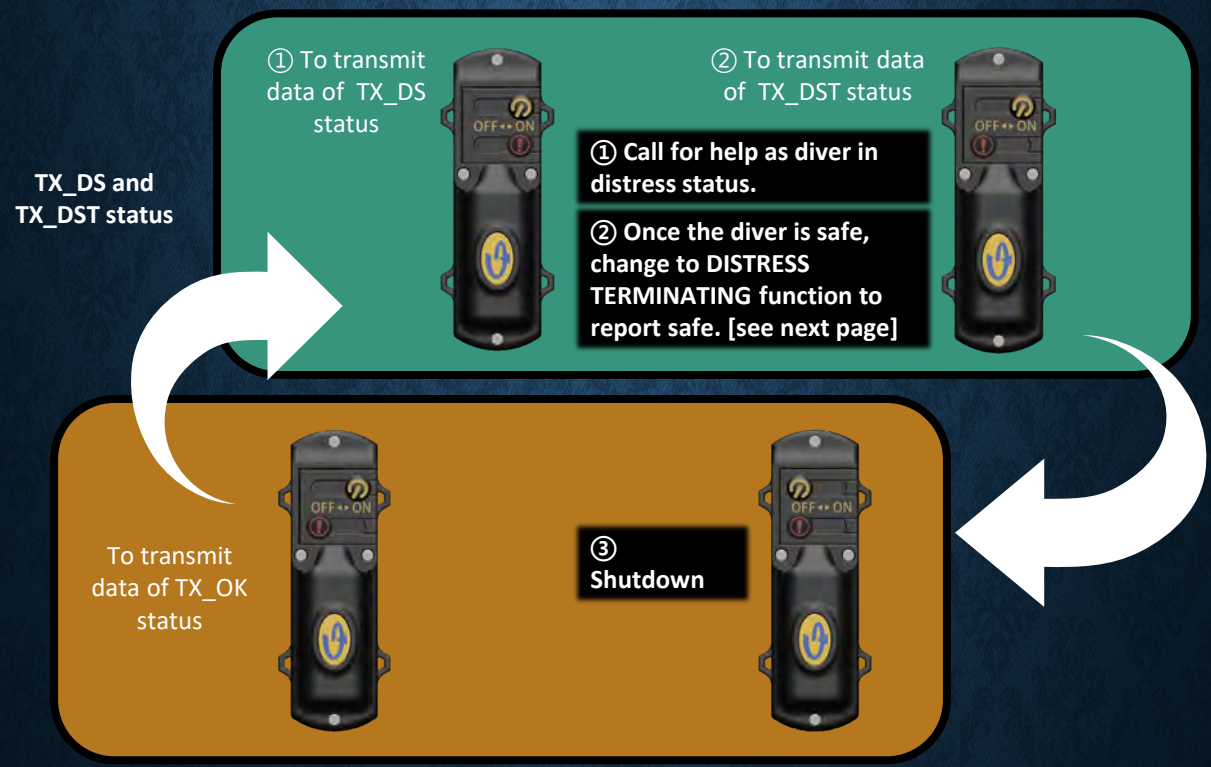
Appearance

PS. Sw/switch ; DS/distress ; stdby/standby ;
RX/receiver ; TX/transmitter ; RP/repeater ;
TRX/transceiver
TX_DS/transmitter DISTRESS function ;
TX_DST/transmitter DISTRESS TERMINATING function ;
TX_OK/transmitter OK function ;

LED Status Indication

LED color	Status Indication
Green	When the battery level is more than 50%, after each data transfer, flashes for 0.5 seconds for 3 times.
RED	When the battery level is less than 50%, after each data transfer, flashes for 0.5 seconds for 3 times.
Green + Red	When powering on, both LEDs will turn on for 1 second

Please refer to : www.gpacers.com»Technical Support»Tutorial_GPT First Use



DISTRESS TERMINATING function in Transmitter Mode

- DISTRESS function should ONLY be used in case of emergency. Misuse of DISTRESS function might cause waste of rescue resources.
- Before turn off the power to end the DISTRESS function, it is recommended to send a signal of DISTRESS TERMINATING (switch to OK function) for a 60-minutes period, to notify that the rescue is no longer required.

Transmission Density

- Within 2 hours after start, 1 data emission per 10 sec. ; After that, send 3 consecutive data every 3 min.

HOW TO GET THE DEVICE ID

Method 1: Use GPT-A1 to display the ID and coordinates of GPT-T1

STEP 1

GPT-A1 set to RECEIVER mode
GPT-T1 set to DISTRESS function

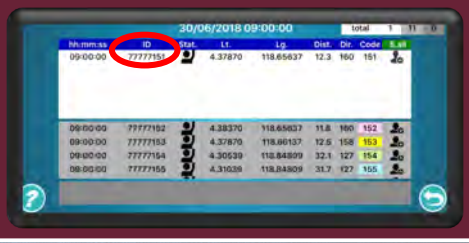
STEP 2

The GPT-T1 ID and coordinates will be displayed on the GPT-A1 screen (received distress device)

Method 2: Read the label on the PCB inside

The device ID is labeled on PCB as 50000256

Method 3: Read from the SELECT MEMBERS PAGE of GPT App



Replace Battery

※ IMPORTANT:
Apply silicone oil on the O-Ring when replacing the battery

①

- Remove screws,
- Open the top cover, O-ring

②

Apply silicone oil:

- concave surface of upper housing
- convex surface of lower housing
- O-ring

③

- Put on O-ring

④

Put the battery
(+) Anode towards the bottom
(-) Cathode towards the middle

⑤

Use the 4 screws to close the housing

⑥

Use appropriate force and the screw should be set ~ 0.5 mm higher than the nut

⑦

Check the battery

- Power on and the Red and Green LED should turn on for 1 sec.
- The red LED shouldn't flash. (If so please check and reinstall the battery)

Accessories (see below) and product warranty card

Item	Usage	Size	Material	Qty
Screw and nut	Housing seal	M2 x 10 mm	Stainless steel	5 set
Hex Wrench	Housing seal	14*45 mm	carbon steel	1
Silicone oil pack	Housing seal	2 cc	Silicone oil	1
O ring	Housing seal	23*86 mm	Silicone	1
Elastic thread	Product fixation	250 mm	elastic rubber band	2
Capsule buckle	Terminations of elastic thread	3*11 mm	Stainless steel	2

Accessories assembling

①

- Trim the length according to your personal needs
- Push both ends of 2 elastic threads through the holes, fixation the capsule buckle
- Tie a knot, join and affix the buckles to form a loop

②

Recommended to set the screw direction of buckles as follows:

③

2 possible ways to mount

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