

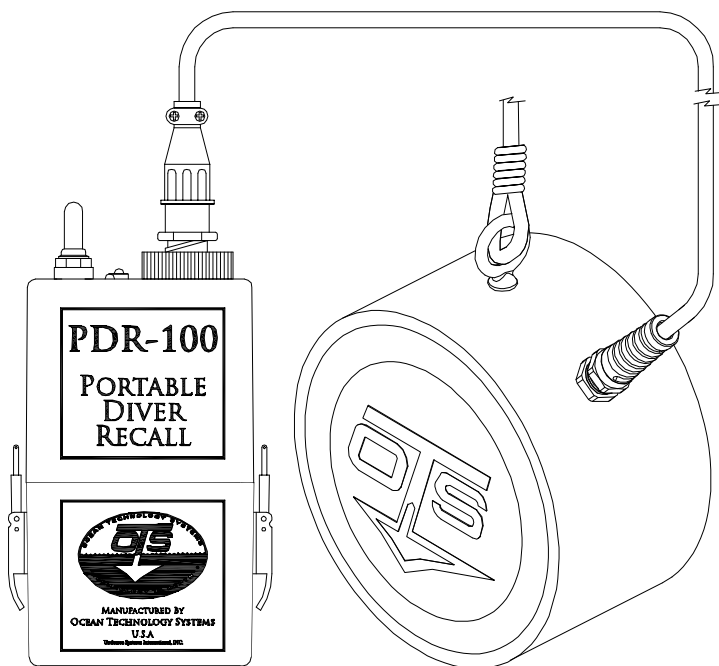
Undersea Systems International, Inc.
dba
OCEAN TECHNOLOGY SYSTEMS



PORTABLE DIVER RECALL SYSTEM

PDR-100

USER'S MANUAL



"Technology in Depth"

- IMPORTANT SAFETY NOTICE -

It is absolutely essential that all users read and fully understand this user's manual before attempting to operate the PDR-100 Portable Diver Recall System.

Read and fully understand the battery charging section of this manual before you attempt to charge or operate the PDR-100.

While the PDR-100 enables you to alert or recall divers, it does not change or eliminate the potential hazards of diving!

- NOTE -

This manual and the information contained herein are provided for use as a maintenance and operation guide. No license or rights to manufacture, reproduce, and/or sell either the manual or the articles described herein are given. Ocean Technology Systems reserves the right to change specifications without notice.

Refer to the User Manual page of our Web site, www.otscomm.com, for a list of any changes made to this manual since its publication.

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SECTION 1

INTRODUCTION

Thank you for choosing the Ocean Technology Systems PDR-100 Portable Diver Recall System. With the PDR-100, you can recall divers with a solid tone or siren. The underwater listeners need not wear any special diving equipment to hear.

How do the divers hear? Sound is transmitted through the water omnidirectionally by an underwater speaker. The typical range is 300 meters but can vary depending on conditions. Divers within range listen using only their ears; no electronic equipment is necessary.

The PDR-100 Portable Diver Recall System provides the following:

- A self-contained, portable control module with a housing that is sturdy, resistant to marine corrosion, o-ring sealed, and constructed of lightweight materials
- A speaker attached to 30 feet of cable and 30.5 feet of rope
- A RB-14 rechargeable battery
- A RCS-15 smart charger

Before operating or charging the PDR-100 Portable Diver Recall System, read this entire manual. In addition to the instructions for use and maintenance of the system, there are some important safety issues all users must be familiar with before operation. Should you have any questions, please contact your local Ocean Technology Systems (OTS) dealer, or feel free to contact OTS directly (see p. (9) for OTS contact information).

1.1 PDR-100 SPECIFICATIONS

Input Voltage:	12 Vdc
Transmit Current:	2 Amp max
Idle Current:	55 mA
Input Transmit Power:	15 watts
Frequency Response:	530 to 700 Hz
Range*:	300 meters
Beam Pattern:	Omnidirectional
Speaker Cable:	30 feet in length
Speaker:	PVC housing with Epoxy coated piezo elements
Speaker Dimensions:	6.6 in. diameter, 3.8 in. axial length
Speaker Weight:	5.8 lbs. in air, 1 lb. in water
Speaker Maximum Depth:	30 feet
Housing:	Injection-molded, high-impact plastic
Housing Dimensions:	<i>Height: 7.0 in., Width: 4.5 in., Depth: 2.25 in.</i>
Housing Weight:	1.7 lbs. with battery
Low-Battery Indicator:	Multicolor LED
Battery Type:	RB-14, NiMH 12V, 2Ah
Battery Life:	5 hours at 20% duty cycle (Recall/Tone) 36 hours at standby mode
Battery Charger:	<i>RCS-15: 90-260 VAC, 50-60 Hz input; 14.7 VDC output; charging current 800 mA</i>
Battery charging Time:	2-3 hours (the RCS-15 automatically switches to maintenance mode when the battery is fully charged, indicated by the LED turning green)

* Range varies depending on water conditions, noise, thermoclines, etc.

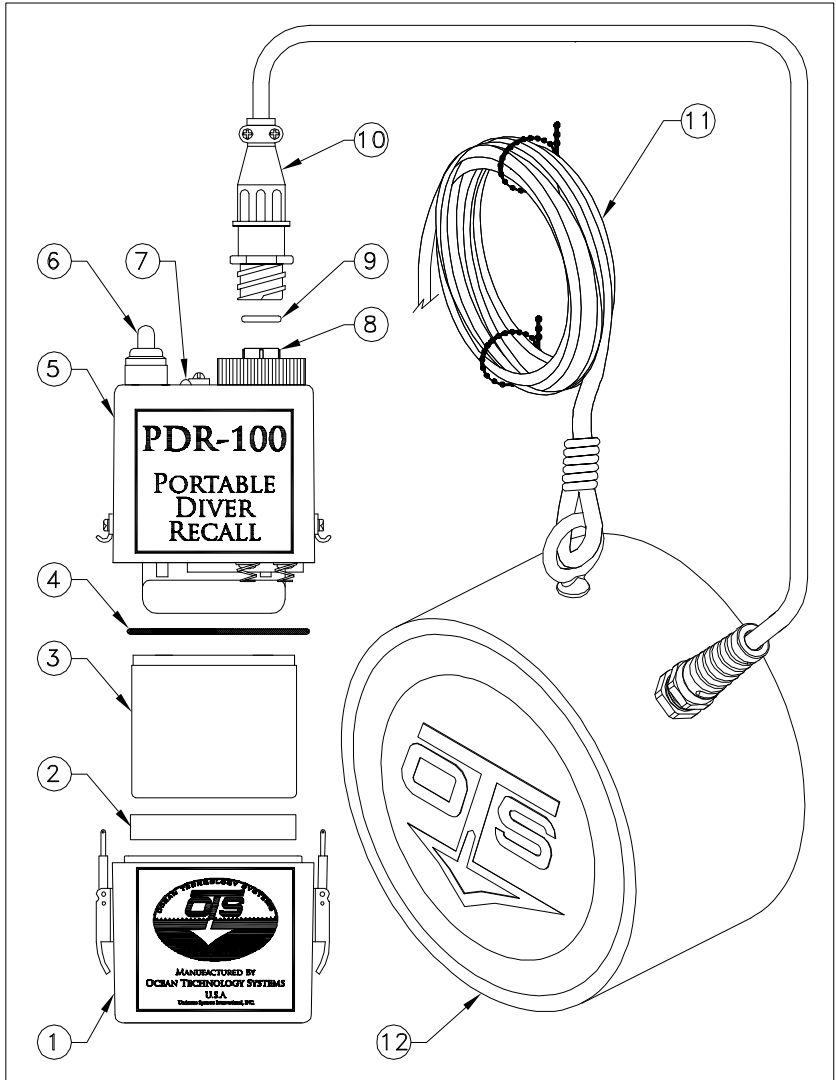


Figure 1. Features of the PDR-100

1.2 FEATURES AND FUNCTIONS

Refer to Figure 1.

1. **Lower Housing (Battery Compartment)**
2. **Battery Spacer:** The battery spacer must be placed in the lower housing (#1) prior to installing the RB-14 Battery (#3). The battery spacer is not required when using a SCB-1 eight-cell AA battery pack. SCB-1 battery pack is sold separately. Contact your local OTS dealer or representative for more information.
3. **RB-14 Battery:** 12V NiMh rechargeable battery. Optional SCB-1 eight-cell AA battery pack is available and sold separately. Contact your local OTS dealer or representative for more information.
4. **Housing's Large O-ring**
5. **Upper Housing (Electronic's Housing)**
6. **Siren/Tone Toggle Switch:** When this toggle switch is pushed and held towards the belt clip of the upper housing (#5), the speaker will emit a continuous tone. Push and hold the toggle switch away from the belt clip of the upper housing (#5) to emit a siren tone.
7. **LED (Red/Green):** LED indicates the status of the PDR-100. Solid green indicates that the unit is on. Solid red indicates the transmission of a tone. Flashing red indicates a low battery.
8. **Amp Connector (Electronic Housing):** Connect PDR-100 Speaker Amp Connector (#10) to Amp Connector to power-on and use the system. Connect RCS-15 Smart Charger (not shown) to Amp Connector while RB-14 Battery (#3) is installed to charge the battery.
9. **Amp Connector O-ring (Speaker)**
10. **Amp Connector (Speaker)**
11. **Rope:** Rope provides strain-relief to the PDR-100 Speaker (#12) cable.
12. **PDR-100 Speaker:** Rugged underwater speaker with a 30ft. cable.

SECTION 2

SETUP AND OPERATION

2.1 SETUP

1. Ensure RB-14 Battery (Fig. 1, #3) is fully charged, or if using a SCB-1 eight-cell AA battery pack, ensure fresh AA alkaline batteries are installed. Refer to Section 3 (Battery Installation and Charging). Ensure all o-rings (Fig. 1, #4 & #9) are free of debris and in good condition.
2. Locate the Speaker Amp connector (Fig. 1, #10) on the end of the PDR-100 speaker cable and ensure that the o-ring (Fig. 1, #9) is present, free of debris and in good condition. Mate the speaker Amp connector to the upper housing's Amp connector (Fig 1, #8).
3. Strain-relieve the PDR-100 speaker cable by securing the rope (Fig. 1, #11) about every 12 inches to the cable. Polyken vinyl gaffers tape is recommended.
4. Lower the rope secured to the PDR-100 speaker into the water, and secure the rope to a solid object above the surface.

Note:

- **Never lower the PDR-100 speaker into the water without a rope to relieve the strain, or damage may occur. The PDR-100 speaker cable alone will not support the weight of the speaker.**
- **Do not lower the PDR-100 speaker deeper than 30 feet.**

2.2 OPERATION

2.2.1 POWER ON: To activate the unit's power, connect the PDR-100 speaker Amp connector (Fig 1., #10) to the upper housing connector (Fig. 1, #8). The LED (Fig. 1. #7) illuminates *green* when the unit is on and in standby mode.

2.2.2 TRANSMISSION: For tone transmission, move the Siren/Tone Toggle Switch (Fig. 1, #6) either towards the upper housing's belt clip for *continuous tone* or away from the belt clip for *siren tone*. The LED (Fig. 1, #7) illuminates *red* when the PDR-100 is transmitting.

SECTION 3

BATTERIES AND CHARGING

The PDR-100 Portable Diver Recall System is equipped with a rechargeable, RB-14 battery (Fig. 1, #3) and comes with an RCS-15 smart charger. It is not necessary to remove the batteries to recharge the system.

Note: The battery you receive may have upgraded specifications from what is stated in this manual. Due to advancing battery technologies, we continually upgrade our batteries and chargers. Contact OTS (p. 9) or your local OTS dealer for more information about the latest available battery and charger.

The PDR-100 can be powered by 8 AA alkaline batteries utilizing the optional SCB-1 eight-cell AA battery pack. Contact your local OTS dealer or representative for more information.

When the LED (Fig. 1, #7) begins to flash *red*, the battery voltage has decreased to 10 volts. At this point, the unit has approximately 2 hours of battery life assuming a 20% duty cycle. The LED will flash *red* more rapidly when the battery voltage has decreased to 8 volts. At this point, the unit has approximately 1 hour of battery life assuming a 20% duty cycle. Although the PDR-100 can operate with as little as 7.5 volts, we recommend that you recharge the batteries (Section 3.1) as soon as possible after the LED starts to blink *red*. If the batteries no longer hold a charge, replace them (Section 3.2).

3.1 BATTERY CHARGING PROCEDURE

WARNING: *To avoid damage or injury, read and follow all the instructions below before attempting to recharge the batteries.*

Before operating the PDR-100 outside the USA, you will need to purchase the appropriate power cord for the region of operation. Power cords are available for: Australia (606014-003), UK (606014-002), and Europe (606014-001).

1. Connect the RCS-15 smart charger amp connector to the electronic housing amp connector (Fig. 1, #8).
2. Connect the RCS-15 smart charger to any power source providing between 90 and 260 volts AC, 50 or 60 Hz.
3. The red LED on top of the battery charger should illuminate to indicate the charger is properly connected. Disconnect charger when the LED turns *green*, indicating a full charge.

- IMPORTANT SAFETY WARNING NOTES -

- **Do not attempt to charge alkaline or other non-rechargeable batteries. Doing so may damage the batteries and/or the charger.**
 - **Keep the charger away from water and dust.**
 - **The charger should remain uncovered and properly ventilated while in use.**
 - **Use the charger only with the batteries for which it was intended.**
4. After a charging period, remove the RCS-15 smart charger from the power source.
 5. Disconnect the Amp connector from the electronic housing.

3.2 BATTERY REMOVAL/REPLACEMENT

To install or replace the batteries, follow these steps (refer to Figure 1 for the indicated item numbers):

1. Locate the latches on the sides of the PDR-100 lower housing (#1). Pull up on the latches simultaneously.
2. Separate the upper and lower housings (#5 & #1) while being careful not to damage the o-ring (#4).
3. If you are replacing a currently installed RB-14 (#3) battery, remove the old RB-14 from the lower housing (#1).
4. Verify that the battery spacer (#2) is located inside of the lower housing. If not, place a battery spacer in the bottom of the lower housing (#1).
5. Install the RB-14 (#3) by inserting it into the lower housing of the diver unit with the contacts oriented so they connect to the springs located in the upper electronics housing (#5).
6. Verify that the o-ring (#4) is in place, lightly lubricated with a high-grade silicone grease and ensure it is free of debris.
7. Carefully mate the upper and lower housings together. Ensure that they line up evenly and that nothing is on the o-ring or mating surface (#5 & #1).
8. Connect the latches from the lower housing (#1) to the upper housing strikes (#5). Pull down the latches simultaneously until fully down. Doing so will spring-load the upper and lower housings.
9. Look on all sides of the PDR-100 to verify the upper and lower assemblies appear evenly matched with no high spots.

SECTION 4

MAINTENANCE

4.1 GENERAL MAINTENANCE

The PDR-100 Portable Diver Recall System requires very little maintenance and should give you many years of service. The following should be done after each day of use:

1. Freshwater-rinse of both electronics module and speaker to remove debris. A mild soap solution can be used, but after cleansing, rinse with freshwater.
2. Dry with a clean towel.
3. Disconnect the speaker connector from the upper housing connector prior to storage.
4. Store in a dry, safe area.

4.2 PERIODIC MAINTENANCE

The PDR-100 system should have the following service performed periodically:

1. Clean and lightly grease the o-rings of the speaker connector (Fig. 1, #9) and upper and lower housings (Fig. 1, #4). Check them for cracks or damage. Replace them if necessary.
2. Keep the PDR-100 Speaker (Fig. 1, #12) clean.
3. Verify the battery springs are in good order and making good contact with the battery pack.

4.3 SPARE PARTS

- Battery Spacer (p/n 282049-000)
- RB-14 NiHM Battery (p/n 910272-000)
- Housing's Large O-ring (p/n 283002-000)
- Amp Connector O-ring (speaker) (p/n 283003-000)
- RCS-15 Smart Charger (p/n 910376-000)
- Rope (sold by length) (p/n 200023-000)
- Power cord for RCS-15
 - USA (p/n 606014-001)
 - European (p/n 606014-001)
 - UK (p/n 606014-002)
 - Australian (p/n 606014-003)

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LIMITED WARRANTY

Ocean Technology Systems' PDR-100 is fully warranted against defects in materials and workmanship for a period of one year from the time of purchase. Our obligation under this warranty is limited to the replacement of any part or parts that prove to our satisfaction to have been defective and that have not been misused or carelessly handled. Labor is warranted for one year from time of purchase. The complete unit and/or part must be returned to our factory, transportation charges prepaid. We reserve the right to decline responsibility where repairs have been made or attempted by other than an Ocean Technology Systems factory-trained service center or properly trained personnel. In no event shall Ocean Technology Systems be liable for consequential damages.

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