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DC-Sapience

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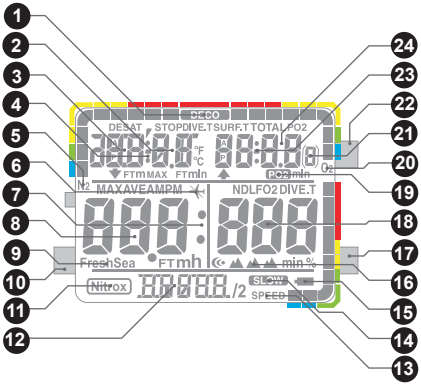

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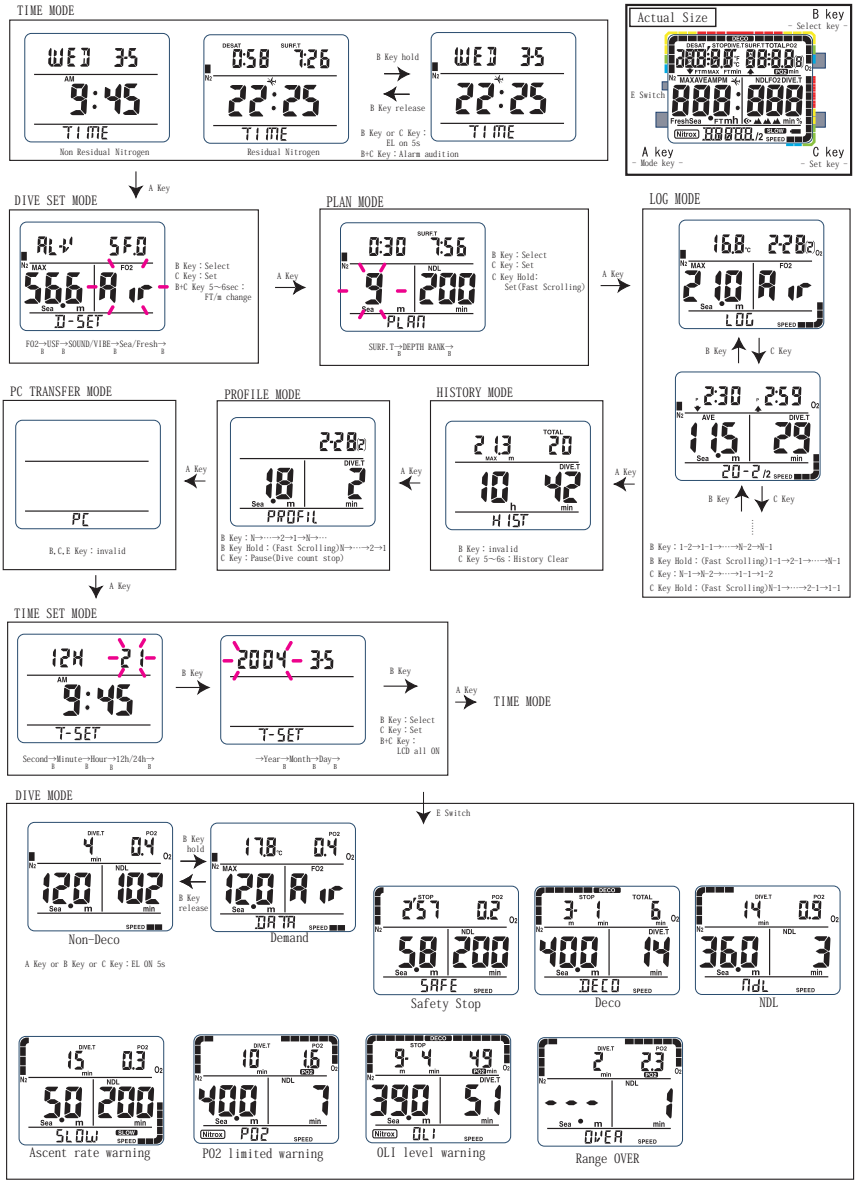
IQ-800 Flow Chart

2004. 2. 27 rev.7改



1. Introduction

Congratulations on your choice of the TUSA IQ-800 Dive Computer. The IQ-800 is a compact and sophisticated dive instrument that will give you reliable, trouble free performance, dive after dive.
The information in this manual has been developed for your safety. Please read and understand this manual completely before using your new TUSA dive computer.

2. Key Features

Among the IQ-800's key features:

- Can handle both air and nitrox
- User changeable FO_2 setting
- Visual, audible, and vibrating alarms
- Safety stop function
- Decompression and non-decompression dive information
- Maximum depth alarm
- Dive time alarm
- Display backlight
- User changeable battery

3. Common Sense Warnings

As is true of every piece of diving equipment, including all dive computers, the IQ-800's abilities are not limitless. There are certain limitations and restrictions of which you must be aware, and certain precautions you must take when using the IQ-800.

WARNINGS

Before using the IQ-800, it is extremely important you read the following points as well as similar warning and caution notices that appear throughout this manual. **Failure to do so could result in damage to or loss of equipment, serious personal injury, or death.**

The IQ-800 is designed for use by certified, recreational divers who have maintained a sufficient level of knowledge and skill proficiency through a combination of formal training, ongoing study and experience. It is not intended for use by persons who lack the qualifications, and thus may not be able to identify, assess, and manage the risks scuba diving entails. Use of the IQ-800 in conjunction with Enriched Air Nitrox (EANx) further requires that the diver be trained and certified for Nitrox diving.

The IQ-800 is not intended for use by commercial, military or technical divers whose activities may take them beyond the commonly accepted depth limits for recreational diving.

The IQ-800 is designed for use by divers breathing either normal compressed air or Enriched Air Nitrox (EANx) mixtures whose fraction of Oxygen falls within a range of 22 to 99 percent.

Although the IQ-800 is capable of calculating decompression stop requirements, this ability is provided as a safety feature only, should a diver accidentally exceed the No-Decompression Limits (NDLs). Dives requiring mandatory stage decompression carry substantially greater risk than dives made well within no-decompression limits.

Decompression diving is widely believed to entail substantially greater risk of decompression illness than dives made well within the No-Decompression Limits (NDL). The IQ-800 provides decompression stop information solely as a contingency in case divers accidentally exceed the No-Decompression Limits. **It is not designed or intended for use as a tool to plan or execute dives that participants know will entail mandatory decompression.**

WARNINGS

The IQ-800 is designed to be used by only one diver at a time. Divers should not share a single IQ-800, or any dive computer, on the same dive. Additionally, no diver should lend his or her IQ-800 to anyone else until it calculates that no measurable residual nitrogen remains after previous dives, and displays neither the “Desaturation Time” nor “No Fly” indicators while in Surface Mode. Further, no diver should use his or her IQ-800 for repetitive dives unless that same IQ-800 has accompanied him or her on all previous dives in the same repetitive dive series.

Neither the IQ-800, nor any other dive computer presently available, physically measures the amount of nitrogen present in body tissues, or the rate at which this nitrogen is being absorbed or released. Instead, the IQ-800 monitors depth and time, and uses this data to work a mathematical formula designed to emulate how individuals in good general health and whose physical characteristics do not place them among those at higher risk of decompression illness are assumed to absorb and release nitrogen from body tissues. Thus, the IQ-800 cannot compensate for factors such as age, obesity, dehydration, cold or exertion, which experts believe place divers at greater risk of DCI. If these, or similar factors apply to you, use the IQ-800, and any other dive computer or dive table, with even greater caution.

Experts still know surprisingly little regarding the exact nature and causes of decompression illness (also known as decompression sickness, DCI, or DCS). Susceptibility to DCI may vary substantially from person to person and from day to day. Neither the IQ-800, nor any dive computer or table, can guarantee that you will not suffer decompression illness. Even though you use these items correctly, you may still suffer DCI. Do not rely on the IQ-800 as your sole means of avoiding decompression sickness.

Experts recommend divers wait at least 24 hours following any dive before flying in an aircraft or driving to altitude. **Failure to allow sufficient surface interval before doing so may substantially increase the risk of Decompression Illness (DCI).**

Do not plan dives to depths deeper than those for which the IQ-800 is capable of displaying an available No-Decompression Limit. Doing so could cause you to exceed the No-Decompression Limits or limiting PO2 of 1.6 bar, which may in turn substantially increase your risk of decompression illness or CNS Oxygen Toxicity and can lead to **serious personal injury or death.**

4. Accessing Display Modes

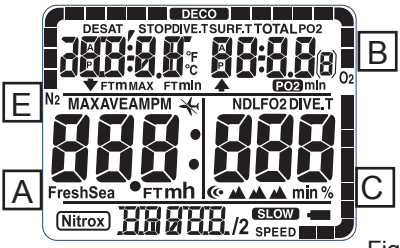


Figure 1

There are some display modes that the IQ-800 enters and/or exits automatically. For example, by taking the IQ-800 underwater, you automatically activate its Dive Mode. Upon surfacing your IQ-800 will automatically enter Time Mode.

To access other modes, you may need to push one of the three large buttons on the sides of the IQ-800. These are the A, B, and C buttons. (Fig. 1)

You will find these buttons easy to use. In some instances, you may need to press a button once and release it to achieve the desired result. In other instances, you may need to hold the button down until you get the result you wish. This manual will outline clearly which procedure to follow for each mode or task.

Throughout this manual display icons that blink are shown surrounded by gray bars.

5. Time Mode

Time mode is the IQ-800's default mode. In this mode the screen displays a minimum of the current date and time of day. Within 24 hours of surfacing from a dive, the IQ-800 will display additional information while in Time Mode. A description of the screens is shown below. (Fig. 2,3)

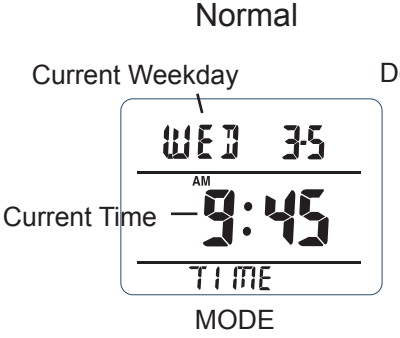


Figure 2

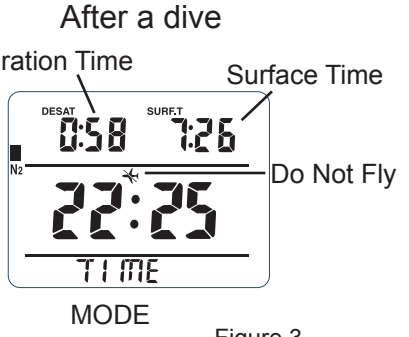


Figure 3

- Current time: This is the current time of day.
- Current date: This is the current date.
- Current weekday: This is the current day of the week.
- Battery indicator Icon: This displays the current battery voltage. (not shown)
- PGT (Pressure Gas in Tissue) graph: This indicates the level of Nitrogen with nine level indicators. The greater the number of indicators displayed, the greater the pressure of the gas.
- OLI (Oxygen Limited Indicator) graph: This indicates the level of Oxygen in the diver's body with eight level indicators.
- Nitrox Icon: This Icon is ON when NITROX has been selected.
- Desaturation time (DESAT): This indicates the time remaining until the body's internal nitrogen is desaturated. The DESAT is also displayed if PGT occurs because of a change in the altitude rank.

- Surface time (SURF.T): This is the surface interval time after a dive. The timer is started from when the depth shown in Dive mode reaches 5 feet (1.4m) or less. If the depth changes back to 5 feet (1.4m) or more in less than 10 minutes, the previous dive is continued. Surface time is continued for 48 hours. After that, surface time is turned off.
- Mode: This display shows the computer in Time mode.
- Don't Fly Icon: While the computer calculates desaturation time this icon is displayed during Time Mode. When the computer has finished calculating desaturation time this Icon is turned off.

Warning

Experts recommend divers wait at least 24 hours following any dive before flying in an aircraft or driving to altitude. Failure to allow sufficient surface interval before doing so may substantially increase the risk of Decompression Illness (DCI).

Operation of buttons during Time mode

Prior to a dive

The letters correspond to the buttons of the IQ-800 shown in figure 1.

- A button: Press this button to move to dive set mode.
- A button held for 2-3 seconds: Moves to time mode.
- B button held down: Time display and backlight comes on.
- C button: Turns on the backlight.
- B+C button: Alarm sound or vibration test.
- E button: Touch this switch and metal housing to switch to dive mode.

During a surface interval

- A button: Press to move to dive set mode.
- B button: Time display and backlight comes on.
- C button: Turns on the backlight
- B+C button: Activates the alarm sound or vibration test
- E button: Touch this button and the metal housing to switch to dive mode.

6. Dive Set Mode

To enter Dive Set mode from Time mode, press the A button until "D-SET" is shown on the display.

Note: If the surface interval is less than 10 minutes the computer will not enter this mode. The computer will switch to dive plan mode.

Dive Set Mode

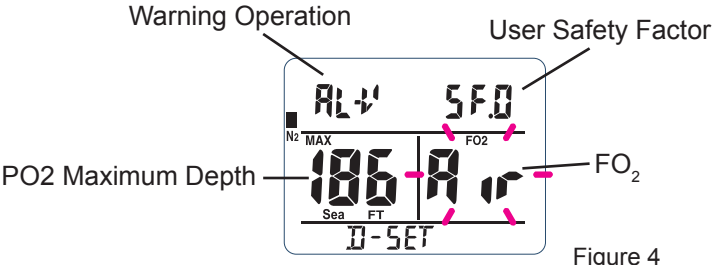


Figure 4

Use the dive set mode to set the oxygen concentration (FO_2), user safety function (SF), warning alarm sound or vibration (AL-S/AL-V), and seawater or freshwater (Sea/Fresh) settings. (Fig. 4)

- FO_2 (fraction of oxygen): This displays the oxygen concentration that is currently selected. If the FO_2 is set at 21%, "Air" is displayed.
- PO_2 Maximum depth: This displays the PO_2 maximum depth (when PO_2=1.4) appropriate for the displayed FO_2
- SF (Safety Factor): This displays the SF value set by the diver. The larger the value, the greater the safety value.
- Alarm operations: The icon will display V for vibrate, or S for sound.
- Nitrox Icon: This Icon is ON when NITROX has been selected.
- Sea/Fresh Icon: This shows whether the computer has been set to fresh or salt water for depth calculations.
- Mode: Displays “D-SET” when in dive set mode.

Operation of buttons during Dive Set mode.

- B: Press the B button to select the function you would like to modify.
- C: Use this button to change the value of the selection. If held down during the FO_2 selection the value will scroll rapidly in one percent increments. The selected alarm will sound for one second when changing the warning setting. The alarm test will not be performed if the battery is low.
- E: Touch this button and the metal housing to switch to dive mode.

The computer will enter time mode once the E button is released.

If no buttons are pushed for 2 to 3 minutes, the computer will return to TIME mode.

7. Dive Plan Mode
To enter Dive plan mode from Time mode, press the A button until "PLAN" is shown.
Note: This mode cannot be entered if the computer is in an out of measurement range lock or a decompression stop violation lock. In both instances the computer will skip to the dive log mode.

Altitude measurements are not performed in dive plan mode.

By setting the depth and surface time, the no decompression limit (NDL) for that depth can be calculated. (Fig. 5,6)

The following information is displayed during this mode:

Surface Time: This displays the time currently elapsed since surfacing and the total surface time needed to return to the selected depth.
Depth: This displays the desired depth.
NDL: The no decompression limit for the selected depth, based on surface time, is displayed. The maximum NDL that can be displayed is 200 minutes. If the selected depth will result in a PO_2 greater than 1.4, the display will show bars.
N_2: This will display the PGT (pressure gas in tissue) of nitrogen absorbed in the diver's body at the set surface time.
O_2: This will indicate the level of oxygen in the body during the set surface time.
Nitrox icon: This icon will be on when the FO_2 is set at 22 percent or higher.

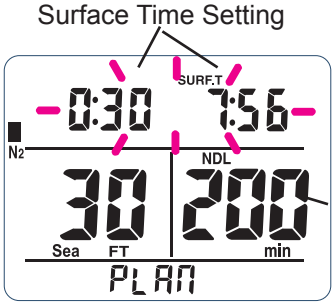


Figure 5

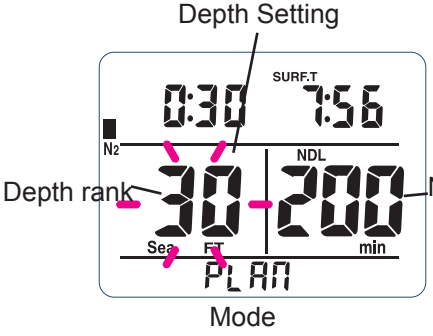


Figure 6

Operation of buttons during dive plan mode

- A: Use this button to move to dive plan mode. If the button is held down for 2 to 3 seconds the computer will return to time mode.
- B: Press this button to select either the surface time or depth setting. Use the C button to change the value of the setting. If the button is held in, the value will scroll rapidly.
- C: Press this button to change either the surface time value or the depth value.
- E: When water is detected the computer moves to dive mode.
- Auto return: The display automatically returns to time mode when no buttons are used for 2-3 minutes.

8. Dive Log Mode

To enter Dive log mode from Time mode, press the A button until “LOG” is shown.

Description of the Dive Log functions

The Dive log mode records various data during a dive when the dive depth is at least 5 feet (1.5m) and the dive time is at least 3 minutes. Data is recorded during each successive dive, and the log data storage capacity is about 30 hours of dive time, or up to 60 log data entries. If the logged dive time exceeds 30 hours or the number of log data entries exceeds 60, the oldest data is automatically deleted. The logged data is described below. (Fig. 7,8,9)

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- **Log number**: This indicates the number of the log entry being recorded among the recorded logs.
- **Dive date/Dive start time/ Dive end time**: This is diving information. Dive date is the date of the dive. Dive start time is the time at the start of the dive. Dive end time is the time at the end of the dive. Both Dive start time and Dive end time are displayed in 24 hour format.
- **PGT (Pressure Gas in Tissue) graph**: This represents the level of Nitrogen with nine level indicators at the end of the dive.
- **OLI (Oxygen Limited Indicator) graph**: This represents the level of the Oxygen Limit with eight level indicators at the end of the dive.
- **Altitude rank**: This is the altitude setting used during the dive.
- **Nitrox icon**: This Icon is ON when NITROX has been used for the dive
- **Fraction of oxygen (FO_2)**: It displays the FO_2 which was used while diving.
- **Dive time**: This is the dive time.
- **Water temperature**: Water temperature at maximum depth. The measurement range is: 23-104° F (-5.0 to 40.0℃). It displays ‘Lo’ when water temperature is under 23° F (-5℃). It displays ‘Hi’ when water temperature is over 104° F (40.0℃).
- **Safety Factor (SF)**: When the level is "0" the usual algorithm is used for calculations. When the level is "1" or "2" the next higher altitude rank is used for the dive calculations. The default setting is "0".

- **Average depth**: This is the average water depth during the dive. If the depth is over 328 ft (99.9m), the display is '---'.
- **Maximum depth**: This is the maximum depth recorded during a dive. If the depth is over 328 ft (99m) the display is '---'.
- **Ascent rate indicator**: This is the maximum ascent rate recorded during a dive.
- **Sea/Fresh icon**: This indicates the water setting (sea water/fresh water).

Display 1

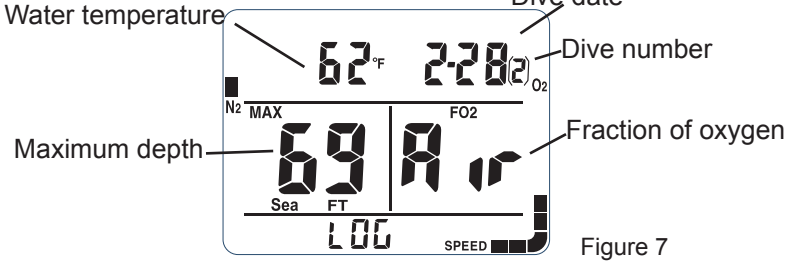


Figure 7

Mode

Display 2

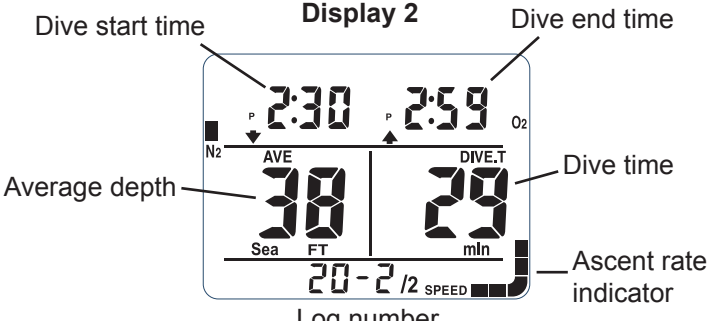
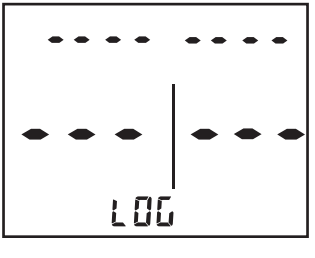


Figure 8



No data

Figure 9

Mode

Warning Displays: These are warnings that can occur during a dive. For further description of these warnings see the "dive mode" section.

Alarm Displays
If the following warnings occur during dive mode they are stored in memory and displayed.

Ascent rate warning: If the ascent rate warning is activated it is recorded in the log. The SLOW icon will blink when the dive log is displayed. (Fig. 10)

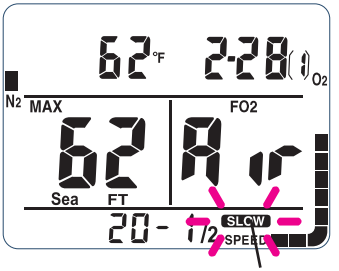


Figure 10

SLOW icon blinks

Decompression stop violation: If a deco stop is violated, the warning is stored in memory and the DECO icon blinks when the log is displayed.
(Fig. 11)

Deco Icon Blinks

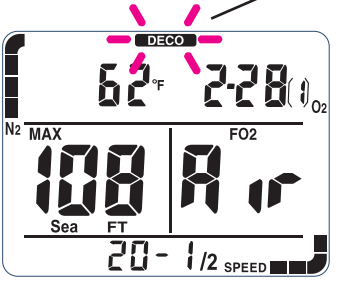


Figure 11

PO_2 warning: The PO_2 icon blinks if the warning was active during the dive. (Fig. 12)

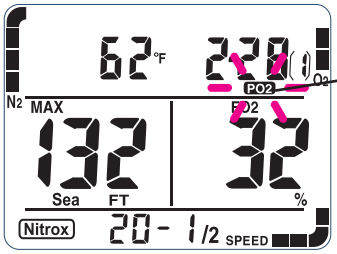


Figure 12

OLI warning: If the OLI reaches 8 bars, the warning is stored in memory and displayed in log mode. (Fig. 13)

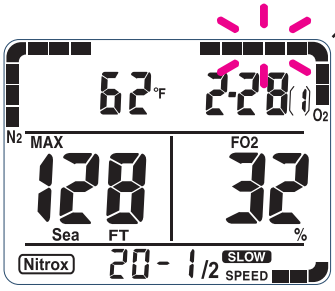


Figure 13

Decompression dive warning: If the dive enters decompression, then the warning is stored and displayed during log mode. (Fig. 14)

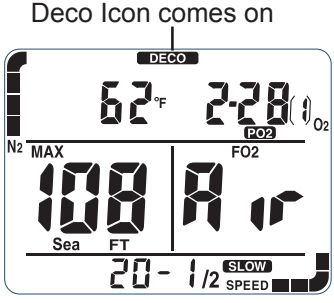


Figure 14

Out of Measurement Range warning: If the computer entered out of range during the dive, then the event is recorded in memory and the entire display will blink during the log mode. (Fig. 15)

All Segments Blink

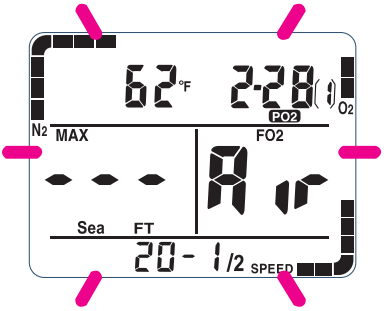


Figure 15

Operation of buttons during Log mode

- A: Press and hold this button for 1-2 seconds to move to time mode.
- B: Press this button to change log number.
  (1-2→1-1→2-2→2-1→···→60-2→60-1)
- B: Press and hold this button to change log number using fast scrolling.
- C: Press this button to change the log number.
  (60-1→60-2→···→2-1→2-2→1-1→1-2)
- C: Press and hold this button to change log number using fast scrolling.
- E: When water is detected, the mode moves to dive mode.
- Auto return: The display automatically returns to time mode when no buttons are used for 2-3 minutes.

9. Dive History Mode

The IQ-800 records the total number of dives, maximum depth, and total accumulated dive time in HISTORY mode. (Fig. 16,17)

To enter HISTORY mode from Time mode, press the A button until the display says “HIST”.

To clear the entire history, press and hold the C button for 5 to 6 seconds. A confirmation sound will occur once the history is reset.

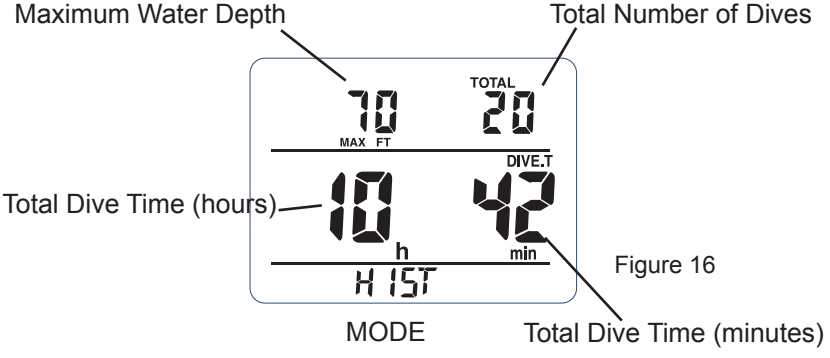


Figure 16

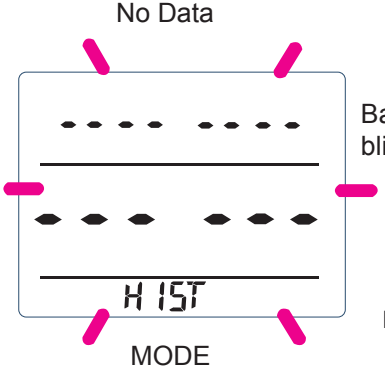


Figure 17

10. Dive Profile Mode

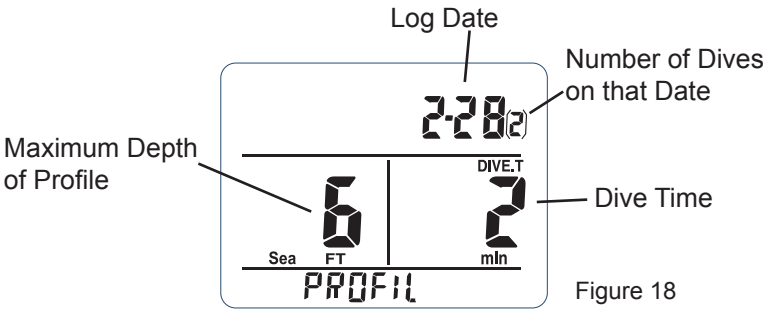


Figure 18

Description of the Dive Profile mode.

Dive profile mode provides functions for recording various data during a dive when the dive depth is at least 5 feet (1.5m) and the dive time is at least 3 minutes. Data is recorded during each successive dive, and the log data storage capacity is about 30 hours of dive time (when the profile's sampling time is set at 30 seconds), or up to 60 log data entries. If the logged dive time exceeds 30 hours or the number of log data entries exceeds 60, the oldest data is automatically deleted. (See the section describing profile mode for further description of log data and profile data.) The logged data is described below. (Fig. 18)

- **Dive date**: The date of the dive.
- **Dive time**: This is the dive time.
- **Log number**: This indicates the number of the currently displayed profile data among all of the currently recorded data entries.
- **Fraction of oxygen**: This shows the Mix value used while diving.
- **Sea/Fresh Icon**: This indicates the water setting (sea water/fresh water).
- **Mode display**: This shows Dive profile mode.
- **Battery indicator Icon**: This displays the current battery voltage.
- **Profile depth**: This indicates a maximum water depth value every 30 seconds during the dive. If depth is over 328 ft (99.9m) this display is '---'.

Operation of buttons during Profile mode.

From TIME mode press the A button until "PROFILE" is displayed.

- Auto count up dive time: The display automatically increases the dive time.
- A: Press and hold this button to stop the auto rank increment function for profile data. The auto rank increment function will resume when you release Button A. This setting is invalid when the last profile data is being displayed.
- B: Press this button to change log number.
  (60→59→58→···→2→1→60→···)
- B: Press and hold this button to change log number using fast scrolling.
  (60→59→58→···→2→1→60→···)
- C: Press this button to move to PC transfer mode, when there is no log and profile data, it moves to time set mode. But if surface time is less than 10 minutes, the mode moves to time mode, not PC transfer mode.
- E: When water is detected, the mode moves to dive mode.
- Auto return: The display automatically returns to time mode when no buttons are used for 2-3 minutes.
- A: Press and hold this button for 1-2 seconds to move to time mode.

11. PC Transfer Mode

If surface time is less than 10 minutes after a dive, and there is no log and profile data, the computer will move to Time mode. (Fig 19,20)

Normal

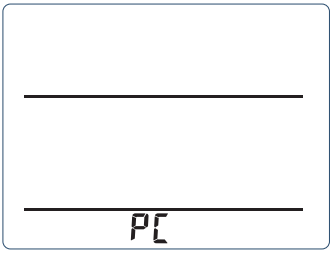


Figure 19

No Data

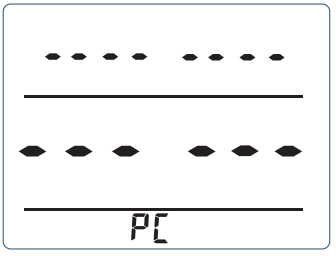


Figure 20

Description of display during PC transfer mode

- Battery indicator Icon: This displays the current battery voltage.
- Mode display: This shows PC transfer mode.

Operation of buttons

- A: Press this button to move to time set mode.
- B: No function
- C: No function
- E: No function
- The transfer mode remains active for 14-15 minutes and then moves to time mode
- A: Press and hold this button for 1-2 seconds to move to time mode.

The computer switches to time mode when the transmission ends.

12. Time Set Mode

Note: If surface interval time is less than 10 minutes after a dive, the computer will not enter this mode. (Fig. 21)

Description of display during Date and Time set mode

- Current time: This is the current time of day.
- AM/PM Icon: This icon is shown in 12 hour format.
- Current date: This shows the current year, month, and day.
- Battery indicator Icon: This displays the current battery voltage.
- Mode display: This shows Time set mode (T-SET).

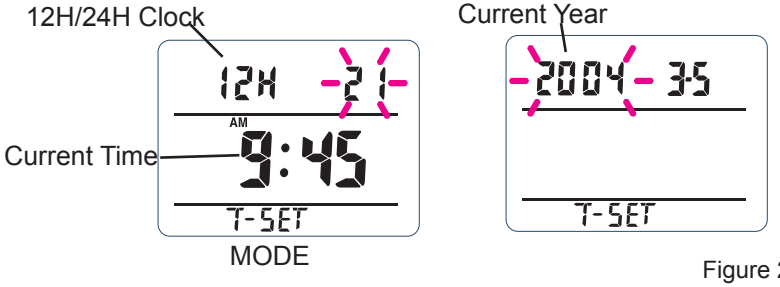


Figure 21

Operation of buttons during Time set mode

From the TIME mode press and release the A button several times until "T-SET" is shown.

- A: Press button to select mode.
- B: Press this button to select the value to change.
- C: Press this button to change the value.
- C: Press and hold this button to change setting the value using fast scrolling.
- E: When water is detected the mode moves to dive mode.
- Auto return: The display automatically returns to Time mode when no buttons are used for 2 to 3 minutes.
- A: Press and hold this button for 1-2 seconds to move to Time mode.

13. Dive Mode

The IQ-800 will automatically enter dive mode when the E buttons come in contact with water.

Description of functions during dive mode
The are several different displays and functions available in DIVE mode including: non-decompression dive mode, decompression dive mode, safety stop time, and out of measurement range condition. The functions of each mode are described below.

Non-decompression mode
This is for a non-decompression (NDL) dive. (Fig. 22)

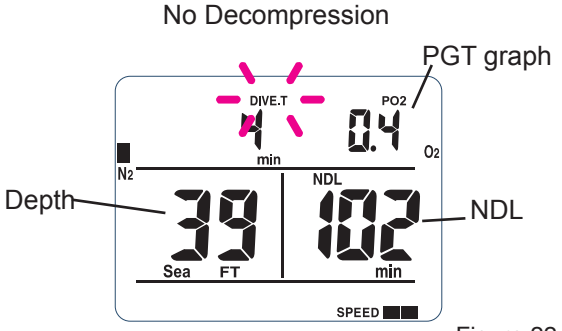


Figure 22

Decompression mode This is used for dives that last longer than the NDL's. The DECO icon warning will continue until the advised depths are reached. If you ignore the DECO warning and go straight to the surface for longer than 10 minutes, the display will freeze and all calculations will stop. The IQ-800 will switch automatically to TIME mode after 48 hours have elapsed. This information is recorded in the dive log. The IQ-800 can only switch to log, profile, or PC transfer mode while the calculations have stopped. (Fig. 23)

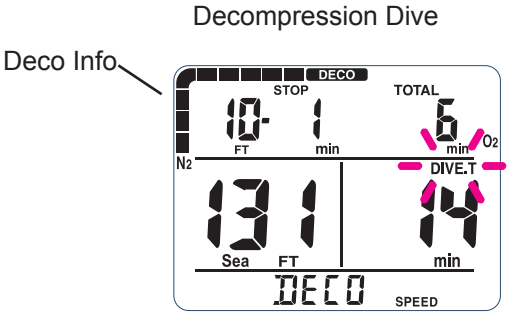


Figure 23

Safety Stop Timer
This timer shows the recommended safety stop time while in dive mode. If the diver descends over 32 feet (9.9m), then comes up to a depth of 20 feet (6m), this value appears instead of NDL. Safety stop time starts at 3 minutes and is counted down until the time is 0. The safety stop timer disappears and NDL appears in its place once the timer reaches zero.

The timer stops temporarily if the depth becomes equal to or more than 26.5 feet (8.1m) during which time the counter stops temporarily, and the NDL display appears again.
The timer is reset if the depth becomes equal to or more than 33 feet (10 m). (Fig. 24)

If the diver doesn't follow the safety stop information, the IQ-800 doesn't impose any penalty.

Figure 24

B button

When the user pushes and holds button B during a dive, it displays an on demand data screen that shows the temperature, the maximum water depth, the FO_2 and PO_2. (Fig. 25)

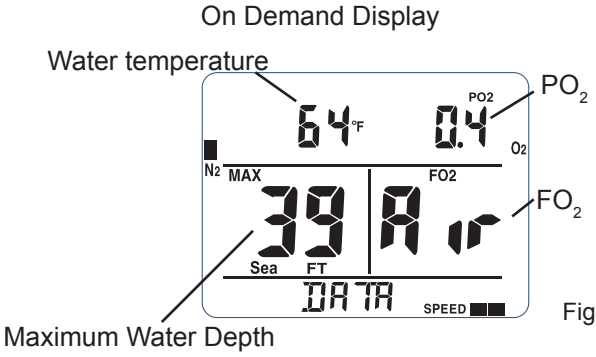


Figure 25

Out of measurement range condition

When exceeding a measurement range, the exceeded parameter becomes '---' display and all of the displays blink. The following situations will cause an Out of Measurement Range condition.

Case 1: The water depth exceeds 328 ft(99.9m).
Case 2: The dive time exceeds 599 minutes.
Case 3: Decompression is required at a decompression stop depth greater than 30 meters (100 feet) .
Case 4: Decompression stop time has exceeded 99 minutes
Case 5: Total ascent time has exceeded 99 minutes

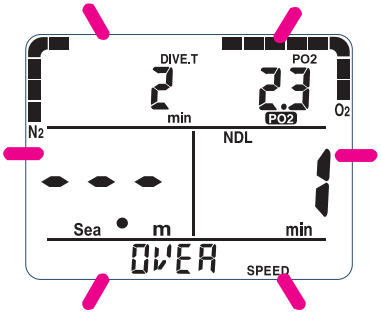


Figure 26

During an Out of Measurement condition the entire display blinks.

Display description during Dive mode

- **NDL (No Decompression Limit):** This is the diving time possible for a non-decompression dive at the current depth.
- **Current depth:** This indicates the current water depth. The water depth is measured every 1 second. If depth is over 328 feet (99.9m) the display is '---'. If the depth is less than 5ft (1.4m) a "0" will be displayed. If there is an error in the depth measurement the display will read "Err".
- **Dive time:** This is the current dive time. It will end at a depth of 5 ft or less. The maximum dive time displayed is 599 minutes.
- **Pressure of oxygen (PO_2):** This indicates the PO_2 value at the current depth. This value is calculated based on fraction of oxygen and the current depth.
- **N_2 (Pressure Gas in Tissue) graph:** This indicates the level of Nitrogen using up to nine level indicators. The greater the number of indicators displayed, the greater the pressure of gas in the body's tissues. The dive becomes a decompression dive at nine indicators.
- **O_2 (Oxygen Limited Indicator) graph:** This indicates the level of Oxygen currently in the diver's body using up to eight level indicators.

- **Nitrox Icon:** This Icon is on when NITROX has been set at 22% or higher
- **Ascent rate bar graph:** The greater number of indicators displayed, the greater the ascent rate.
- **Ascent rate warning:** The SLOW icon and "SLOW" warning are displayed if the ascent rate is 7 or higher.
- **Fresh/Sea icon:** Indicates whether the computer is set to fresh or salt water
- **PO_2 Warning:** If the PO_2 is 1.4 or above a warning is displayed. If the PO2 reaches 1.6 or above the whole OLI bar graph will also blink
- **OLI Warning:** If the OLI is showing 7 indicators or higher the OLI bar graph blinks and the "OLI" warning is displayed.
- **Altitude level:** Displays the current altitude rank being used.
- **Decompression stop depth (Ceiling):** The decompression stop depths are calculated according to the dive conditions and then displayed (10-320 ft/3-99m)
- **Decompression stop time (DECO STOP TIME):** This is the amount of time to be spent at a decompression stop depth. A countdown timer is shown during decompression.
- **Total ascent time(TOTAL):** This indicates the total amount of time required for ascent from the current depth to the surface, assuming that all decompression stops are made.
- **DECO icon:** This icon appears if the diver must perform decompression prior to surfacing.
- **Fraction of oxygen (FO_2):** This icon displays the FO_2 which was set for the dive.

WARNING

Do not use your IQ-800 without confirming that its FO2 setting accurately matches that of your breathing media. Failure to do so may mean that your IQ-800 will be unable to accurately monitor your exposure to nitrogen and oxygen, and lead to decompression illness (DCI) or CNS Oxygen Toxicity, **conditions that can cause serious person injury or death.**

- **Decompression dive warning:** When the NDL is exceeded and the IQ-800 changes to Decompression mode, the word DECO is displayed. This information is recorded in the dive log.
- **Decompression stop violation warning:** if a depth shallower than the decompression stop depth is recorded, the DECO icon blinks and the "DECO" warning is displayed as a decompression stop violation warning.
- **Mode:** the mode will display "DECO".

Operation of buttons during Dive mode

Non-decompression (Fig. 27)
- A: Turns the back light on from 4-5 seconds.
- B: When user pushes and holds button B, it displays secondary display, showing the temperature, the dive time, the maximum water depth, the setting FO_2 value and back light is on from 4-5 seconds.
- C: Turns the back light on from 4-5 seconds.

In less than 5 feet (1.5 m) of water the IQ-800 moves to time mode.

Decompression

- A: The back light is on from 4-5 seconds.
- B: When user pushes and holds a button B, it displays the temperature, the dive time, the maximum water depth, the setting FO_2 value, and the back light is on from 4-5 seconds.
- C: Back light is on from 4-5 seconds.

Once the diver is less than a depth of 5 ft and after 10 minutes the IQ-800 moves to Decompression stop violation lock if a violation occurred during the dive. The computer can't be used for 48 hours. The mode will be automatically switched to time mode after 48 hours have elapsed.

Warning Screens

The following warning screens may appear during a dive. If a warning appears the diver should take immediate action to correct the warning.

Ascent Rate warning:

If the ascent rate is exceeded, the SLOW icon, current depth, ascent rate bar graph, and SLOW mode icon will blink. If it is activated again within with 10 seconds, the warning will be recorded in the log. The ascent rate bar graph will show 7 or more indicators. (Fig. 27)

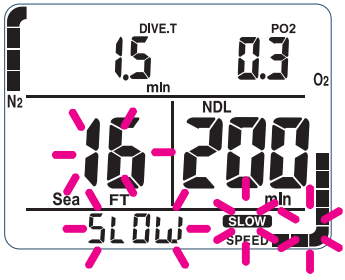


Figure 27

NDL warning: If the NDL decreases to less than 3 minutes, the diver is alerted by the NDL icon and the NDL time blinking for 6 seconds. The sound or warning vibration will operate for three seconds. (Fig. 28)

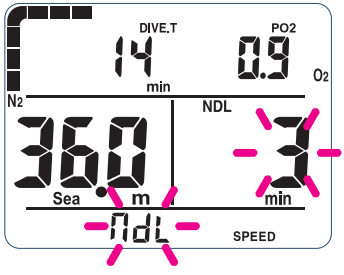
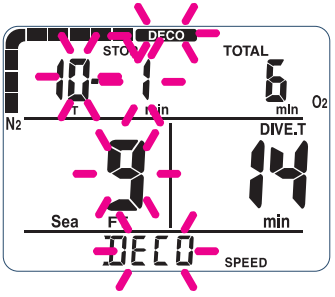


Figure 28

- **Decompression stop violation warning**:
  When current depth is shallower than the indicated decompression stop depth, the IQ-800 will alert the diver with the display and the alarm. If the diver returns to the indicated water depth, the warning display stops blinking. This information is recorded in the dive log. (Fig. 29)

Decompression stop violation warning



The DECO information and the DECO icon will blink continuously. The warning will operate twice for three seconds.

Figure 29

- **PO_2 warning**: The PO_2 warning has two levels. (Fig. 30)

  a. PO_2 equals 1.4 or 1.5: The current depth, PO_2 icon, PO_2 value, and PO_2 indicator blinks for 15 seconds.
  b. PO_2 equals 1.6 or more: The current depth, PO_2 icon, PO_2 indicator, and OLI bar graph (8 indictors) blinks continuously.

In both cases the sound or vibration warning will operate twice for three seconds each time.

PO_2 warning

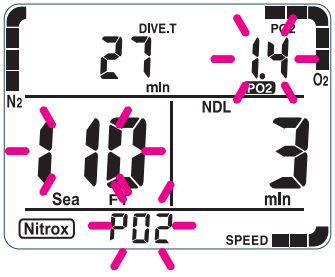


Figure 30

• **Oxygen Limit Indicator warning**:
When the OLI graph reaches 7 or 8 bars, the IQ-800 responds with a flashing display and the alarm. There are two types of warnings, as described below. (Fig. 31)

a. 7 bars displayed: The OLI bar graph will blink for 15 seconds.
b. 8 bars displayed: The OLI bar graph will blink continuously. This information is recorded in the dive log.

The warning sound or vibration will operate twice for three seconds each time the warning is active.

OLI warning

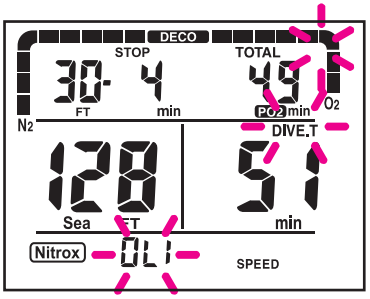


Figure 31

Decompression dive warning: If the NDL is 0 and a decompression dive is entered, the diver is alerted with a warning, followed by the decompression information display. Once the dive becomes a deco dive the PGT bar graph, DECO icon, and "DECO" indicator blink for 15 seconds. The sound or vibrating alarm will operate twice for three seconds. The information is recorded in the log. (Fig. 32)

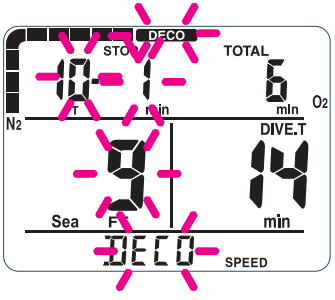


Figure 32

Out of Measurement range warning: If the computer enters this warning mode, all of the display segments will blink as shown below. The sound or vibrating alarm will operate twice for three seconds. The warning is recorded in the log. (Fig. 33)

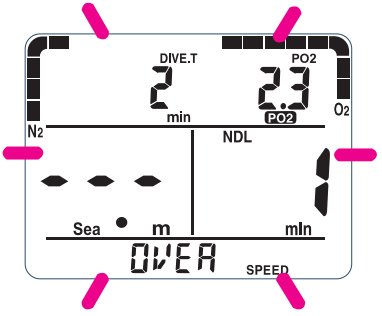


Figure 33

WARNING

An IQ-800 displaying an “Out of Range” warning is incapable of displaying other critical information such as depth, time, ascent rate, PO_2, OLI, and deco stop violations, and required decompression stops. You should not under any circumstances use an IQ-800 in such a way that would cause the Out of Range Warning to be displayed. **Under such conditions, the risk of serious personal injury or death would be substantial.**

Decompression stop violation lock and Out of Measurement range lock

In this mode the computer is locked until 48 hours have elapsed. The IQ-800 won't move to dive plan or dive set mode.

- A: Use this button to switch modes
- C: This button works normally in selected mode
- B: This button works normally in selected mode
- E: Water detection button: no function.

Safety Stop warning: There are two types of safety stop warnings. The diver is alerted to the start of the safety stop by a blinking stop icon and SAFE indicator. If the safety stop has started and the depth becomes less than 5 feet (1.4m), the remaining stop time will also blink.
The warning is not recorded in the log.
(Fig. 34)

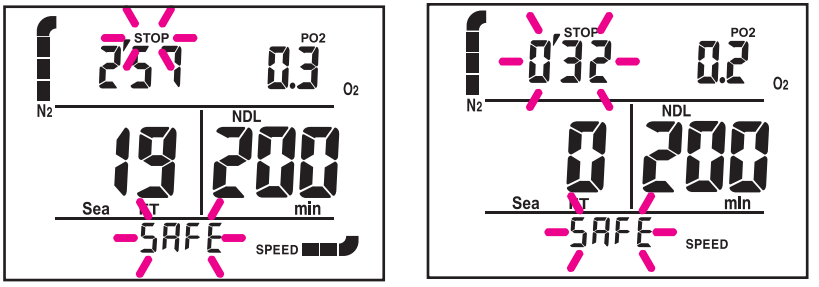


Figure 34

14. Altitude Setting

Altitude setting:The IQ-800 automatically measures and calculates the current location's altitude and displays the corresponding altitude rank. The relation between altitude rank levels and altitudes are shown below. A new altitude measurement and calculation is made once every ten minutes. (Fig. 35)

Altitude rank	Altitude range
0	0-2952 feet (0-900m)
1	1968-5904ft (600-1800m)
2	4920-8528ft (1500-2600m)
3	7544-19680ft (2300-6000m)
Err	Over 19680ft (over 6000m)

Figure 35

When the altitude is over 19680 feet (6000 meters), the display will blink while showing the altitude rank and 'Err' icons and the dive computer will not function until the altitude drops to a lower level (under 19680 feet (6000 meters)). The calculations of PGT, OLI and desaturation time are stopped when altitude is over 19680 feet (6000 meters), and 'Err' is displayed; however surface time continues to be counted. When the altitude is less than 19680 feet (6000 meters), the display shown before reaching that altitude is displayed again. The same displays and processing occur if the altitude cannot be measured for any reason.

Altitude measurements are made during all modes except Dive and PC transfer mode. The computer will display the current altitude setting icon in Time Mode and Plan Mode (In Dive Log mode the rank of the dive is displayed.)

Warning

The IQ-800 is not intended for use at altitudes above 19680 ft (6000 m). Diving at high altitudes carries an increased risk of decompression sickness.

Below are the Altitude Setting Icons for the rank of 0,1,2,3. If the altitude exceeds 19680 feet, the icon will blink and the Err icon will be displayed. (Fig. 36)

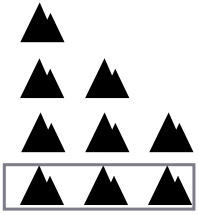


Figure 36

If the Altitude exceeds 19680 feet (6000 meters), the display shown below will appear. (Fig. 37)

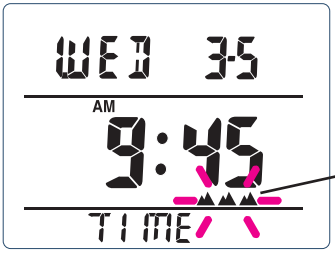


Figure 37

Caution

- A change in the altitude rank will cause PGT graph to be displayed and desaturation time to be performed even if the PGT graph was not previously active.
- Never touch the water detection switch (E) or expose it to moisture when on an airplane or in any other environment where air pressure can change quickly.
- When the PGT graph is high (7 or 8 bars), a change in the altitude rank may cause the ninth level indicator to appear. To prevent this, never use the dive computer when going to high-altitude locations, since it will disable dive mode as a safety precaution. Normal function of the dive computer will be restored when PGT graph drops to 8 bars or less.
- A difference of one-minute may occur between when the PGT graph is turned off and when desaturation time is turned off.

15. Battery Level Icon

Battery level readings (BLD) are performed in all modes with the exception of dive mode and PC transfer mode.

There are two BLD levels. If the voltage of the battery drops between 2.9 and 2.8 volts, the first BLD will be activated and the low battery icon will blink. If the voltage drops before 2.8 volts, the second BLD will activate and the low battery icon will remain on. If either BLD level is detected, the computer will not enter dive mode. The sound/vibration alarm test will not work when the low battery icon is blinking or on.

16. Battery Replacement

The IQ-800 uses one CR2032 3v battery.

In order to replace the battery, remove the clear cover with a coin by unscrewing it in the “open” direction indicated by an arrow on the cover. Remove the battery and inspect the compartment for signs of corrosion or water. If you find signs of corrosion, return the computer to your authorized TUSA dealer.
Replace the old battery with a new one, taking care that the polarity is correct. Failure to do so may result in the computer losing its calibration. Inspect and lubricate the battery compartment cover O-ring with a thin film of silicone grease before replacing it.

Screw the cover back in place in the direction indicated on the cover. Do not over tighten.

Please note that the warranty does not cover damage to the computer due to improper battery replacement.

17. Units of Measurement

You can change the units of measurement for water depth and temperature of the IQ-800.
In Dive Set mode press and hold down both the B and C button for six or more seconds. The computer will beep once to tell you that the system has changed.
Always verify the units of measure are correct before starting to dive.

18. General Handling

Do not store the computer in hot and/or humid environments. The pressure transducer is sensitive to both heat and humidity. If impaired, it may cause display of incorrect altitude or depth data.

The IQ-800's Liquid Crystal Display may darken if left in a hot environment (such as on a car's dashboard). It will return to normal once allowed to cool; however, extensive exposure to heat may shorten LCD life.

Other than for battery replacement, following the procedures outlined in this manual, the IQ-800 is not to be disassembled by anyone other than TUSA or its authorized dealers. Unauthorized disassembly will violate the warranty.

If the IQ-800 does not appear to be functioning properly, in any manner, do not use it to dive. Return it to your authorized TUSA dealer for repair.

Rinse the IQ-800 thoroughly in fresh water following every dive.

Do not use cleansers, chemicals, or solvents to clean the IQ-800. Use a soft cloth to gently wipe dirt or water stains from the screen.

Store the IQ-800 in a clean, dry location. After diving, wipe the computer dry and store it in a location separate from other damp items.

19. Warranty

Two Year Limited Warranty

TUSA warrants that TUSA Scuba dive computers purchased from authorized TUSA Scuba dealers shall be free from defects in materials and workmanship under normal sport, skin and scuba diving use and with proper maintenance and care for a period of two (2) years from date of original purchase. Under this limited warranty, TUSA will either repair or replace, at its sole option, any original equipment or parts that fail to perform as intended. When this limited warranty is in force, it covers the cost of necessary replacement parts. Labor and shipping charges are not included and must be paid by you.

You must save the original purchase receipt as proof of purchase. This limited warranty applies only to the original purchaser and is not transferable. TUSA makes no warranty or representation regarding the performance of any products used in conjunction with TUSA's products.
This Limited warranty applies only to dive computers sold through authorized TUSA Scuba dealers.

This limited warranty shall be void if the computer has been misused, abused, altered, neglected, lost, or changed. The warranty applies only to normal sport, skin, or scuba diving use.

This limited warranty shall be void if the product has been modified, or if repairs are performed by anyone other than an authorized TUSA dealer.
Equipment in question should be returned, prepaid, to your authorized TUSA dealer, or TUSA, along with proof of purchase.
This warranty gives you specific legal rights, and you may also have other rights which vary state to state.

If you have any questions concerning the Two (2) Year Limited Warranty please address them to:

TUSA
Customer Relations
2380 Mira Mar Ave
Long Beach, CA 90815
U.S.A.

www.tusa.com

Some states do not allow limitations on how long an implied warranty lasts or do not allow exclusion of incidental or consequential damages, so the following limitations may not apply to you.

Tusa expressly limits any and all dive computer warranties, expressed or implied, to the two year term as set forth above. All remedies are waived unless claim is made within the applicable twenty-four (24) month period.

Your remedies are limited to those contained therein and are in lieu of all other remedies, whether based on breach of warranty or contract, negligence, strict product liability or other tort. TUSA specifically disclaims liability for any consequential, special or indirect damages arising out of the use of your dive computer.

20. Alarm Table

Alarm	Cause	Warning
Ascent Rate Violation	The ascent rate bar graph is 7 or more.	Sound: Warning sounds for 3 seconds Vibration: active for 3 seconds
Transition to deco dive	Exceeding the NDL limits	Warning sounds twice for three seconds Vibration is active twice for three seconds
Transition to deco stop violation	The current depth is shallower than the deco stop depth	
Transition to out of measurement range	1. Depth exceeds 330 ft (99.9m) 2. Dive time exceeds 599 minutes 3. Deco stop depth exceeds 99ft (30m) 4. Deco stop time exceeds 99 minutes 5. Total ascent time exceeds 99 minutes	
OLI warning	1. OLI increases to 7 2. OLI is 8	
PO2 warning	1. PO2 increases to 1.4 2. PO2 is 1.6	
NDL warning	When NDL is less than 3 minutes	Alarm sounds for 3 seconds. Vibration is active for 3 seconds.
Safety Stop warning 1	When the safety stop timer begins 3 minute countdown	
Safety Stop warning 2	When a depth of 1.4m is measured when there is still safety stop time remaining.	

Alarm	Cause	Warning
Ft/m Selection	When changing the unit of measure	Confirmation sound
History Clear	When clearing the history	Confirmation sound
Dive Mode prohibition alarm	When the E button is active during the following conditions: 1. An altitude reading error 2. During an out of measurement range lock and decompression stop violation lock 3. During a low battery reading 4. When the PGT reaches 9 level indicators due to an altitude change or USF change.	Constant warning sound. The alarm will continue until the E button is no longer active.

21. Air default function.

The FO_2 setting will return to AIR after 12 to 13 hours unless the computer is in a dive or a lock mode.
Once in a lock condition the computer will remain that way for 48 hours. After the lock condition has passed the FO_2 is set to AIR.
If a dive is recorded in the log with a time of 3 minutes or more, the FO_2 will return to AIR after 10 minutes of surface time, except in a locked condition. If the dive time was less than 3 minutes, the FO_2 will not return to AIR after 10 minutes of surface time.
If 12 to 13 hours after the FO_2 setting change elapses during a dive, the FO_2 will return to AIR regardless of whether the dive was more or less than three minutes.

22. Technical Specifications

(1) Accuracy

- Time: average monthly variance ±30 seconds
- Depth: ±3%+2ft (±3%+0.5m)
- Temperature : ±4° F (±2.0℃)

(2) Measurement range

- Depth: 0.0-328ft (0.0-99.9m)
- Dive time: 0-599 minutes
- Altitude: 0-19680ft (0-6000m)
  Altitude measurement interval of 10 minutes
  (It excludes dive mode, time set mode, PC transfer mode.)
- Temperature: 23～104° F (-5～+40℃)
- Measurement interval: 1 minute (during dive mode)

(3) Operating temperature

- Operating temperature: 23～104° F (-5～+40℃)
  (At cold temperature, the display will be somewhat dim)

(4) NITROX setting

- FO_2: 21-99%, setting step: 1%

(5) waterproof range

- The waterproof range: to 328ft (99.9m)

(6) Battery life

- Battery life: about 2.5 years (uses one CR2032 battery) under conditions as follows:
  The computer is used for 50 one-hour dives in a year, with the backlighting active for 10 seconds a day and with the alarm sounding for 10 seconds per a dive.

Owners Information

Date Purchased: _____

IQ-800 Serial Number: _____

Dealer: _____

Address: _____

City: _____

State: _____

Zip Code: _____