



**GP-4000
COMPASS +
DIVE COMPUTER**

WWW.ISTSPORTS.COM

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Congratulations on choosing IST COMPASS+ dive computer. This important diving equipment has been designed, manufactured and tested to the highest standard to ensure its safety and proper operation in all normal recreational diving situations. This product was built based on our successful GP-3000 DATA+ dive computer but has more functions added and an improved data output so all information needed by a diver is readily accessible. Please take a little time to read and fully understand all information provided within these pages so you can use this unit safely and benefit from all of its functions.

Happy diving!

I. GENERAL OVERVIEW

GP-4000 COMPASS+ is an advance wrist-top dive computer that not only provides all essential dive information such as dive time, temperature, depth etc. to a diver in an easy-to-understand format, it also has a built-in electronic compass (can be reset to suit navigational needs in different parts of the world) and 3 NITROX settings to give convenience and to accommodate different divers' needs. All data collected can be retrieved and saved in your personal computer by using IST PCI-3000 downloader (available separately) and GP-4000 COMPASS+ software (available from www.istsports.com). Other functions such as dive plan, warning alarms, dive safety level etc. can also be programmed to suit a particular dive mission.

PLEASE NOTE:

- COMPASS+ performs decompression diving calculations by using algorithms based on Swiss-model theory and research developed by Mr. C. Randy Bohrer. It is intended for use by individuals who have completed a recognized scuba diving course.
- People who are not aware of the risks of scuba diving, and / or have not been properly trained and certified should not use this unit.
- The decompression algorithm used in COMPASS+ is designed with the assumption that no-decompression diving will be carried out. It does provide decompression diving data just in case, but this is dangerous and should be avoided.
- This dive computer's standard settings assume the user is of average physical strength and in general good health. The diver should therefore dive responsibly and make a safe diving plan suited to him or herself.
- You can use this dive computer for Nitrox diving but requires user input with regards to the gas mixture in the scuba cylinder.

- COMPASS+ is strictly meant for recreational diving use; do not use it for any other underwater activities
- However, individuals who do not understand or have not taken proper training in NITORX diving should not use the dive computer for NITROX diving. Also, it is extremely dangerous to enter incorrect NITROX information into the dive computer to the actual gas being used. Always reset each time you dive and have your dive buddy to double-check the setting, never dive with incorrect settings.
- This dive computer is designed with the assumption that only one individual alone will use it. If the unit is lent to another person, be sure to clear all records so only new data can be collected for calculation (i.e. Desaturation time, PGT indicator and OLI indicator should be 0). **The unit should never be lent to someone else when repeated dives are planned.**

I. 1. HARDWARE SPECIFICATIONS & MEASURABLE RANGE

- Dimension & weight: Case thickness: 28mm (1.1")
Case diameter: 62mm (2.4")
Total length (incl. straps): 328mm (12.9")
Wight: 115g (4oz.)
 - Battery: CR2032 lithium button battery.
Battery life: From new battery, approximately 1.5 years in time mode.
 - Maximum waterproof / operation depth: 99m (328ft)
 - PC Connectable: Yes (PCI-3000 downloader is available separately)
 - Accuracy: Average monthly time variance: \pm up to 30 seconds
Depth: \pm up to 3% + 0.5m (\pm 1% + 2ft)
Temperature: up to \pm 2.0°C (\pm 4°F)
 - Measurement range:
Depth: 0.0m - 99.9m (0.0ft - 328ft). Measurement taken every second.
Total dive time: 0 - 599 minutes (DIVE mode).
0 - 1199 minutes (GAGE mode).
Altitude: 0m - 6000m (0ft - 19680ft). Measurement taken every 10 minute (but not when in DIVE mode or PC TRANSFER mode).
Temperature: -5°C - 40°C (23°F - 104°F). Measurement taken every second (DIVE mode only)
 - NITROX (FO₂) setting: 21% - 99% in 1% increment.
 - Operating temperature range: -5°C - 40°C (23°F - 104°F)
NOTE: In cold environment, the display may be somewhat dimmer.
 - Storage temperature: 0°C - 50°C / 32°F - 122°F
-

II. MODES AND FUNCTIONS

II. 1. GENERAL INFORMATION

COMPASS+ is a mobile dive computer intended for scuba diving. It collects and records depth change, altitude at the point of entry, dive time and water temperature and based on the information measured, it automatically calculates and displays critical information such as oxygen & nitrogen exposure levels, No Decompression Limit time etc. in an easy to read format with EL back light illumination. The following modes (in the order as listed) are contained within the unit and all of the functions will be explained in detail later in this chapter.

NON-DIVE modes

- Time mode: Watch and full-auto calendar function (with auto leap year recognition and auto month-end recognition).
- Compass mode: In azimuth and numerical angle display.
- Dive Set mode: Variables such as FO₂ settings (up to 3 Mixes), PO₂, depth / time alarms etc. can be defined here.
- Dive Plan mode: Planned dive time and maximum depth can be set here.
- Dive Log mode: Saves and displays up to 60 dives' information.
- Dive Profile mode: Displays depth changes of a logged dive pictorially.
- History mode: Displays the total numbers of dives and total dive time.
- PC Transfer mode: To retrieve or upload information from a PC which has a compatible software installed (avail. from IST web site).
- Time Set mode: Set current time and date

DIVE specific modes

- DIVE mode: COMPASS+ will automatically enter this mode when the water detection sensor is activated and the depth is more than 1.2m / 4ft. In this mode, the computer will inform you all the important dive information and give out warnings to help you dive safely.
- GAGE mode: If this mode was chosen before a dive has begun, the unit will give out information much like a conventional dive instrument.

II. 1. 2. OVERALL OPERATION FLOW CHART

TIME MODE

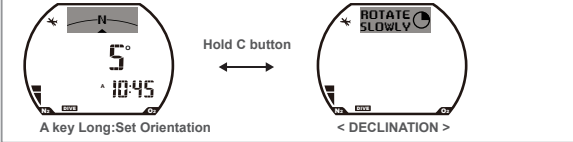
A or C button : EL back light comes on for 4 seconds



↓ B key

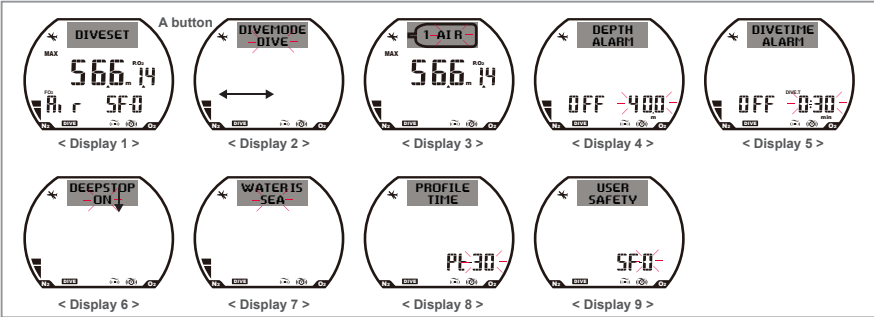
COMPASS MODE

A or C button : EL back light comes on for 4 seconds



↓ B key

DIVE SET MODE



↓ B key

PLAN MODE



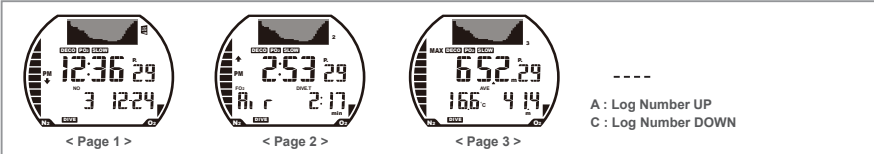
A : UP
C : DOWN

B key 3 seconds : TIME MODE

LCD OFF : When there is no key input for 4~5minutes(No desat time,bar display)
When there is no key input for 9~10minutes(desat time,bar display)

↓ B key

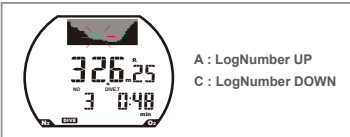
DIVE LOG MODE



A : Log Number UP
C : Log Number DOWN

↓ B key

DIVE PROFILE MODE



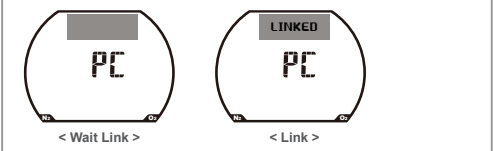
A : LogNumber UP
C : LogNumber DOWN

HISTORY MODE



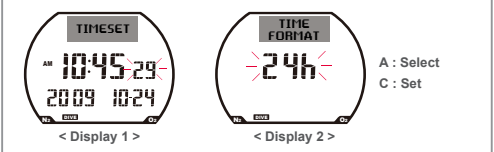
↓ B button

PO TRNAS MODE



↓ B button

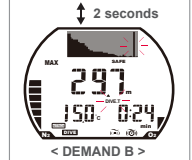
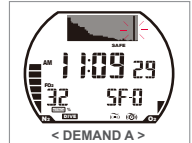
TIME SET MODE



↓ B button

DIVE MODE A or C button: EL back light comes on for 4 seconds

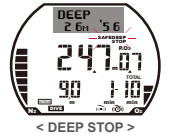
DEMAND MODE



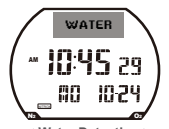
WARNING



← Warning

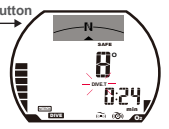
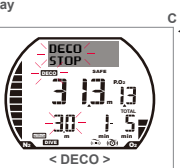
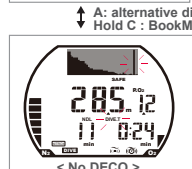


Water Detection



< Water Detection >
All Key is Locked

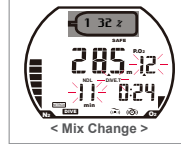
> 1.2m



A : Set Orientation
B : Display Select
DiveTime or Depth
> Dive Compass >

Hold B button

DIVE MODE (Mix Change)



A : Select

Note: when the unit does not detect any input, it will automatically enter battery saving mode (no information displayed).

II. 1. 3. BUTTONS OF OPERATION

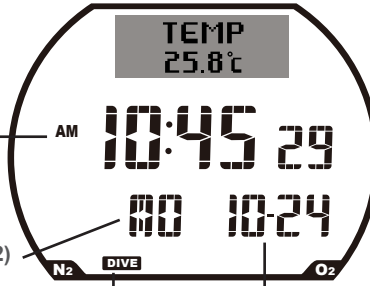


Button	Main function
A	To change to the next variable
B	Moves to the next mode
C	Set button
Water sensor	1) Once activated, the dive computer automatically enters DIVE mode when depth is more than 1.2 m 2) Serve as contact points for PCI-3000 downloader to retrieve log and history information from the unit
RESET	The RESET button is located on the under side of the unit. Please reset COMPASS+ immediately after battery change.

II. 2. 1. TIME MODE

This is the first mode displayed when the unit first comes on (when any button is pushed). Here are examples of what the screen would look like in different situations:

(1) [Normal display]

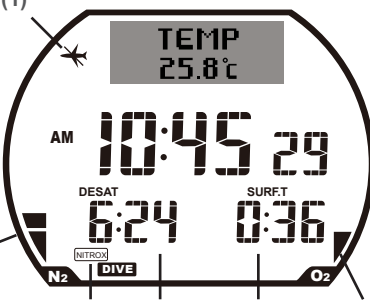


The screen displays the following information:

- (1) TEMP 25.8°C
- (2) MON
- (3) AM 10:45 29
- (4) 10-24
- (5) N2 DIVE O2

1) Current air temperature
 2) Current day of the week
 3) Current time (can be in either 12h or 24h clock mode)
 4) Current date
 5) DIVE icon (or GAGE icon): The mode the computer will enter once activated.

(1) [Display after a dive - DIVE]

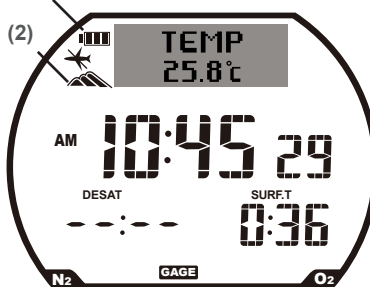


The screen displays the following information:

- (1) TEMP 25.8°C
- (2) AM 10:45 29
- (3) DESAT 6:24
- (4) SURF.T 0:36
- (5) N2 DIVE O2
- (6) NITROX indicator

1) Don't fly icon
 2) PGT indicator
 3) NITROX indicator
 4) DESAT count-down timer
 5) Surface timer
 6) OLI indicator

(1) [Display after a dive - GAGE]







The screen displays the following information:

- (1) TEMP 25.8°C
- (2) AM 10:45 29
- (3) DESAT ---
- (4) SURF.T 0:36
- (5) N2 GAGE O2

1) Battery indicator
 2) Altitude indicator

Icon explanations:

- Battery indicator icon (if shown): It will appear in all modes (except PC Transfer mode) when the battery is on low power (voltage less than 2.7V). You can not go to DIVE mode while the battery indicator icon is ON. Be sure to replace the battery when this icon appears.
- Altitude icon (if shown): The computer automatically measures the location's altitude and display accordingly.

Altitude icon	Range representation
No icon	0m - 900m (0ft - 2952ft)
	600m - 1800m (1968ft - 5904ft)
	1500m - 2600m (4920ft - 8528ft)
	2300m - 6000m (7544ft - 19680ft)
	Error (icon blinks) + 6000m (+ 19680ft)

- NITROX icon: This icon is on if FO2 value is entered (in Dive Set mode). If no value is entered, then this icon flashes.
- PGT (Pressure Gas in Tissue) indicator (if shown): This indicates the level of Nitrogen accumulated in the body by a nine-level bar graph (DIVE mode only).
- OLI (Oxygen Limited Indicator) indicator (if shown): This indicates the level of Oxygen accumulated by a eight-level bar graph (DIVE mode only).
- DIVE / GAGE mode icon: The selected mode is shown.
- Surface timer (if shown): This icon comes on when a dive is deemed completed . A dive is counted when being submerged for more than 3 minutes and a depth greater than 1.2m / 4ft has been reached. If a descent is detected by the computer within 10 minutes of surface time, the previous dive will continue. Surface time is continued for a maximum of 48 hours.
- Desaturation count-down timer (if shown): This indicates the time remaining until nitrogen dissipates from the body. (DIVE mode only).
- Don't Fly icon (if shown): It appears while desaturation time is being counted. If desaturation time is less than 12 hours, this icon will disappear after 12 hours (DIVE mode). If in GAGE mode, this icon will disappear after 48 hours.

[Display after a dive - GAGE]

--- NOTE ---

- Even when there is no PGT (=pressure gas in tissue) level indicated, a change in altitude will cause PGT graph to be displayed and desaturation time counted.
- When the PGT graph is high (on 7 or 8 levels), a change in altitude may cause the maximum nine-level graph to appear. To prevent this, never use the dive computer when extreme high-altitude icon is displayed. Should this happen, DIVE mode will be disabled as a safety precaution. Normal function will be restored when PGT level drops to 8 or below.
- The PGT graph and desaturation count-down timer may not be turned off at the same time (up to one minute difference).

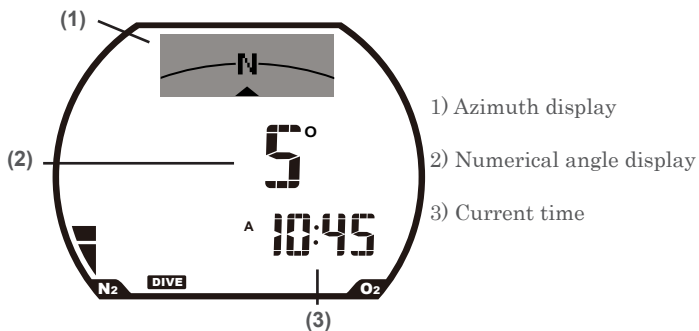
Buttons of operation

Button	Function in Time mode
A	EL back light on for 4 seconds
B	Move to Compass mode
C	EL back light is on for 4 seconds
Water sensor	Move into DIVE / GAGE mode

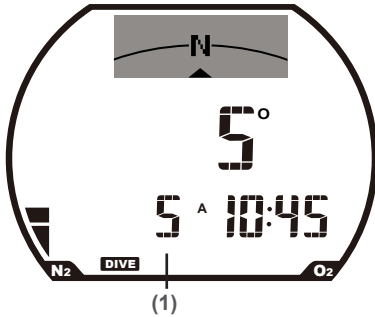
II. 2. 2. COMPASS MODE

When entering this mode, the digital azimuth compass will appear. Azimuth is displayed in the dot-matrix section of the screen. If there is a orientational need to mark the a heading at any time, simply hold the A button for 2 seconds (see the following pictures). To cancel the mark, press the A button for 2 seconds.

[Normal Compass mode display]

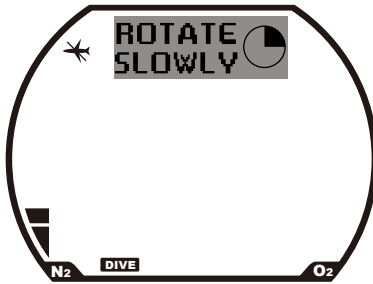


[Hold A button for 2 seconds to mark (or to cancel)]



1) Initial heading marked

Before using the compass for its very first dive, please reset the azimuth delineation as your location's latitude may be significantly different to factory setting and the reading can be inaccurate. Also, many divers are also travellers, remember to reset the compass delineation when the new diving location has a significant change in latitude to the previous dive.



To realign the compass to earth's axis, press the C button for 2 seconds, hold COMPASS + parallel to the ground then rotate the unit very slowly clockwise until a full circle is indicated by the dot-matrix display. Press C for 2 further seconds to exit the function.

--- NOTE ---

If in this mode, the unit:

- 1) has taken a measurement outside the working range, or
- 2) is locked in decompression stop violation,

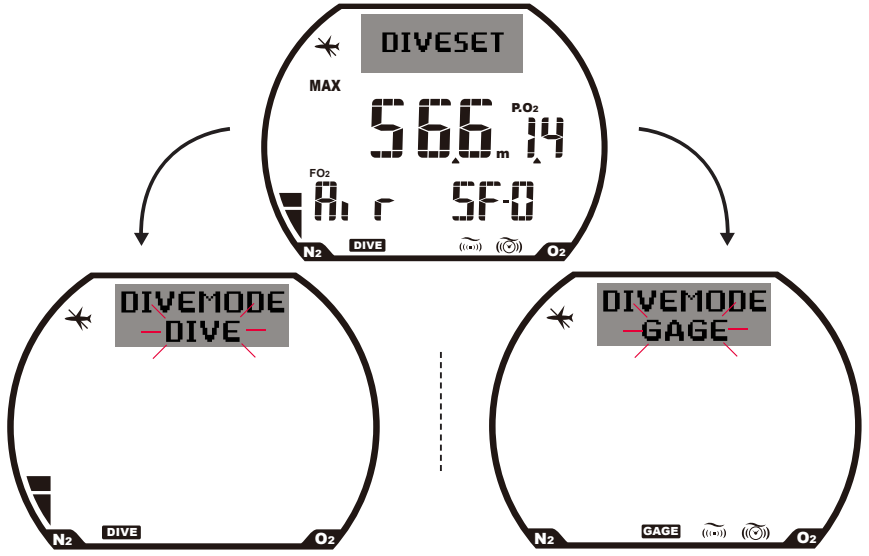
all display segments will flash and can not enter DIVE / GAGE mode.

Buttons of operation

Button	Function in Compass mode
A	EL back light on for 4 seconds Mark initial orientation (hold button for 2 seconds)
B	Move to Dive Set mode
C	EL back light is on for 4 seconds Reset azimuth delineation (hold button for 2 seconds)
Water sensor	Move into DIVE / GAGE mode
No input	Move to Time mode (after 2 minutes)

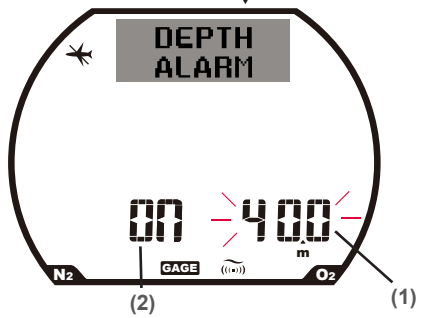
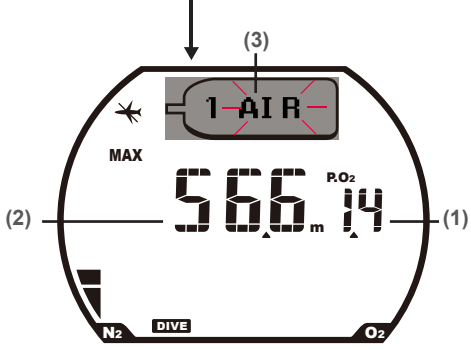
II. 2. 3. DIVE SET MODE

In this mode, you are able to define the following variables after selecting which mode (DIVE or GAGE) to use once the water sensor is activated in dive condition:



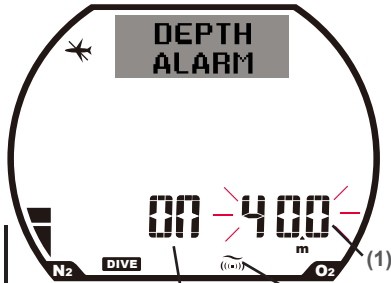
DIVE mode
(in the same order as the computer):

GAGE mode
(in the same order as the computer):

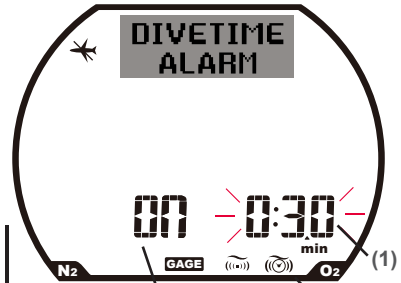


- 1) PO₂ setting (from 1.0 - 1.6)
- 2) PO₂ max. depth will automatically be adjusted)
- 3) FO₂ setting (up to 3 mixes; Mix 1 has AIR as default and when a value other than 21% (up to 99%) is used, the NITROX icon will appear)

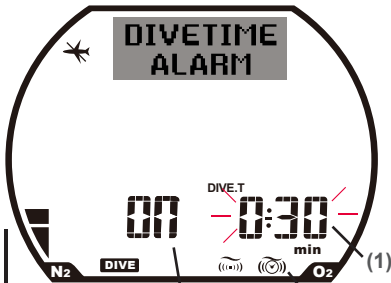
- 1) Max. depth setting (2m - 99m / 6ft - 325ft)
- 2) Max. depth alarm (on / off)



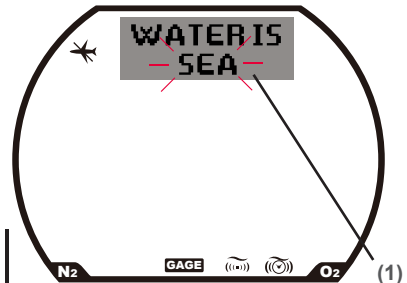
- 1) Max. depth setting (2m - 99m / 6ft - 325ft)
- 2) Max depth alarm (on / off)



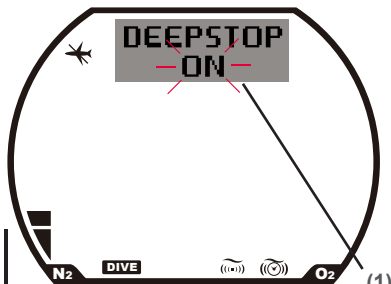
- 1) Max. dive time setting (1 - 1199 minutes)
- 2) Max dive time alarm (on / off)



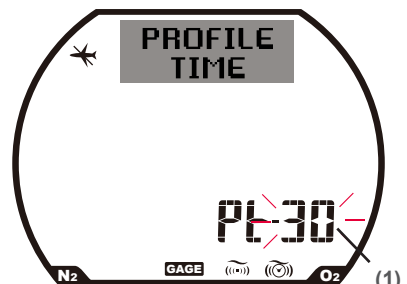
- 1) Max. dive time setting (1 - 599 minutes)
- 2) Max dive time alarm (on / off)



- 1) SEA / FRESH water setting

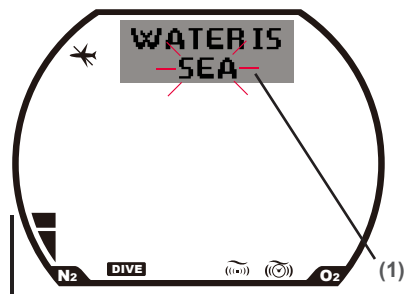


- 1) Deep Stop (on / off)

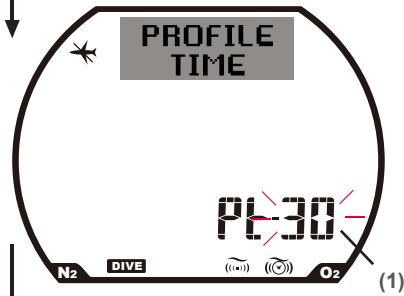


- 1) Profile Time (dive data collected can be recorded at the end of every 10th or 30th second.)

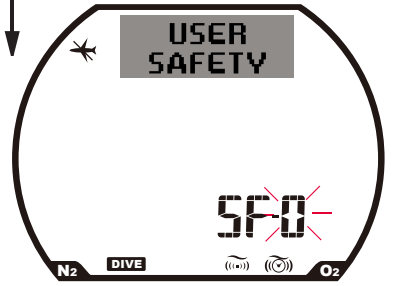
END OF THE GAGE MODE CYCLE.
& RETURNS TO THE BEGINNING
OF THE MODE.



1) SEA / FRESH water setting



1) Profile Time (dive data collected can be recorded at the end of every 10th or 30th second.



1) User Safety Factor - level 0, 1 or 2.
 When 0 is selected, the algorithm for the current altitude is used while 1 means algorithm for the next higher altitude is used and 2 means algorithm of 2 higher altitude level is used.

END OF THE DIVE MODE CYCLE & RETURNS TO THE BEGINNING OF THE MODE.

--- NOTE ---

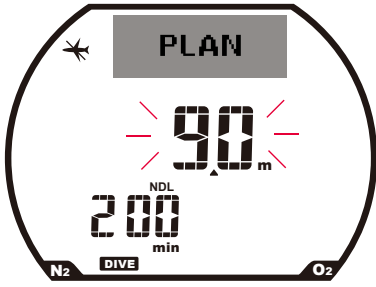
- The Dive Set mode can not be accessed if the unit:
 - 1) is within 10 minutes of a just-completed dive (either in DIVE or GAGE mode), or
 - 2) is locked in decompression stop violation, or
 - 3) has an out of range measurement.
- All input values will return to the default setting after 13 hours of the last completed dive.
- Always check the FO₂ % setting before a dive.
- After using GAGE mode for diving, the DIVE mode can not be chosen for 48 hours.

Buttons of operation

Button	Function in Dive Set mode
A	Move to the next variable
B	Move to Dive Plan mode
C	Adjust the variable
A + C	To change measurement units: m / °C ↔ ft / °F
Water sensor	Move into DIVE / GAGE mode
No input	Move to Time mode (after 2 minutes)

II. 2. 4. DIVE PLAN MODE

Use this mode to set the actual planned diving depth so COMPASS+ can work out the most appropriate No Decompression time Limit (NDL). The range is from 9m (30ft) - 48m (160ft) in 3m (10ft) increment.



--- NOTE ---

- The Dive Plan mode can not be accessed if the unit:
 - 1) is locked in decompression stop violation, or
 - 2) has a measurements that is out of range.
- If maximum planned dive depth setting exceeds the PO2 value setting, the time display will show "- - -". Check if the PO2 value setting needs to be adjusted (in DIVE SET mode) and also consider revising the existing dive plan in order to dive safely.

Buttons of operation

Button	Function in Dive Set mode
A	Move the depth setting up - 3m (10ft) per click To fast-track up (hold A button)
B	Move to Dive Log mode
C	Move the depth setting down - 3m (10ft) per click To fast-track down (hold C button)
Water sensor	Move into DIVE / GAGE mode
No input	Move to Time mode (after 2 minutes)

II. 2. 5. DIVE LOG MODE

In this mode, the data of completed dives are displayed (a dive is when a diver is submerged underwater for more than 3 minutes to a depth greater than 1.2m (4ft).

COMPASS + can hold up to 60 dive records (the dive profile's sampling time is set at 30 second interval) (DIVE records + GAGE records = 60dives). Each record has 3 pages of log information.

Once the memory is full, the oldest data is deleted to allow room for the latest information.

Depth profile (shown in the dot-matrix display): Each time the cursor moves represents a time interval of 30 seconds

The maximum dive time for each dive is 59 minutes.

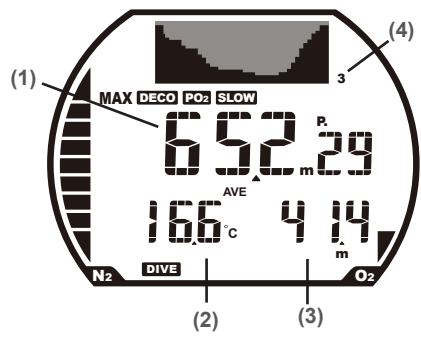
[Dive Log mode display (DIVE mode) - 1st page]

1) Pictorial depth profile
 2) Number of dive as at date shown
 3) Dive entry time
 4) Dive date
 5) Log number
 6) Log page icon (1st page)

[Dive Log mode display (DIVE mode) - 2nd page]

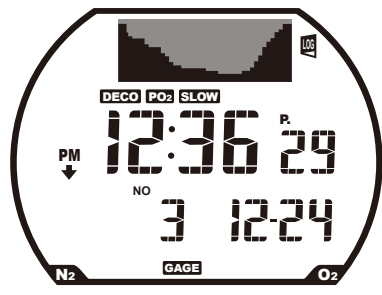
1) Dive end time
 2) FO₂ information
 3) Total dive time
 4) Log page icon (2nd page)

[Dive Log mode display (DIVE mode) - 3rd page]

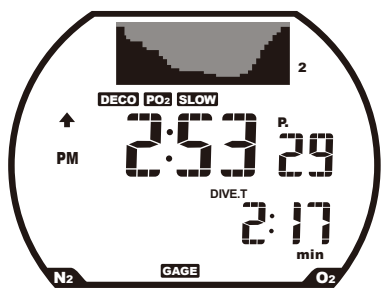


- 1) Maximum depth
- 2) Lowest temperature measured
- 3) Average depth
- 4) Log page icon (3rd page)

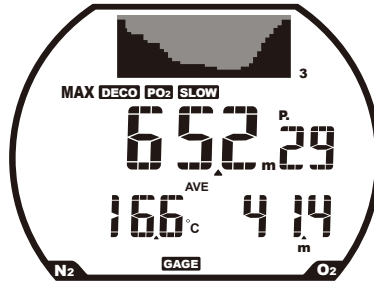
[Dive Log mode display (GAGE mode) - 1st page]



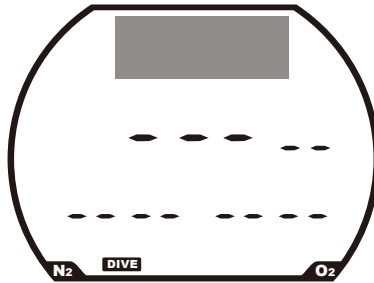
[Dive Log mode display (GAGE mode) - 2nd page]



[Dive Log mode display (GAGE mode) - 3rd page]

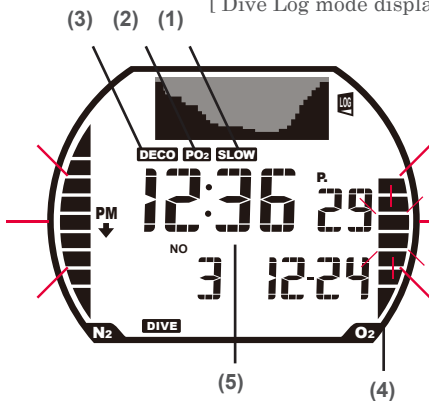


[Dive Log mode display - when no dive data]



Warnings may be generated and recorded during a dive. For further information, please see the DIVE mode section.

[Dive Log mode display - warnings recorded]



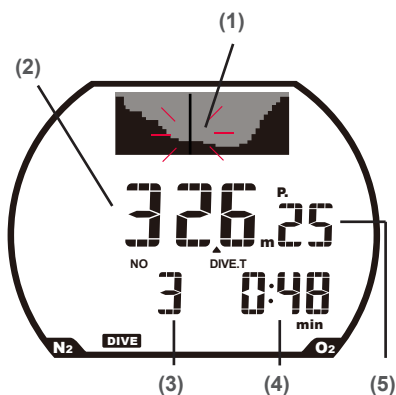
- 1) SLOW icon: when ascent is too fast (blinking)
- 2) PO₂ warning (blinking)
- 3) Decompression dive (if warning, then the icon blinks)
- 4) OLI warning (maximum level: 8)
- 5) Out of range - the whole screen blinks

Buttons of operation

Button	Function in Dive Log mode
A	- Move to log screen 1 or an earlier log No. - Fast track to the earliest log (hold A) - No function: If there is no dive data
B	Move to Dive Profile mode
C	- Move to log screen 1 or a more recent log No. - Fast-track to the most recent log (hold C) - No function: If there is no dive data
Water sensor	- Move into DIVE / GAGE mode - No function: If there is an out of range measurement or Decompression Dive Violation.
No input	Move to Time mode (after 2 minutes)

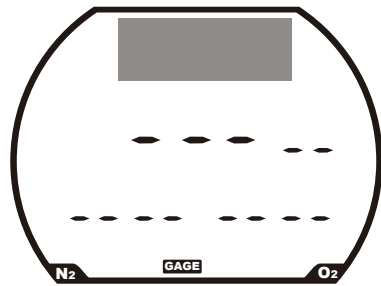
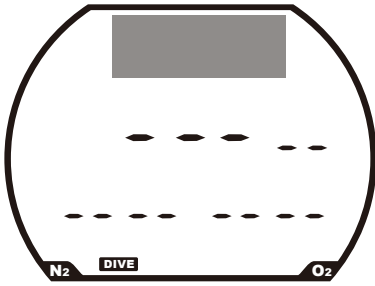
II. 2. 6. PROFILE MODE

Very much like the previous mode (Dive Log) but the depth profile is played out in the dot matrix section of the screen. Each time the flashing cursor moves it represent 30 seconds has passed in that particular dive. The cursor's corresponding depth is numerically displayed below.



- 1) Depth profile with flashing cursor
- 2) Cursor's corresponding depth
- 3) No. of dive in a calendar day (e.g. the 3rd on that day).
- 4) The dive time corresponds to the depth displayed
- 5) No. of logged dives (e.g. this is the 25th on record)

[Dive Profile mode display - no data (DIVE & GAGE mode)]



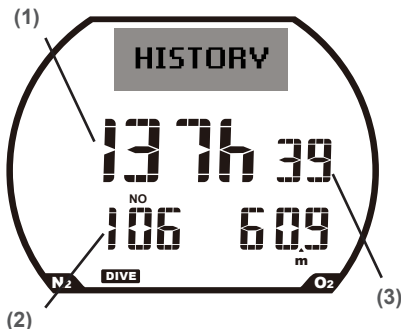
Buttons of operation

Button	Function in Profile mode
A	Move towards the earliest logs
B	Move to History mode
C	Move towards the most recent log
Water sensor	Move into DIVE / GAGE mode
No input	Move to Time mode (after 2 minutes)

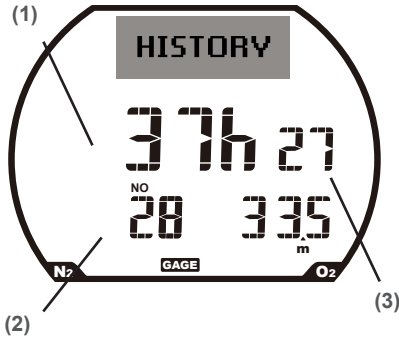
II. 2. 7. HISTORY MODE

Summary of total dive time, total dive number and max depth are displayed (in DIVE or GAGE mode).

The upper limit for the number of dives is 9999 and for total dive time is 999:59 (h:m)

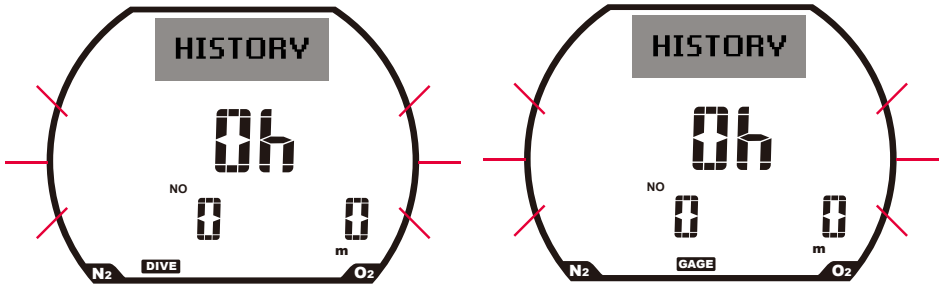


- 1) Total dive time recorded in DIVE mode
- 2) Total no. of dives recorded in DIVE mode
- 3) Maximum depth recorded in DIVE mode



- 1) Total dive time recorded in GAGE mode
- 2) Total no. of dives recorded in GAGE mode
- 3) Maximum depth recorded in GAGE mode

[History mode display - no data (DIVE & GAGE mode)]



Buttons of operation

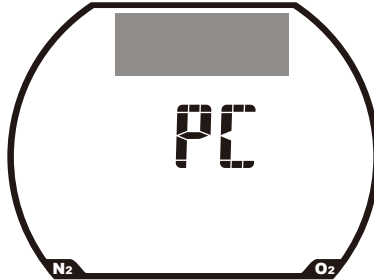
Button	Function in History mode
A	No function
B	Move to PC Transfer mode
C	No function
Water sensor	- Move into DIVE / GAGE mode - No function: If there is an out of range measurement or Decompression Dive Violation.
No input	Move to Time mode (after 2 minutes)

II. 2. 8. PC TRANSFER MODE

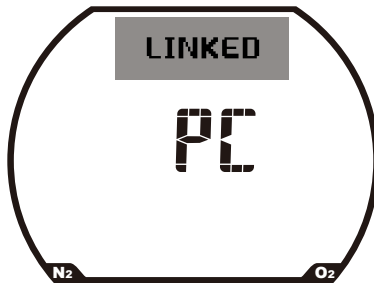
In this mode, information can be downloaded or uploaded from a PC by using PCI-3000 downloader (available separately). The operating software can be found on IST web site (www.istsports.com)

One can not access this mode if the surface interval is less than 10 minutes, or there is no log data, or if an access error has occurred.

In PC Transfer mode, altitude level is temporarily not measured.



[Connection between the downloader and COMPASS+ has been established]

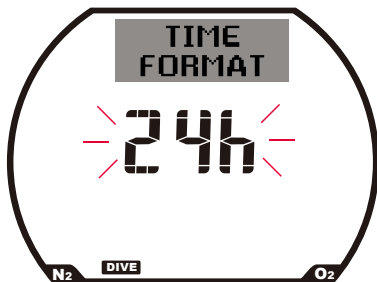
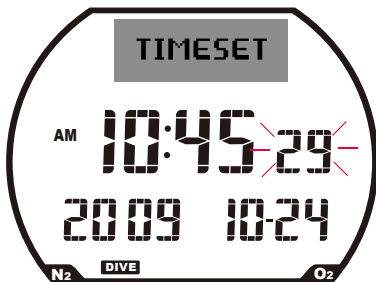
**Buttons of operation**

Button	Function in PC Transfer mode
A	No function
B	Move to Time Set mode
C	No function
Water sensor	Acts as the contact point for the downloader to retrieve or upload information into COMPASS+
No input	Goes into power saving mode (no display)

II. 2. 9. TIME SET MODE

The Time Set mode allows you to set the time and date and has a 12h / 24h clock option.

Please note this mode can not be accessed until 10 minutes after the completion of a dive.



Buttons of operation

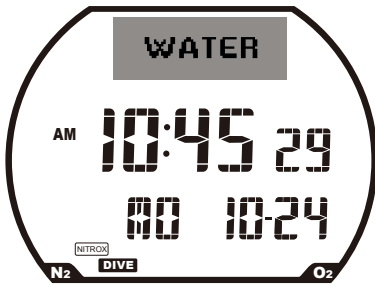
Button	Function in Time Set mode
A	To move to the next variable
B	Move to Time Set mode
C	Set / reset value To fast-track a setting (hold C)
A + C	See all LCD display
Water sensor	- Provides the contact point for information to be retrieved and uploaded into COMPASS+
No input	Goes into power saving mode (no display)

II. 2. 10. DIVE MODE / GAGE MODE

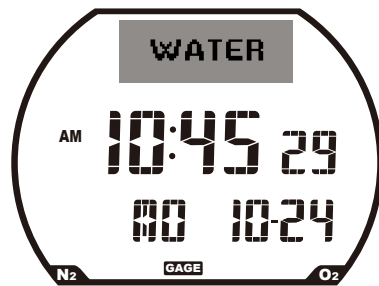
When COMPASS+ is submerged underwater (at depth greater than 1.2m / 4ft) , the water sensor will automatically take the computer into either DIVE or GAGE mode, depending on which is set prior to the dive. The DEFAULT mode is non-decompression dive mode as mentioned in the beginning of the manual.

This mode actually encompasses the following modes / functions: compass, MIX change, decompression dive mode, safety stop condition, deep stop condition, gage mode, out of measurement range condition. Each of these functions is described below.

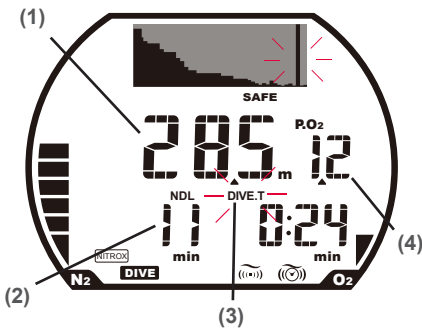
[DIVE mode - < 1.2m / 4ft]



[GAGE mode - < 1.2m / 4ft]



[DIVE mode - > 1.2m / 4ft]



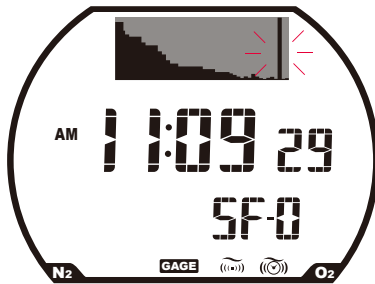
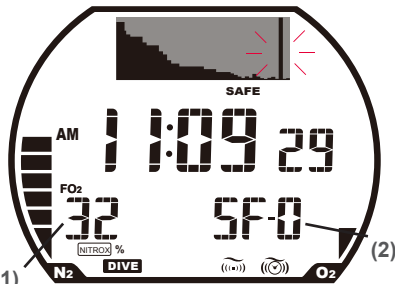
[GAGE mode - > 1.2m / 4ft]



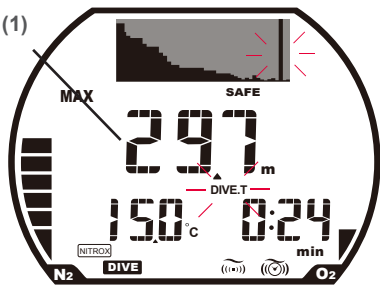
- 1) Current depth
- 2) No Decompression time Limit
- 3) Diving time (running)
- 4) Partial pressure of O₂ setting.

[DIVE mode - hold A button to switch to secondary display]

[GAGE mode - hold A button to switch to secondary display]



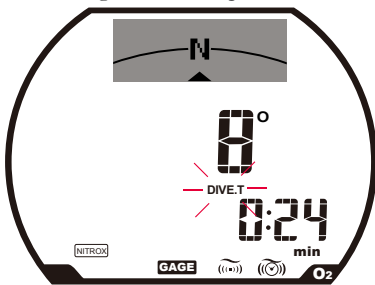
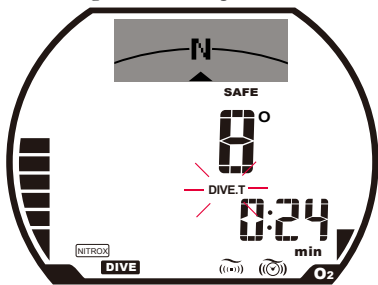
- (1) FO2 % currently in use
- (2) User safety level



- (1) Maximum depth reached

[DIVE mode - push C button to go to the compass screen]

[GAGE mode - push B button to go to the compass screen]

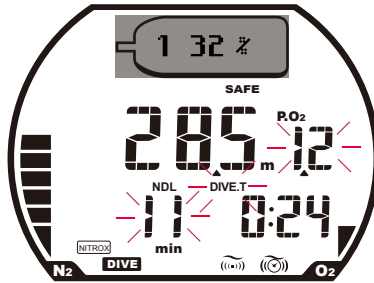


Use the digital azimuth like a conventional compass.

When navigating, press A button for 2 seconds to mark the initial orientation.

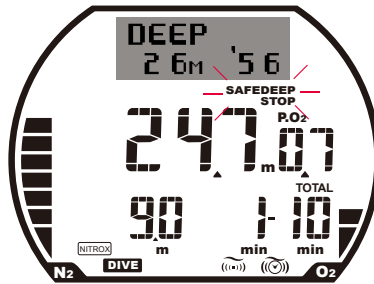
It is not possible to make Mix change in the compass mode.

[DIVE mode - Mix change]



The computer can store up to 3 different Nitrox settings and can be switched from 1 mix to another mid dive, providing that the PO₂ for the gas is under 1.6 at the depth when the switch is made and the oxygen % has been set before a dive began.

[DIVE mode - Deep stop]

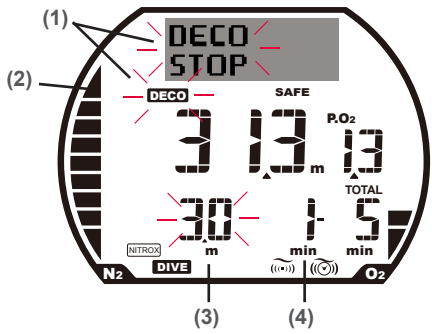


This dive computer has a DEEP STOP function. It is shown only under the decompression mode and may require the diver to stay deeper than 21 meter. One-minute stop(s) will be prescribed (much like a safety-stop) but in a deeper area.

The stop before reaching the deepest decompression depth is calculated based on a higher safety level of the algorithm. Please note that the total dive time will be increased by the deep-stops.

The ascent rate under this function is 10m (33ft) per minute.

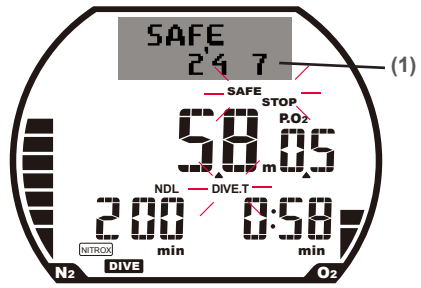
[DIVE mode - Decompression Dive]



- 1) Decompression dive warning
- 2) PGT level: at maximum 9 level
- 3) Decompression stop depth
- 4) Decompression stop time

This mode is used for dives that last longer than the NDL prescribed limit. Until the advised depth is reached, warning will continue. If this setting is ignored and you return to the surface, then 10 minutes after surfacing, the display will freeze and all calculations / functions will stop and the unit will move into TIME mode until 48 hours have elapsed and only LOG, PROFILE and PC TRANSFER mode can be accessed during the lock-out. This information is recorded in the dive log

[DIVE mode - Safety stop]

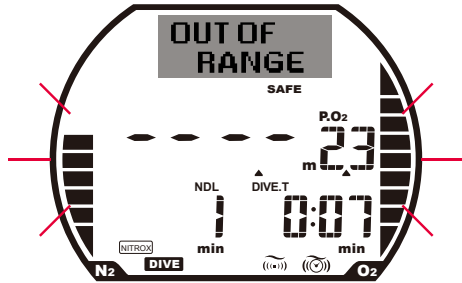


This shows the recommended safety stop time. If the user descends below 9.9m, upon returning to a depth of 6m, this value appears instead of NDL. The safety stop timer starts counting down from 3 minutes to 0:00. Then safety stop timer icon and NDL reappears.

Note: Safty stop timer will be temporarily paused if the depth reading is between 6.1m and 8.0m. If the depth is greater than 8.1m, safty stop time will still be temporarily paused and NDL icon will reappears. If the depth is greater than 10m, the safty stop timer will be reset.

If the diver doesn't follow the recommended stop, COMPASS + will not record this information.

[DIVE mode - Out of measureable range]



E.g. Water depth exceeds measurement range (deeper than 100m / 328ft)

When a measurement is out of range, the exceeded parameter becomes '---' on the display and all display blink.

Situation 1: When the depth exceeds 99.9m (328ft).

Situation 2: When dive time exceeds 599 minutes in DIVE mode and 1199 minutes in GAGE mode

Situation 3: Decompression is required at a decompression stop deeper than 30m / 100 feet.

Situation 4: Decompression stop time has exceeded 99 minutes.

Situation 5: total ascent time has exceeded 99 minutes

[GAGE mode]

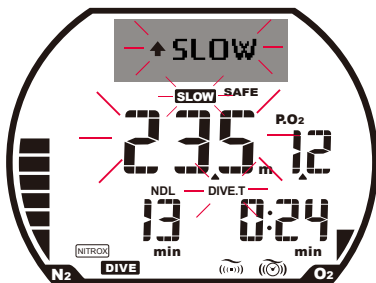
Only current depth, water temperature and dive time information will appear on screen. Calculation functions (such as PGT and OLI etc) are not performed. If you use this mode when diving, it will remain in GAGE mode until 48 hours have elapsed.

NOTE: When diving in GAGE mode, safe stop will not function.

[To mark specific depth]

One can mark out a specific depth in the dive profile if C button is pushed during a dive. However, it is not possible to use this function while changing to a different Mix.

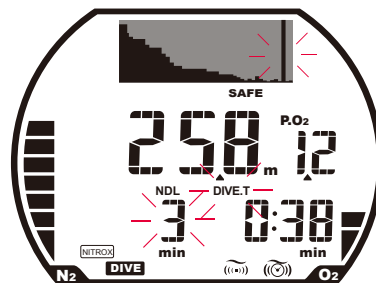
[DIVE mode - Warning - Ascent rate]



Whenever the ascent rate is too fast for a particular depth, COMPASS + will give out an audible alarm and its display will flash. If the surfacing speed is not reduced to within an acceptable level, the unit will continue sounding the alarm and will only stop when the depth is shallower than 1.2m (4 feet). This information is recorded in the dive log when the second warning appears within 6 seconds of the first warning. This applies to both DIVE and GAGE mode.

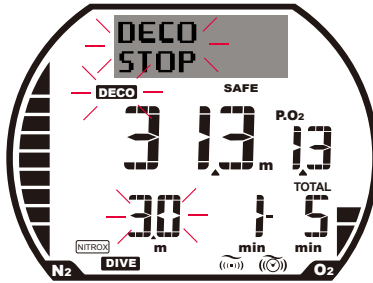
Depth range	Ascent rate
0 ~ 5.9m (0 ~ 19ft)	8m (26ft) per minute
6~17.9 (20 ~ 59ft)	12m (39ft) per minute
Depth greater than 18m (59ft)	16m (52ft) per minute

[DIVE mode - Warning - Ascent rate]



When the ND.L time is counted down to within 3 minutes, a warning is generated. This information is not recorded in the dive log.

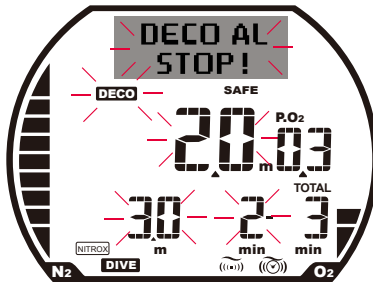
[DIVE mode - Warning - Decompression dive]



When the NDL is exceeded, COMPASS + automatically changes the mode to decompression dive mode. Warning will be generated and this information is recorded in the dive log.

NOTE: Decompression diving is dangerous as it greatly increase the chance of getting decompression illness. It is strongly advised to stay within the No-Decompression Limit for safety reasons.

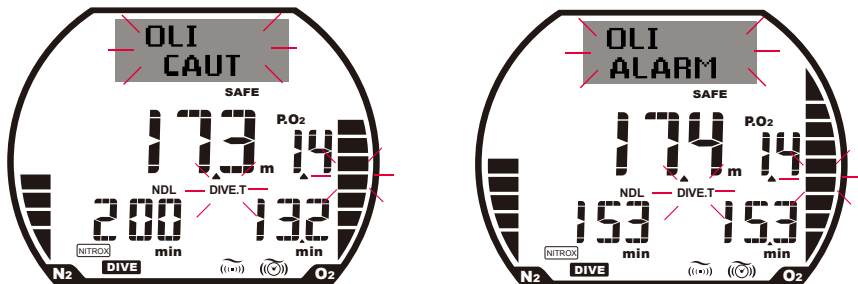
[DIVE mode - Warning - Decompression stop violation]



When the depth is shallower than the recommended decompression stop depth, audio and visual warnings will be given once every minute. If the depth is deeper than the prescribed depth, the screen will display normally. This information will be recorded in the dive log.

The DECO icon, current depth, Deco stop depth and time will flash and audible alarm will be generated.

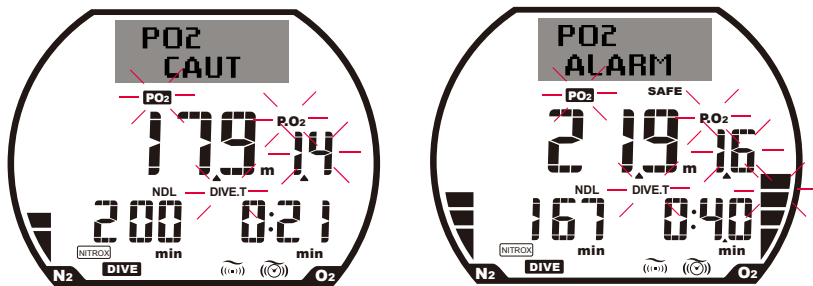
[DIVE mode - Warning - OLI alarm]



When the OLI graph reaches the 7th or the maximum 8th level, the following will occur:

- a. Graph level = 7: Display flashes and the alarm will sound but this information is not recorded in the dive log.
- b. Graph level = 8: Display flashes and the alarm will sound. This information is recorded in the dive log.

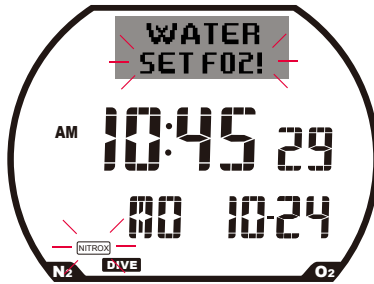
[DIVE mode - Warning - PO2]



When the partial pressure of oxygen warning comes on, it can mean the PO2 at the current depth is greater than the maximum value set before a dive or PO2 is simply over 1.6.

- a. When PO2 = setting PO2 value : The warning display blinks and alarm sounds.
- b. When PO2 = 1.6 or more: The warning display blinks and alarm sounds. The entire OLI graph blinks.

[DIVE mode - Warning - FO2 not set]



When the FO2 is not set (i.e. default value is used), an alarm will sound when dive mode starts and display blinks until FO2 is set.

Buttons of operation

Button	Function in DIVE / GAGE mode
A	- Set compass initial orientation - Move to secondary display (hold A button) - Change gas mix (Mix 1 - Mix 2 - Mix -3 - Mix 1...)
B	- Move between Dive Time and Depth
C	- Move to compass and back - To mark specific depth (hold C button)
Depth < 1.2m	- Move to time mode (sensor switches off)

Back light comes on with every push of a button

III. IMPORTANT NOTICES

- Before using this product, read the manual and be sure you understand the content thoroughly.
- Do not store or leave this product in a hot or humid place. Doing so could damage its performance. The pressure sensor is particularly susceptible and could give incorrect displays of altitude rank and water depth. If the computer becomes overheated, put it in water to cool it down.
- Leaving the computer in a hot place could cause the liquid crystal display to turn black, but it will return to normal when it cools down. This situation should still be avoided since it can shorten the life of the panel.
- You should be aware that the computer may give an incorrect altitude rank because of weather-related changes in air pressure.
- Do not subject the computer to pressure chamber tests such as with air or gas. This could affect sensor precision.
- Never take apart the product. This will void the warranty.
- NEVER activate the water detection sensor or expose it to moisture when on an airplane or in any other environment where air pressure can change quickly.

III. 1. BATTERY

- When the battery mark is illuminated or blinking, record the data in your log and have an IST dealer to change the battery as soon as possible.
- A low power battery left in the unit for a long period of time could lead to leakage, so change promptly.
- Have the battery changed by authorised IST dealer so a properly trained technicians can perform this task
- Looking through the transparent battery cover, if you discover the o-ring underneath has scratches or is cracked, or has foreign matters stick to it, please ask your authorised IST dealer to replace / clean the o-ring.

III. 2. DIVING

- Always check the battery's power before you go diving. If the battery mark is illuminated or flashing, it will not change to Dive mode.
- Before you dive, always check the FO2 in dive set mode (if no setting, the NITROX icon will blink).
- This product does not manage your supply of air. You should therefore be aware of your own air supply.

- You should dive so that you have plenty of margins to stay within no-decompression diving limit. Always make a safety stop at three to six meters if you dived to 10 meters or deeper. We also recommend that if the computer tells you to make a decompression stop, you should stop longer then the time directed. In this case, you should check the residual pressure in your tank.
- It is recommended that you should use backup instruments (such as another dive computer, a depth gauge, diver’s watch, etc.) in addition to this product.
- After your dive you, should calculate decompression based on the altitude of the entry point. A sudden change in altitude is very dangerous. You must therefore not move anywhere that would cause a significant change in altitude immediately after.
- This dive computer has a lockout function that will not let it work for diving for 48 hours if you dive in a dangerous way.

IV. MAINTENANCE AND STORAGE

- After diving, clean your dive computer in clean, fresh water. Do not, however, leave the unit in water, since this can shorten the battery life. Dry and wipe away any soiling or mineral deposits with a soft cloth.
- Solvents (such as alcohol and gasoline), sprays (such as cosmetics cleaning liquids), adhesive and paints will stick to the computer, while alkali, aromatic hydrocarbons, hydrocarbon halide etc. can damage the casing and this can lead the dive computer to lose its waterproofing.
- Keep the dive computer in a cool, dry place. Dry it well after diving and do not keep it with wet items. Do not leave it in direct sun light or on a car dashboard, which could cause the unit to overheat. Also avoid putting the dive computer in extremely cold places. If for some reason the dive computer is exposed to hot or cold temperatures, put it in water that is close to ambient temperature until the product returns to normal. Exposure to extreme heat or cold can not only cause the computer to measure water depth, altitude and water temperature less precisely, but could also cause damage.
- If you believe the computer has sustained damage, do not use it! Bring it promptly to your closet IST authorised dealer for inspection and repair.
- Avoid impact, static electricity, extreme temperature and high humidity.
- Temperature ranges

Long term:	0°C - 50°C (32°F - 122°F)
Short term:	-10°C - 60°C (14°F - 140°F)

V. Trouble shooting

The following list will help you make the proper diagnosis when you believe the product is working abnormally. Consult with your authorised IST dealer if any problems occur that are not on this list.

Problem	Cause, prevention, response
The DECO mark, the decompression stop depth and decompression stop time are blinking while at surface	<ul style="list-style-type: none"> - There has been a decompression stop depth violation. If it has been less than 10 minutes, return to the indicated depth. - If more than 10 minutes have elapsed, the dive computer will not work for 48 hours and then will recover automatically.
Entire display is blinking while at surface.	<ul style="list-style-type: none"> - When a measurement is taken outside the range. - The dive computer will not work for 48 hours and then will recover automatically.
The altitude rank mark is blinking while at an altitude that should allow usage.	<ul style="list-style-type: none"> - The product is damaged. Return to the closest IST authorised dealer for inspection.
The altitude indicator can not show a precise reading (i.e. shifting between 2 different levels)	<ul style="list-style-type: none"> - This can occur when you are close to the altitude measuring boundary. - This can occur under very hot conditions. Cool the unit down, such as by putting it in water. - In other cases, this could indicate damage. Return to the closest IST authorised dealer for inspection.
There is data in the Dive Log when the dive computer has not been used for a dive.	<ul style="list-style-type: none"> - IST may perform quality control at the time of shipping and the data is left over from the test.
LCD screen shows different colours.	<ul style="list-style-type: none"> - This is caused by tension of the lens from temperature change. It is not a problem.
Display is very dim.	<ul style="list-style-type: none"> - The display dims at low temperature. It will recover when the temperature returns to normal. - The battery could be low. Have the closest IST authorised dealer to change the battery.
The computer does not return to surface mode after diving.	<ul style="list-style-type: none"> - The water sensor sensor is still wet. Wipe with a dry, soft cloth. - This occurs when there has been a Decompression Stop Direction Violation.

Problem	Cause, prevention, response
Computer will not go into Dive mode.	<ul style="list-style-type: none"> - This can occur if there was a Decompression Stop Violation Warning or Out-of-Range Warning. It will become normal after 48hours. - This may occur when the battery is nearly flat and the battery mark is blinking or illuminated. Have the battery changed by an IST authorised dealer. - This occurs when the altitude is over 6000m and the altitude mark blinks. It will recover when you return to a lower altitude. - This may indicate damage. Return it to your closest authorised IST dealer for inspection.
While not diving, the computer goes into time mode and desaturation time is displayed.	<ul style="list-style-type: none"> - This is caused by a change in altitude. Whenever there is a quick change in air pressure, the computer automatically calculates residual nitrogen. You should use this information in making a dive plan.
Water detection sensors do not make the computer change mode.	<ul style="list-style-type: none"> - This occurs when the water sensor remains wet after a dive. Wipe the unit dry and try again. - In other situations, this may indicate damage. Return it to your closest authorised IST dealer for inspection / repair.
The no-decompression limit in the dive plan shows only ---.	<ul style="list-style-type: none"> - This occurs when altitude is over 6000m and the altitude mark blinking. It will be back to normal when the unit is returned to a lower altitude. - This occurs when FO₂ is left at default or PO₂ is equal to or more than 1.6. - And this occurs when the depth setting is over the maximum PO₂ depth in dive set mode.
Computer goes into dive mode while not submerged.	<p>This can occur when there is a sudden air pressure change, such as in an airplane, and when the water sensor is activated by being in contact with touching wet surface.</p>
Nothing displayed on screen	<p>The battery is flat; you should have it changed (and the system reset). If there is still no display after the change, the unit may be damaged. Bring to the nearest IST authorised dealer for inspection / repair.</p>
Desaturation time displayed during mid-flight.	<p>As the plane's onboard pressure changes the unit begins to compute nitrogen stored in the body. It will stop upon return to a much lower altitude.</p>

VI. WARRANTY

Warranty is given to the ORIGINAL PURCHASER and the product will remain free from defects in material and workmanship for the period of 12 months from the date of purchase. Expendable items such as battery and o-ring are not covered under this warranty. Any unauthorized repair / modification / misuse / attempt to disassemble the dive computer (incl. the battery compartment) / normal wear and tear will render this warranty invalid.

Please also note:

- All warranty claims must be accompanied by a original purchase receipt of this unit issued by the authorized IST dealer.
- This warranty does not cover any user who is uncertified or untrained for the type of diving intended. REMEMBER, THE USE OF SCUBA EQUIPMENT BY ANYONE WHO IS NOT TRAINED & CERTIFIED THROUGH A RECOGNISED DIVE TRAINING AGENCY, MAY LEAD TO INJURY OR EVEN DEATH.
- This warranty does not cover any cosmetic damage, rental / commercial / military use. IST reserves the right to charge for any labour, transport and parts associated with any return or repair.
- IST reserves the right to substantiate the validity of each claim.

VII. PURCHASE RECORD

Serial number (shown next to the batter compartment): _____

Date of purchase: _____

Name or purchaser: _____

Address: _____

Contact number: _____

Point of sale:

_____ (retailer stamp)



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