TX1 He

DIVE COMPUTER

OPERATING MANUAL

Doc. 12-4101-r06 (1/21/14)

CONTENTS

Welcome to Hollis Gear and THANK YOU for choosing the TX1 He.

The TX1 He was designed to create a user friendly dive computer that allows the use of Air, Nitrox, and Trimix. It is a powerful instrument indeed - with a digital compass, gauge mode, use of up to six transmitters, Gradient Factors, Hollis Dive Planning Software, and many more features to be discussed within. It is a tool that will open up many underwater activities to the user.

With the use of the included Hollis Dive Planning Software and data cable, all of the TX1 He's potential dives can be explored. It is a valuable tool to plan contingencies and gas requirements. One can also use the software as a learning tool, exploring different gas choices, profiles, and options.

It is imperative to fully understand all the features and functions before pushing to the limits of the TX1 He. Reaching one's own limits is more likely before reaching the TX1 He's. For this reason, do not neglect the need for proper knowledge, training, skill, and experience before venturing into new territory. No computer can replace those attributes.

We at Hollis wish you the best in your diving adventures.

! WARNINGS !

Pay special attention to items marked with this Warning symbol.

If your TX1 He stops working for any reason while operating, it is important that you have anticipated this possibility and are prepared for it. This is an important reason for not pushing the tables, oxygen exposure limits, and a critical reason to avoid entering decompression, without proper training. If you dive in situations where your trip would be ruined or your safety would be jeopardized by losing the use of your TX1 He, a backup instrument system is highly recommended.

It is extremely important that you read this manual and understand completely before attempting to use your new Hollis dive computer.

Each numeric and graphic display represents a unique piece of information. It is imperative that you understand the formats, ranges, and values of the information represented to avoid any possible misunderstanding that could result in error.

Hollis PDCs are NOT for use by commercial divers.

Hollis PDCs are intended for use by divers who have successfully completed a recognized course in SCUBA diving, and have knowledge of the potential risks and hazards of SCUBA diving.

As with all underwater life support equipment, improper use or misuse of Hollis PDCs can result in serious injury or death.

If you do not fully understand how to use the PDC, or if you have any questions, you should seek instruction in its use from your Authorized Hollis Dealer before diving with it.

Remember that technology is no substitute for common sense, and a PDC only provides the person using it with data, not the knowledge to use it. Remember also that the PDC does not actually measure and test the composition of your body tissue and blood. Using an Hollis PDC, just as using the U.S. Navy (or other) Decompression Tables, is no guarantee of avoiding decompression sickness. Every diver's physiology is different, and can even vary from day to day. No machine can predict how your body will react to a particular dive profile.

Never share or exchange a dive computer with another diver, or use another dive computer for a repetitive dive.

Special training, equipment, and support are necessary for diving deeper than the maximum recommended depth limit for recreational diving, generally agreed to be 130 FT (39 M) by most diving instruction authorities.

Decompression diving is inherently hazardous and greatly increases your risk of decompression sickness, even when performed according to the PDC's calculations.

Oxygen features are intended for use by divers who have successfully completed a recognized course in diving with enriched nitrogen-oxygen (Nitrox) mixtures, and have knowledge of the potential risks and hazards of diving with Nitrox. Maximum limits for exposure to oxygen should not be exceeded, and the consequences of CNS (Central Nervous System) Oxygen Toxicity and Pulmonary Oxygen Toxicity can be deadly.

Helium features are intended for use by divers who have successfully completed a recognized course in diving with Trimix mixtures, and have knowledge of the potential risks and hazards of diving with Trimix.

Diving at high altitude requires special knowledge of the variations imposed upon divers, their activities, and their equipment by the decrease in atmospheric pressures. Hollis recommends completion of a specialized Altitude training course by a recognized training agency prior to diving in high altitude lakes or rivers.

Repetitive dives in a series should only be conducted at the same Altitude as that of the first dive of that series. Repetitive dives made at a different Altitude will result in an error equal to the difference in barometric pressure, and possibly a false dive mode with erroneous data.

If an Hollis PDC is activated at an elevation higher than 14,000 feet (4,270 meters), it will immediately shutdown or revert to Watch Mode.

NOTICES

LIMITED TWO-YEAR WARRANTY
For details, refer to the Product Warranty Registration Card provided.

COPYRIGHT NOTICE

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San Leandro, CA USA 94577

TRADEMARK, TRADE NAME, AND SERVICE MARK NOTICE

PATENT NOTICE
U.S. Patents have been issued to protect the following design features: Dive Computer with Wireless Data Transmission (U.S. Patent no. 7,797,124), Air Time Remaining (U.S. Patent no. 4,586,136 and 6,543,444) and Data Sensing and Processing Device (U.S. Patent no. 4,882,678). Set NIBG Alarm and other patents pending. User Setable Display (U.S. Patent no. 5,845,235) is owned by Suunto Oy (Finland).

DECOMPRESSION MODEL
The program within the TX1 He simulates the absorption of inert gases into the body by using a mathematical model. This model is merely a way to apply a limited set of data to a large range of experiences. The TX1 He dive computer model is based upon the latest research and experiments in decompression theory. Still, using the TX1 He, just as using the U.S. Navy (or other) No Decompression Tables, is no guarantee of avoiding decompression sickness, i.e. “the bends”. Every diver’s physiology is different, and can even vary from day to day. No machine can predict how your body will react to a particular dive profile

FCC ID: MH8A

FCC COMPLIANCE:
This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1.) This equipment may not cause harmful interference. 2.) This equipment must accept any interference received, including interference that may cause undesired operation.

FCC INTERFERENCE STATEMENT:
This equipment has been tested and found to comply with the limits for an Intentional Radiator, a Class B Digital Device, pursuant to Part 15 of FCC Rules, Title 47 of the Code of Federal Regulations. These rules are designed to provide reasonable protection against harmful interference in a commercial or residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

There is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be deter-mined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:• Reorient or relocate the receiving antenna.• Increase the separation between the equipment and receiver.• Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.• Consult the dealer or an experienced radio/TV technician.

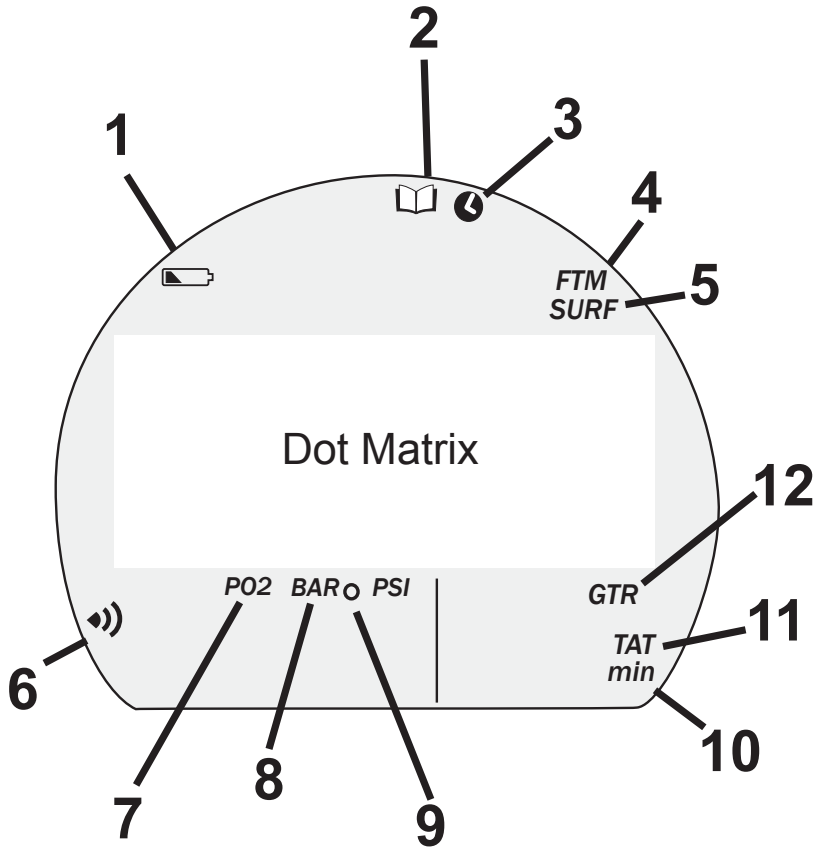
! WARNING: Changes or modification to this unit not expressly approved by HOLLIS/2002 Design could void the user's authority to operate the equipment.

FEATURES/FUNCTIONS

ABBREVIATIONS/TERMS

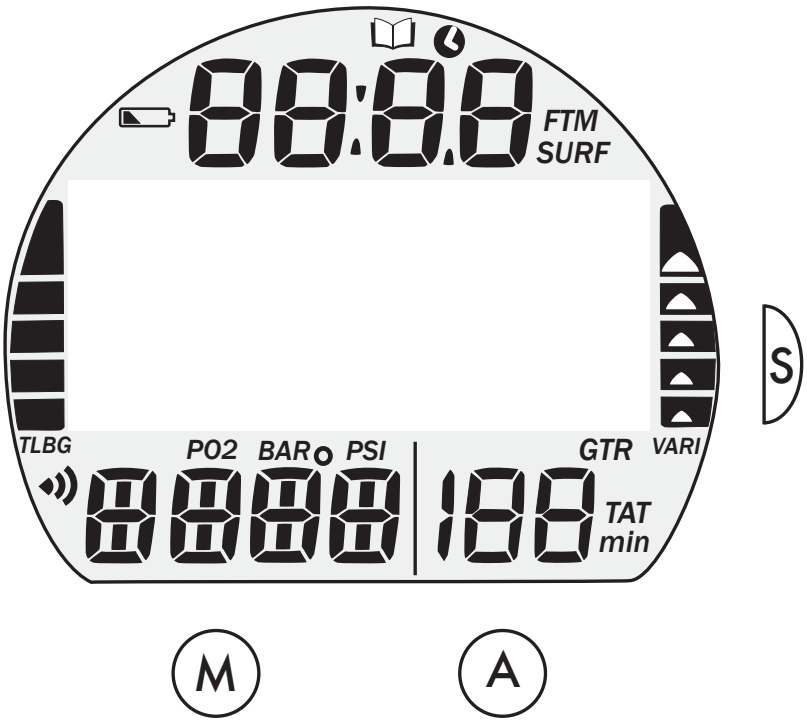
ACTIV	= Activation
AL	= Alarm
ALT	= Alternate
ATA	= Standard Atmosphere (unit)
AUD	= Audible
AVAIL	= Available
BATT	= Battery
CAL	= Calibrate (compass)
CDT (CD)	= Countdown Timer
DCS	= Decompression Sickness
DECO	= Decompression
DESAT	= Desaturation Time
DFLT	= Default
DTR	= Dive Time Remaining
DURA	= Duration (backlight)
E	= East (compass)
EDT	= Elapsed Dive Time
EL	= Elevation (altitude)
END	= Equivalent Narcotic Depth
FHe	= Fraction of Helium (%)
FO2	= Fraction of Oxygen (%)
FORM	= Format (date, time)
FT	= Feet (depth)
GAUG	= Digital Gauge Dive Mode
GF	= Gradient Factor
GLO	= Glow (backlight)
GTR	= Gas Time Remaining
HCI	= Hollis Computer Interface
HIST	= History
HT	= Hypoxic Threshold
LO	= Low (battery)
M	= Meters (depth)
MIN	= Minutes (time)
MOD	= Maximum Operating Depth
N	= North (compass)
NDC	= No Deco DTR
NDL	= No Deco Limit
NE	= Northeast (compass)
NO	= Number
NORM	= Normal Dive Mode
NW	= Northwest (compass)
O2	= Oxygen
OTR	= O2 DTR
PDC	= Personal Dive Computer
PO2	= Partial Pressure of O2 (ATA)
PRESS	= Pressure
PSM	= Power Saver Mode
REF	= Reference (compass)
S	= South (compass)
SAFE	= Safety (stop)
SE	= Southeast (compass)
SEC	= Seconds (time)
SN	= Serial Number
SURF	= Surface
SW	= Southwest (compass)
SWCH	= Switch (gas)
TAT	= Total Ascent Time (deco)
TLBG	= Tissue Loading Bar Graph
TMR	= Timer
TMT	= Transmitter
VIOL	= Violation
W	= West (compass)
WOB	= Work Of Breathing

DISPLAY ICONS



1	Low Battery Indicator	p. 15	7	Value is PO_2	p. 46
2	Log	p. 21	8	Pressure ID (units)	p. 29
3	Value is Time		9	Temperature or Heading	p. 18, 60
4	Depth ID (units)	p. 29	10	Time is Minutes	
5	Surface Interval	p. 16	11	Total Ascent Time	p. 40
6	TMT Link	p. 27, 35	12	Gas Time Remaining	p. 39

CONTROLS



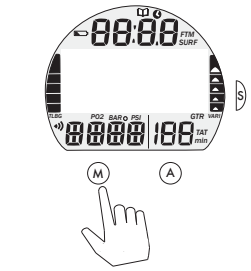
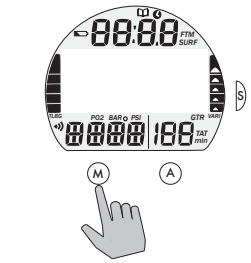
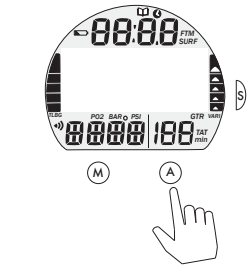
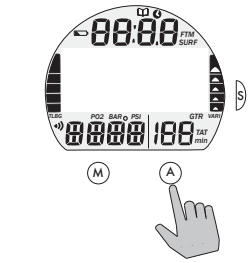
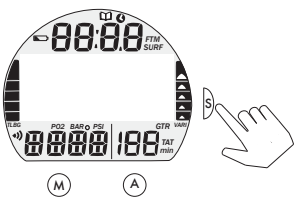
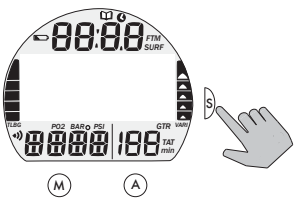
BUTTONS

The TX1 He utilizes 3 Control Buttons that allow you to select mode options and access specific information. They are also used to link the Transmitter(s), enter Settings, activate the Backlight, and acknowledge the Audible Alarm. Throughout this manual they will be referred to as the M, A, and S buttons.

Pressing different combinations of these buttons will navigate through different menus and options of the TX1 He. The symbols in the table below will illustrate how to proceed through the menus.

SYMBOL	MEANING
	**PRESS THE BUTTON, LESS THAN 2 SECONDS, THAT THE INDEX FINGER POINTS TO.**
	**HOLD BUTTON, GREATER THAN 2 SECONDS, THAT THE INDEX FINGER POINTS TO.**

BUTTON NAVIGATION

ACTION	BUTTON	FUNCTION
Press Button	**Any**	**Activate TX1 He**
	M	• to access Menu • to scroll up the screen (backward) through Menu selections
	M	• to return to Surface Main
	A	• to scroll down the screen (forward) through Menu selections
	A	• to scroll fast through set points
	S	• to select, save, or access, an item that is flashing or indicated by an arrow icon (>) • to activate Backlight • acknowledge alarms (while diving)
	S	• to step back from a Menu to a previous screen, Menu, or Menu item

ACTIVATION

To activate the TX1 He, press/release any button.

• The unit will enter Diagnostic Mode displaying all segments of the LCD as 8's, followed by dashes (- -), then a countdown from 9 to 0. It checks the display and voltage to ensure that everything is within tolerance.

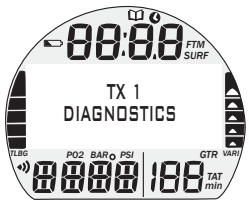
• It will also check ambient barometric pressure, and calibrate present depth as 0. When at 3001 feet (916 meters), or higher, it will adjust depth for the higher altitude.

• After the Diagnostic check, a MY INFO screen will be displayed for 10 sec. showing a default message, or information that you enter using the PC interface system.

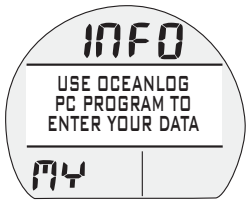
• The NORM Surface Main screen will then be displayed, allowing access to all surface functions.

• If no dive is made within 2 hours, the unit will shut Off. Also see PSM (Power Saver Mode) on page 16.

Contacts located on the stems of the buttons and pins of the PC Data Port will automatically activate the unit and cause it to enter dive mode when the contacts become wet and it senses depth of 5 FT (1.5 M). They will not inadvertently activate Surface Mode such as when in a wet gear bag.



Diagnostic Check
(for 3 seconds then My Info)



Default Message
(for 10 seconds then Surf Main)

MENU SYSTEM

The Dot Matrix located in the middle of the LCD viewing area is used to display alpha numeric messages and measured values as well as Menu type systems for selection of settings and various auxiliary functions. It also serves as the Digital Compass which can be accessed while viewing Main screens.

There are multiple Menus such as -

• NORM Main Menu
• GAUGE Main Menu
• Compass Menu
• Compass Reference Menu
• Set Gases Menu
• Set Alarms Menu
• Set Utilities Menu
• Set Time Menu
• Set Shortcut Menu
• Set Dive Main Menu
• Set Preview Menu

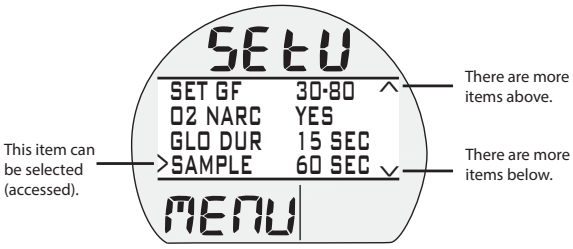
Upon entering a Menu, movement through it starts at the first (top) selection, then continues in a rolling manner down the screen showing selections in groups of up to 4 items.

Navigating Menus > >

• Right Arrow icon (>) at the left indicates that the item can be selected.

• Down Arrow icon (v) at the right indicates that additional items are available below (after) those shown.

• Up Arrow icon (^) at the right indicates that additional items are available above (before) those shown.



AUDIBLE ALARM

While operating in NORM or GAUGE Mode the Audible will emit 1 beep per second for 10 seconds when alarms strike, unless it is set Off. During that time, the Audible can be acknowledged and silenced by pressing the S button (less than 2 seconds).

An LED Warning Light, on the housing, is synchronized with the Audible and flashes as the Audible sounds. It will turn Off when the Alarm is silenced. The Audible and LED will not be active if the Audible is set OFF (a group A setting).

Alarms that strike during operations in Compass Mode are described on page 64.

Situations that will activate the NORM/GAUGE 10 second Alarm include -

* Items apply only in NORM mode.

- Gas Time Remaining (GTR) at 5 minutes, then again at 0 minutes.
- Tank Pressure at the Set Point selected.
- Descent deeper than the Depth Alarm Set Point selected.
- Dive Time Remaining at the Set Point selected*.
- Elapsed Dive Time at the Set Point selected.
- PO2 level greater than PO2 max*.
- Low PO2 Warning ($0.17 \leq PO2 < 0.21$) and Low PO2 Alarm ($PO2 < 0.17$)
- O2 accumulation at 240 OTU (80%), then again at 300 OTU (100%)*.
- TLBG at the Set Point selected*.
- Ascent Rate exceeds 60 FPM (18 MPM) when deeper than 60 FT (18 M), or 30 FPM (9 MPM) at 60 FT (18 M) and shallower.
- Loss of the active Transmitter Link signal for more than 15 seconds during a dive.
- Entry into Decompression Mode (Deco)*.
- Missed Deco Warning (depth is shallower than the deepest prescribed Stop Depth for < 1 minute)*.
- Missed Deco Alarm (depth is shallower than the deepest prescribed Stop Depth for > 1 minute)*.
- Deco Ceiling Violation (Gradient Factor value > 90 for < 5 minutes)*.
- Delayed Deco Violation (Gradient Factor value > 90 for ≥ 5 minutes)*.
- Depth Violation (Depth > 400 FT/120 M in NORM, > 400 FT/120 M in GAUGE).

A single short beep (which cannot be disabled) sounds when -

- After 5 minutes on the surface after the Violation dive.

3 short beeps (which cannot be disabled) sound when -

- Ascent Rate is 51 to 60 FPM (15.1 to 18 MPM) when deeper than 60 FT (18 M), or 26 to 30 FPM (7.5 to 9 MPM) at 60 FT (18 M) and shallower.

During the following situations, the audible will not turn off when acknowledged -

- Delayed Deco Violation
- Depth Violation

PC INTERFACE

Interface with a PC, to allow uploading settings and downloading data, is accomplished by connecting the TX1 He to a PC USB Port using the special USB Interface Cable.

The software program together with the USB Driver required is on the HCI (Hollis Computer Interface) CD, and can be downloaded from the Hollis web site. The program's HELP* serves as the user manual which can be printed for personal use.

*Prior to attempting to Download data from your TX1 He or Upload Settings to it, review the HELP section of the HCI program. It is recommended to print those sections of HELP that you consider appropriate for your Interface activities.

The Settings Upload portion of the HCI program can be used to set/change the Set A group (Alarms), Set U group (Utilities), Set T (Time), etc. using the same Interface System. FO2 and FHe related items must be set using the control buttons.

Information available for retrieval (download) from the TX1 He to the PC Download portion of the program includes dive data such as number, surface interval time, maximum depth, elapsed dive time, no deco status, pressure, start date/time, lowest temperature under water, sampling rate, dive profile, and Set Points.

The HCI program also allows upgrade of select versions of the TX1 He's firmware (operating system software) after which the TX1 He resets all operating data. Since the upgrades require reset of the TX1 He, they are blocked during 24 hours after dives.

• Refer to page 66 for more details relating to HCI and PC Interface.

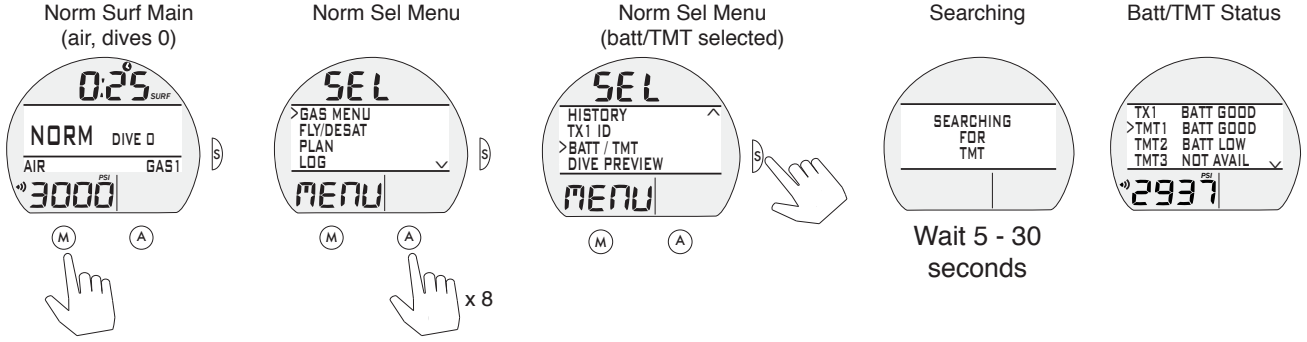
POWER SUPPLY

• TX1 He Battery >> (1) 3 vdc, CR2450, Lithium.
• Shelf life >> up to 5 years.
• Use life >> 100 dive hours if (1) 1 hour dive per dive day up to 300 dive hours if (3) 1 hour dives per dive day.
• Transmitter (each) >> (1) 3 vdc, CR2, .75 Ahr, Lithium.
• Use life >> 300 dive hours if (2) 1 hour dives per dive day.
• Replacement >> by user (annual recommended).

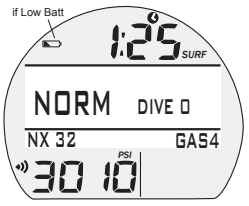
Battery Icon (for TX1 He only, does not apply to TMTs):
• Warning >> icon on solid when < 2.75 volts, battery change recommended.
• Alarm >> icon on flashing when < 2.50 volts, change the battery.

BATTERY STATUS

To access, while viewing NORM (or GAUGE) SURF Main >>



TX1 HE LOW BATTERY WHILE ON THE SURFACE

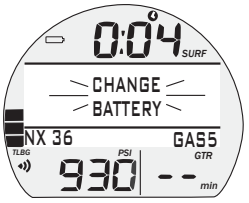


Low Battery Warning

≤ 2.75 volts (warning level)
- Backlight is completely disabled.
- Battery icon (shell with inner bar) appears solid.
- If a dive is started, the icon is not displayed on the dive mode screens.
- All functions, including Compass Mode, continue to be available.

≤2.50 volts (Too Low - alarm level)
- Battery icon (shell only) will flash for 5 seconds then the unit shuts off completely.

TX1 HE LOW BATTERY DURING A DIVE



Low Battery (after surfacing)

≤ 2.75 volts (warning level)
- Backlight is completely disabled.
- All other functions continue to be available.
- Battery icon is not displayed on the dive mode screens.
- Battery icon (shell with inner bar) appears solid upon entry into Surface Mode.

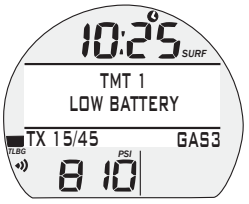
≤ 2.50 volts (Too Low - alarm level)
- Backlight is completely disabled.
- All other functions continue to be available during the dive.
- Battery icon is not displayed on the dive mode screens.
- Upon surfacing, the Battery icon (shell only) and graphic CHANGE BATTERY flash for 10 minutes, then the unit shuts off completely.

TMT(TRANSMITTER) LOW BATTERY

Indication is provided only while on the surface.

≤ 2.75 volts (warning level)
- The graphics TMT# LOW BATTERY appear solid on the Battery Status screen.
- DC functions continue to be available (surface and dive).

≤ 2.50 volts (Too Low - alarm level)
- The graphics TMTx LOW BATTERY alternate with the graphics NORM (or GAUGE) and DIVE xx on the SURF Main screen.
- The graphics TMTx BATTERY and LOW also flash on the Battery Status screen.
- TMT operation continues until Tank Pressure decreases to 50 PSI.



TMT Low Battery (Alarm)

OPERATING MODES

NORM Mode >> for Air, Nitrox, and Trimix SCUBA activity with up to 6 Gases/6 TMTs.

GAUGE Mode >> for SCUBA activity with up to 6 TMTs.

If no previous dive has been taken within the past 24 hours, NORM is the default mode upon activation with others accessed as described later.

At any time while operating in Surface Modes, operation will enter the Dive Mode selected upon descent to 5 FT (1.5 M) for 5 seconds.

- When Wet Activation is set Off, Dive Mode will only be activated when the unit is first activated and operating in a surface mode.

- When Wet Activation is set On, the selected Dive Mode will activate upon descent regardless of whether is activated and operating first.

TRANSITION PERIOD, upon surfacing:

Operation shifts from Dive Mode to Surface Mode upon ascent to 2 FT (0.6 M) for 1 second; however, Surface mode 'screens' will not be available until a Transition time elapses.

The reason for this is that making a descent during the first 10 minutes after surfacing from a NORM or GAUGE dive, is a continuation of that dive.

A descent made after the 10 minute (or 1 minute) interval has elapsed is then considered a new dive.

During the first 10 minutes after surfacing from a NORM or GAUGE dive, the Dive Main screen will be displayed with Surface Interval time replacing Current Depth. Dive ALT's can be accessed to view other information pertaining to that dive.

POWER SAVER MODE (PSM)

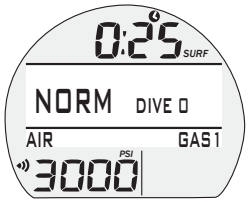
Once 10 minutes elapse, after the 10 minute (NORM or GAUGE) Transition Period on the surface after a dive, the unit will enter a Power Saver Mode (PSM) which turns the display screen off until a button is pressed at which time it will turn back on.

During the 10 minutes that the screen is off, all operations continue as normal in the background with current updated information displayed as soon as the screen comes on again.

NORM

SURFACE MODES

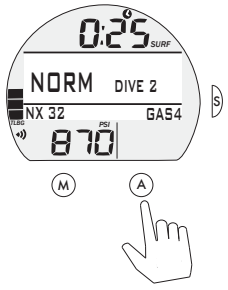
NORM SURF MAIN, information includes:
> SI (hr:min) with Time (clock) and SURF icons; if no dive yet, this is time since activation.
> Graphic NORM (operating mode).
> Graphic DIVE and number of dives completed during that operating period, up to 24 (0 if no dive made yet).
> Tank Pressure (or letters SPG if no TMT) with PSI (or BAR) and Link (speaker) icons, if the Receiver is successfully Linked with an active TMT (Transmitter), 00 flashing after 15 seconds of lost Link.
> Graphic Gas Name: (AIR, NX (FO2) or TX (FO2)/FHe)) and GAS# of the actual gas.
> TLBG with icon, if any nitrogen after NORM dives.



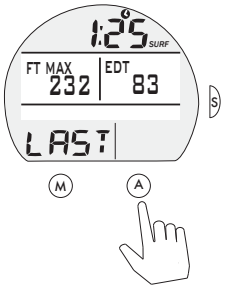
NORM SURF MAIN
(no dive yet, set for air)

NORM SURF ALT SCREENS

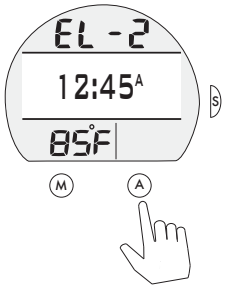
Norm Surf Main
(nitrox, dives 2)



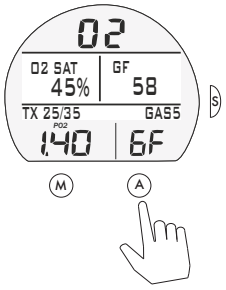
Norm Surf
Alt 1



Norm Surf
Alt 2



Norm Surf
Alt 3



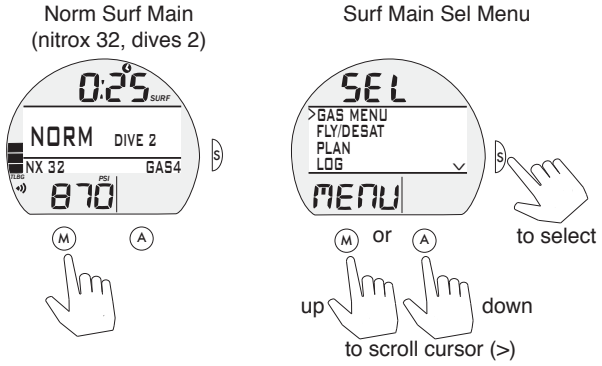
back to main

NORM SURF ALT 1, information includes:
> SI* (hr:min) with Time (clock) and SURF icons.
> Max Depth* with FT (or M) and MAX icons.
> Elapsed Dive Time* (hr:min) with graphic EDT.
> Graphic LAST, indicating that data is from the dive previously conducted while in NORM mode.
*Dashes if no previous dive.

NORM SURF ALT 2, information includes:
> Altitude graphic, if EL2 (to EL7), blank if Sea level.
> Time of Day (hr:min) with graphic A (or P).
> Temperature with ° icon and graphic F (or C).

NORM SURF ALT 3, information includes:
> Screen titles O2 and GF.
> Current GF value is displayed.
> O2 % accumulation (current) with graphic O2 SAT.
> PO2 MAX (for active gas) set by the user.
> Graphics GAS # and Gas Name: AIR, NX (FO2) or TX (FO2/FHe), for the actual gas.

NORM MENU
Selections include:
> GAS MENU.
> FLY/DESAT.
> PLAN.
> LOG.
> SET MENU.
> OP MODE.
> HISTORY
> TX1 ID.
> BATT/TMT
> DIVE PREVIEW



GAS MENU
The Gas Menu selection provides access to a listing of sub menus that contain items specific to the selection and use of gases and tranmsitters.

Gas Menu, information includes:
> Graphics Gas and MENU with selections -

> GAS SWITCH.
> SELECT GASES.
> SET GASES.
> SET TMT.

These gas sub menus are described after the Main Menu items (starting on page 24)

FLY/DESAT
FLY Time is a count down timer that begins counting down 10 minutes after surfacing from a dive from 23:50 to 0:00 (hr:min).

DESAT Time, also a count down timer, provides calculated time for tissue desaturation at sea level taking into consideration the algorithm and gradient factor setting.

DESAT Time also begins counting down 10 minutes after surfacing from a dive, counting down from 23:50 (max) to 0:00 (hr:min).

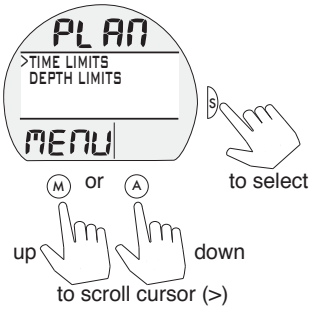
When the DESAT time reaches 0:00, which will generally occur prior to the FLY count down reaching 0:00, it will remain on the display until the FLY count down reaches 0:00.

> DESAT is not displayed after a Gauge or Violation dive.
> Desaturation requiring Times greater than 24 hours will display > 24 HR DESAT.
> In the event that Time to Desaturate still remains at the end of 24 hours, the unit is to turn off. Addtionally, any inert gas and O2 calculations are to clear.
> When other screens are accessed, the FLY and DESAT countdowns continue in the background.

Fly/Desat, information includes:
> Graphics FLY and DSAT with countdown times (hr:min) and Time (clock) icon, dashes if no dive yet.

FLY/DESAT

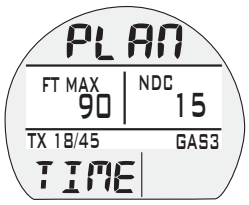
PLAN MENU
Selections include:
> Time Limits.
> Depth Limits.



Time Limits
No Deco Time Limits (NDLs) and O2 Time Limits (OTLs) in Plan Mode are based on the Algorithm with gradients, the FO2 set for the actual gas, FHe set for the actual gas, and residual inert gas (or O2) remaining from previous NORM dives. FO2 and FHe set for other Gases are not used for Plan calculations.

Time Limit screens will sequence through Depths from 30 to 190 FT (9 to 57 M), or the Max Depth that will allow theoretical No Deco Dive Time or OTL of at least 1 minute based upon the previous dive profiles in a series of repetitive dives and taking into account descent and ascent rates of 60 FPM (18 MPM). Depths where the PO2 of the actual gas is > 1.6 shall not be listed.

Time Limits Screen, information includes:
> Plan Depth value with FT (or M) icon - from 30 to 190 FT (9 to 57 M) in increments of 10 FT (3 M).
> Max Depth allowed with FT (or M) and MAX.
> Graphic NDC (or OTL) with Dive Time allowed (min).
> Graphics GAS NAME and GAS# for the actual gas.
> Depth from 30 to 190 FT (9 to 57 M) in increments of 10 FT (3 M).

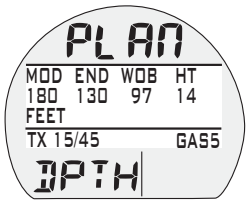


TIME LIMITS

Depth Limits
The Depth Limits Screen will help determine what the Maximum Operating Depth (MOD) of the selected gas is. If the actual gas is trimix and the corresponding alarms are turned on (END Alarm, WOB alarm, and HT alarm), this screen will tell you what the depth limits are - in relation to those settings.

* Item applies only for AIR or NX.
** No value shown if that alarm is set to off.

Depth Limits, information includes:
> Graphic PLAN.
> MOD* (Maximum Operating Depth) - determined by PO_2 settings.
> END** - depth limit where current gas is equal to the set Equivalent Nitrogen Depth (set in Alarms Menu).
> WOB** - depth limit where current gas is equal to the set Work Of Breathing (set in Alarms Menu).
> HT (Hypoxic Threshold)** - depth where the PO2 of the gas equals 0.21 ATA.
> Active gas mix.
> Graphics GAS NAME and GAS# for the actual gas
> Graphic DPTH.



DEPTH LIMITS

NOTE: If any value is greater than 400 ft (120 m), 400 ft (or 120 m) shall be displayed. Zero shall be displayed if any calculated value is negative.

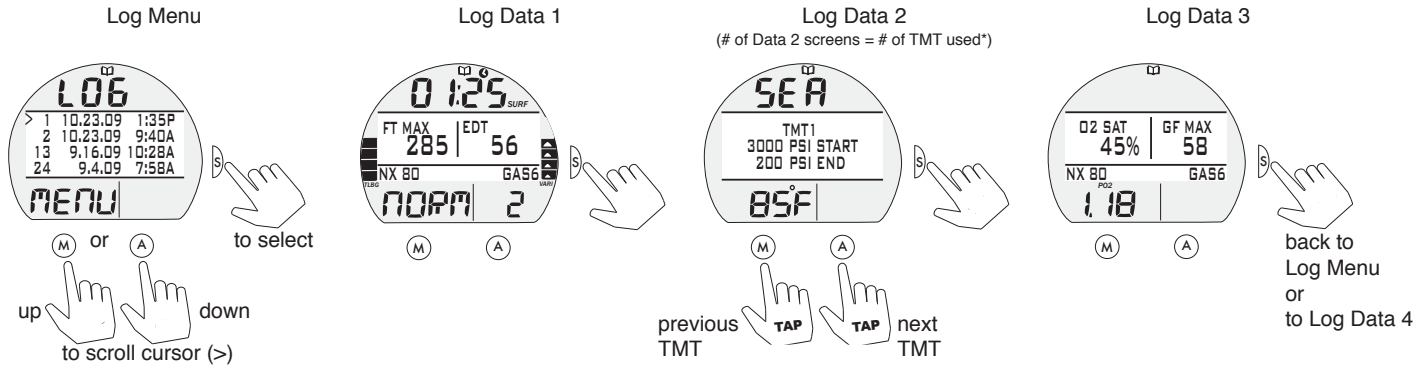
NORM/GAUGE LOG
Information from the latest 24 NORM and/or GAUGE dives is stored for viewing. After exceeding 24 dives, the most recent dive is stored while the oldest is deleted.

> Dives are numbered from 1 to 24 starting each time NORM (or GAUGE) Dive Mode is activated. After 24 hours elapse with no dive, the first dive of the next period of operation is #1.
> 10 minutes after a dive, the Log screens for all dives stored can be viewed.

If a dive's elapsed time (EDT) exceeds 999 (min), data at the 999 interval is recorded in the Log upon surfacing of the unit.

Log Menu, information includes:
> Graphics LOG and MENU with mode (book) icon.
> Listing* of dives displaying - - Number (1 to 24), Date, and start Time; or graphics NO DIVES YET if a new unit.

**Up and Down arrows are not displayed at the right due to space limitations.*



**If no TMTS were active, Log Data 2 screen displays ALL TMTS OFF.*

Log Data 1, information includes:
> Log (book) icon.
> Pre dive Surface Interval (hr:min) with Time (clock) and SURF icons, - : - - if # 1 (no previous dive that period).
> Max Depth with graphics FT (or M) and MAX.
> Elapsed Dive Time (min) with graphic EDT.
> Graphic NORM, GAUG, or VIOL with dive Number.
> TLBG with max segment flashing, others fixed up to end of dive accumulation. All flash if Violation. Blank if GAUG.
> VARI, max Ascent Rate sustained for 4 sec.
> Graphics GAS NAME and GAS# (gas used at the end of dive).

Log Data 2, information includes:
> Log (book) icon.
> Graphic SEA (or EL2 - EL7), altitude level of dive.
> Graphics TMT#, xxx PSI (or BAR) START, and xxx PSI (or BAR) END, indicating Tank pressures.
> Graphics ALL TMTS OFF if no TMTS were active during the dive.
> Temperature with ° icon and graphic F (or C), minimum recorded during that dive.

Log Data 3, (mix gas dive only), information includes:
> Log (book icon).
> O2 at the end of the dive (2 dashes if VGM or MOD exceeded), with graphic % O2 SAT.
>Highest GF during the dive (2 dashed if VGM), with graphic GF MAX
> Max level of PO2 achieved with icon.
> Graphics GAS NAME and GAS# (gas used at the end of dive).

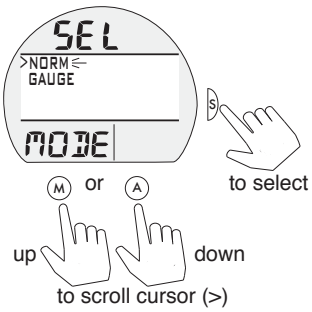
SET MENU
The Set Menu selection provides access to a listing of sub menus that contain items specific to NORM and GAUGE modes.

Set Menu, information includes:
> Graphics SEt and MENU with selections -

> A - ALARMS.
> U - UTILITIES.
> T - TIME.
> S - SHORTCUT.
> D - DIVE MAIN.
> P - PREVIEW.

These Set Groups are described after the Main Menu items (starting on page 28).

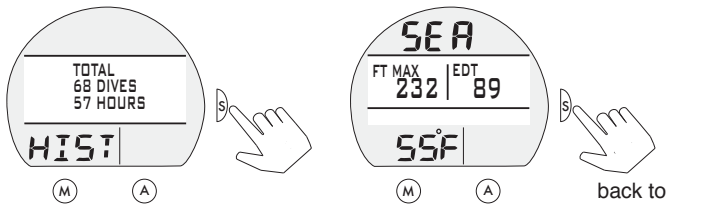
OP (OPERATING) MODE
This feature allows another Operating Mode to be selected.
Select OP Mode, information includes:
> Graphics SEL and MODE.
> Graphic NORM, flashing.
> Graphics GAUGE.



HISTORY (NORM/GUAGE)

History is a summary of data recorded during all NORM and GAUGE dives conducted.

History 1 History 2

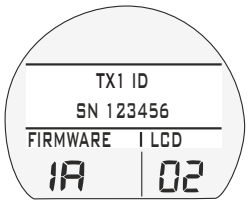


History 1, information includes:
> Graphic TOTAL, or NO DIVES YET (if new unit).
> Total dives recorded (up to 9999) with graphic DIVES.
> Total dive hours recorded (up to 9999) with graphic HOURS.
> Graphic HIST.

History 2, information includes:
> Graphic SEA (or EL2 to EL7), highest Altitude at which a dive was conducted.
> Max Depth recorded with FT (or M) and MAX icons.
> Longest dive time (minutes) recorded during a single dive (up to 999 min) with graphic EDT.
> Lowest Temperature recorded during a dive with icon and graphic F (or C).

TX1 ID

This information should be recorded and kept, it will be required in the event that your unit requires factory service.



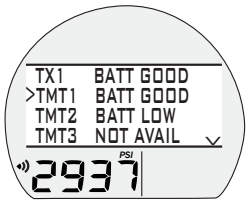
TX1 ID

ID (Identification), information includes:
> Graphic TX1 He ID.
> Graphic SN with the factory programmed serial number.
> Graphic FIRMWARE with 1A (or higher)*, indicating the Firmware revision level currently installed in the unit.
> Graphic LCD with 01 (or higher), indicating the Display's revision number.

**This number will change if the Firmware is updated by factory service or by future download of revised firmware from the Hollis web site.*

BATT/TMT

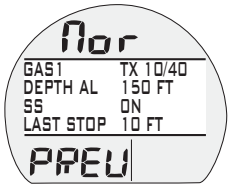
Access to this selection activates the TX1 He's Receiver, then starts a transmitter search. The battery status of the TX1 He wrist unit and all transmitters can be viewed from the same BATT/TMT Status screen. Refer to pages 24 and 33 for more information.



BATT/TMT STATUS

DIVE PREVIEW

This feature provides quick access to a screen that displays up to 4 settings that can be pre selected* using the Set P Menu.



PREVIEW

Preview, information includes:
> Graphics Nor and PREV.
> Selections* with Set Points entered using that menu.

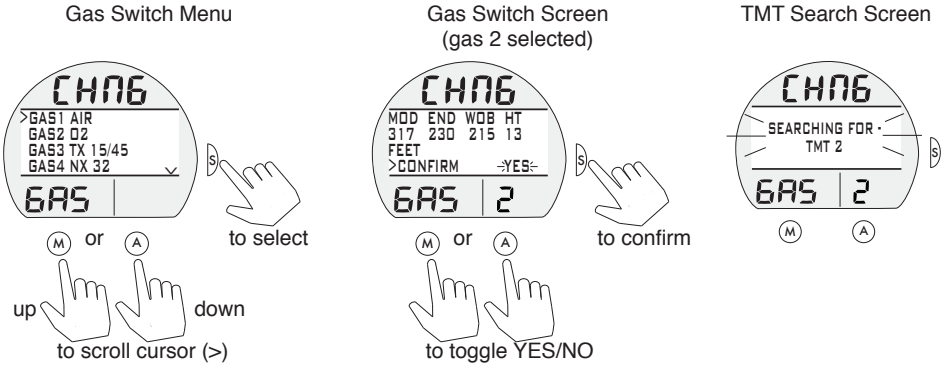
**If no selections have been made yet, the graphics USE SET P TO SELECT ENTRIES will be displayed.*

GAS SUB MENUS

Information that follows describes the sub menus (GAS SWITCH, SELECT GASES, SET GASES, SET TMT) that are accessed from the Gas Menu.

Overview

> It is not possible to Switch Gas to a gas that has a PO2 < 0.17 at the current depth.



Gas Switch Menu, information includes:

> Graphic CHNG and GAS.
> Graphic Selections GAS # and GAS NAMES

NOTE: Only the available gases (selected in Select Gases Menu) are displayed. If only one gas is selected in the Select Gases Menu, this menu will not be available.

Gas Switch Screen, information includes:

> Graphic CHNG, GAS, and selected gas number 1 - 6.
> MOD.
> END*.
> WOB*.
> HT**.
> Graphic CONFIRM with selections YES or NO.

** These only display if switching to a trimix gas, and their respective alarms are set on.*
*** HT only displays if switching to a trimix gas.*

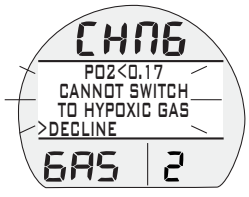
TMT (Transmiter) Search Screen

> Only displays if the transmitter is switched to on, see Set TMT section.
> Graphic CHNG, GAS, and selected gas number 1 - 6.
> Graphic message SEARCHING FOR - TMT, flashing for 10 seconds.
> Graphic message TMT (1 - 6) NOT AVAILABLE if the transmitter signal is not established within 10 seconds.

TMT SEARCH
(unable to link)

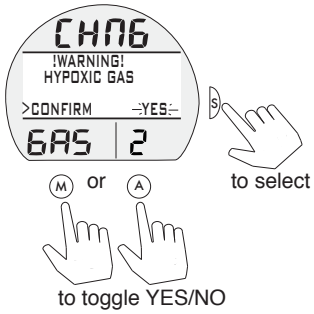
PO2 < 0.17 ATA Hypoxic Gas Warning (Mandatory Decline)

Attempting to switch to a gas with a PO2 < 0.17 ATA results in the TX1 He displaying the Hypoxic Gas Decline screen. This message must be aknowledged with the S button. After which, the Gas Switch Menu will display. Then another gas may be selected from the menu.

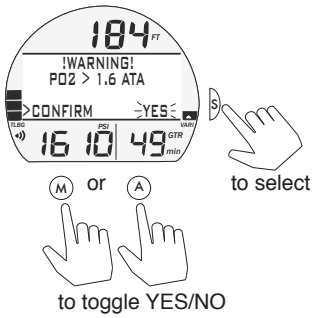


HYPOXIC GAS WARNING
(mandatory decline)

0.17 ≤ PO2 ≤ 0.21 ATA Hypoxic Gas Warning (Low PO2)
Switching to a 0.17≤ PO2 ≤ 0.21 ATA gas will result in a warning screen. The diver may choose to proceed or not with the gas switch by confirming yes or no.

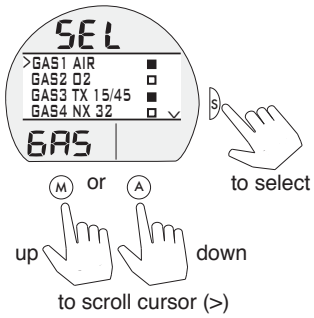


High PO2 Warning
Switching to a gas with a PO2 > 1.6 ATA, while underwater, will result in a warning screen. The diver may choose to proceed or not with the gas switch by confirming yes or no.



Select Gases Menu
Six possible gases may be made available for switching by selecting or deselecting them in this menu.

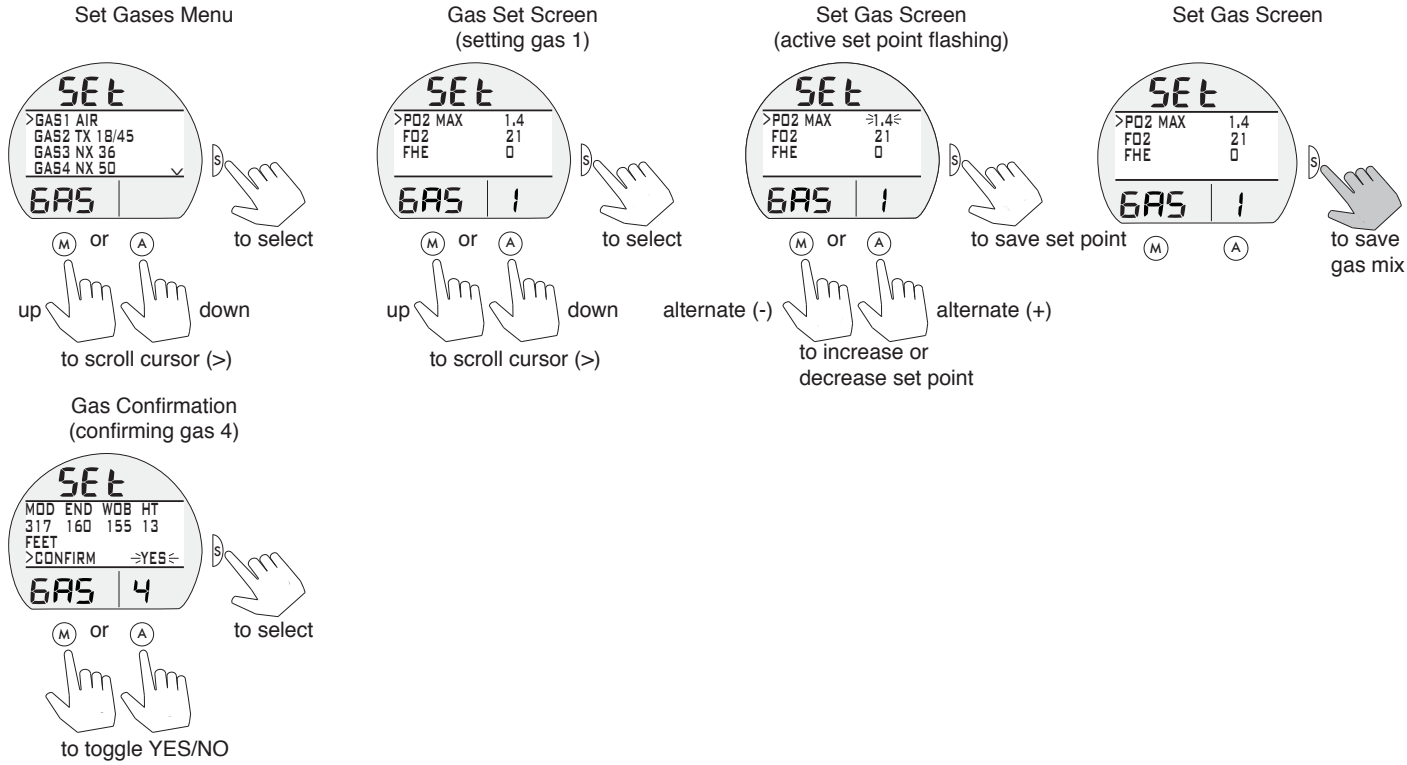
Information includes:
> Graphic SEL and GAS.
> Graphic selections Gas# and GAS NAMES
> Filled boxes for available gases.
> Empty boxes for unavailable gases.



The current active gas cannot be deselected without switching to another gas in the Gas Switch Menu first.

Set Gases

This feature provides for the programming of the gas mixtures.



Set Gas Menu, information includes:
> Graphics SET and Gas.
> Graphic selections Gas# and GAS NAMES

Gas Set Screen, information includes:
> Graphics SET and GAS (1 - 6).
> Graphic selections PO2 Max, FO2, FHe.

NOTE: If FHE is set to zero (0) while FO2 < 21, the FO2 shall automatically be reset to 21. If the user tries to decrease the FO2 below 21 while FHe = 0, a warning screen with the message: "CANNOT SET FO2 BELOW 21 WHILE FHE = 0" shall be displayed.

Gas Confirmation Screen, information includes:
> Graphic SET and GAS (1 - 6).
> MOD.
> END*.
> WOB*.
> HT**.
> Graphic selection YES or NO.

** These only display if the gas is set to a trimix gas, and their respective alarms are set on.*
*** HT only displays if switching to a trimix gas.*

Transmitters

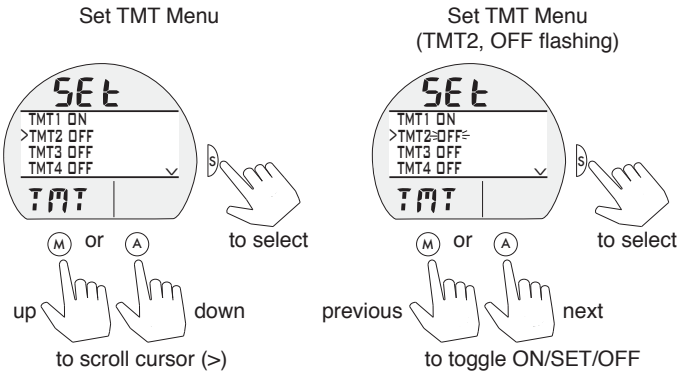
The TX1 He allows up to 6 transmitters to be utilized to monitor tank pressures. The Set TMT menu allows for the programming of the wrist unit to receive signals from transmitters. See the Dive Mode Features section (p. 35) for further information on transmitters.

Set TMT (Transmitter) Menu, information includes:
> Graphics SEt and TMT.

The following graphic selections (last Set Points saved):
> TMT 1 - Set Points >> OFF, ON, SET.
> TMT 2 - Set Points >> OFF, ON, SET.
> TMT 3 - Set Points >> OFF, ON, SET.
> TMT 4 - Set Points >> OFF, ON, SET.
> TMT 5 - Set Points >> OFF, ON, SET.
> TMT 6 - Set Points >> OFF, ON, SET.

NOTE: When using multiple transmitters they should be labeled with their assigned number to avoid confusion.

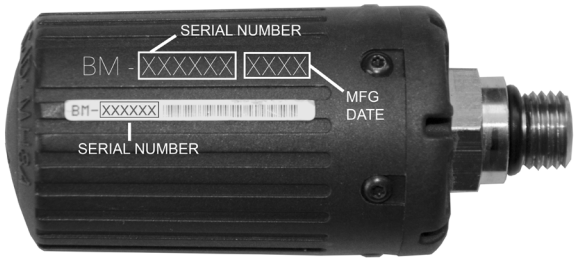
NOTE: If the TMT is set OFF for the active gas, the letters SPG will be displayed in place of a pressure reading on the Main Screen.



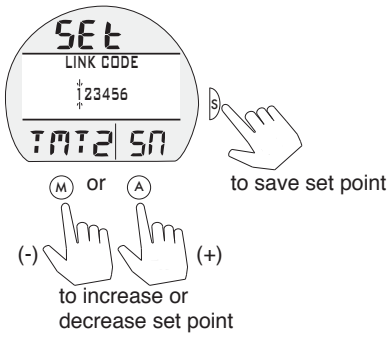
Hold M button to return to Surface Main, or hold S button to return to Gas Menu.

Set Serial Number (Code) Screen, information includes:
> Graphics SEt and TMT 1 (2, 3, 4, 5, 6)
> Graphic LINK CODE with the serial number (6 digits), the 1st (left) digit flashing.

The serial number can be located in two places directly on the transmitter (see below).



Set Serial Number
(active digit flashing)



After the sixth digit is saved, the TX1 He will return to the Set TMT Menu.

SET GROUPS

Information that follows describes the selections contained in the NORM Set Groups (A, U, T, S, D, P) that are accessed from the Set Menu.

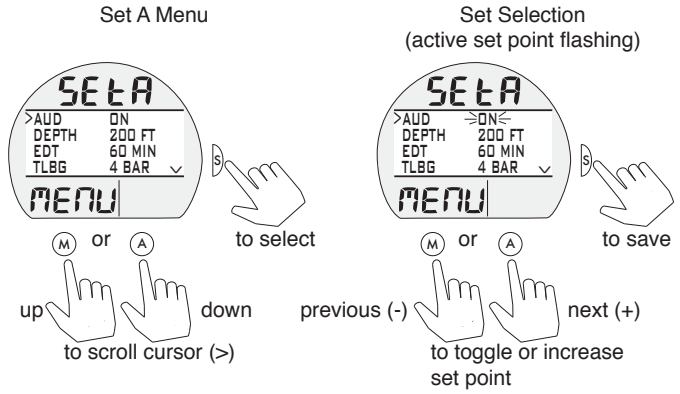
SET A (Alarms) Menu, information includes:

> Graphics SEt A and MENU.

Selections with their last Set Points saved include:

> AUD with Set Point (ON or OFF), audible.
> DEPTH with Set Point (OFF, or 30 to 400 FT, or 10 to 120 M), increments of 10 FT (1 M).
> EDT with Set Point (OFF, or 10 to 180 MIN), elapsed dive time, increments of 5 MIN.
> TLBG* with Set Point (1 to 4 BAR), increments of 1 BAR.
> DTR* with Set Point (OFF, or 1 to 20 MIN), increments of 1 MIN.
> TP with Set Point (OFF, or 300 to 3000 PSI, or 20 to 200 BAR), increments of 250 PSI (5 BAR).
> END* with Set Point (OFF, 100 to 200 FT, or 30 to 60 M), increments of 10 FT (1 M).
> WOB* with Set Point (OFF, 100 to 200 FT, or 30 to 60 M), increments of 10 FT (1 M).
> ICD* with Set Point (OFF, ON).

*These items apply to NORM Mode only.



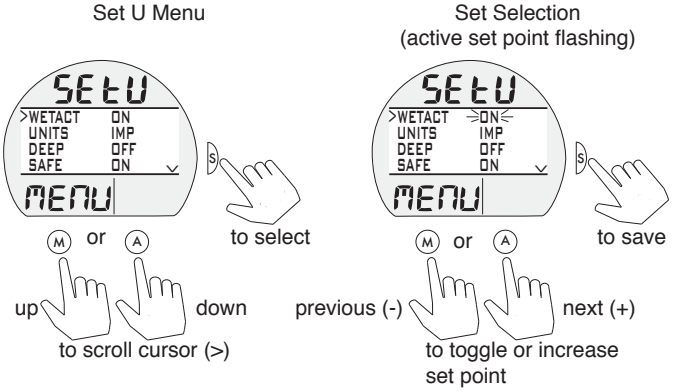
SET U (Utilities) Menu, information includes:
> Graphics SEt U and MENU.

Selections with their last Set Points saved include:

> WET ACT with Set Point (ON or OFF) >> wet activation.
> UNITS with Set Point (IMP or MET) >> imperial or metric.
> DEEP* with Set Point (ON or OFF) >> no deco deep stop.
> SAFE* with Set Point** (OFF, TMR, ON) >> no deco safety stop.
> SET GF* with Set Point** (CONS 1 - 5 or SET CUSTOM GF)
> O2 NARC* with Set Point (YES or NO)
> GLO DUR with Set Point (0, 5, 10, or 15 SEC) >> time backlight remains on.
> SAMPLE with Set Point (2, 15, 30, or 60 SEC) >> rate data is recorded for PC download.
> LAST STOP* with Set Point (10 ft/3m or 20ft/6m)

*These items apply to NORM only.
** Expanded description, following.

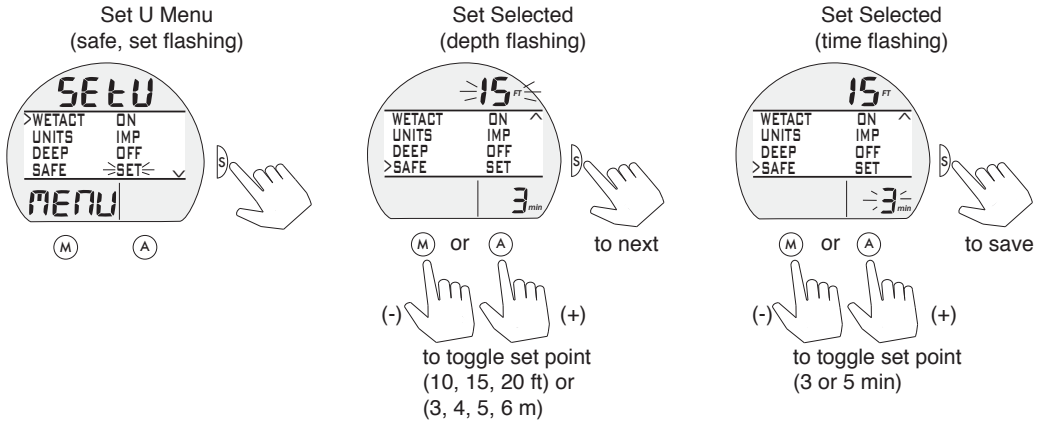
Additional information relating to the effects of the items included are described in associated sections throughout this manual.



Set Safety Stop, information includes:
The Set U menu will display OFF, ON, TMR solid, or SET.

> Select OFF, ON, or TMR: same as above menu

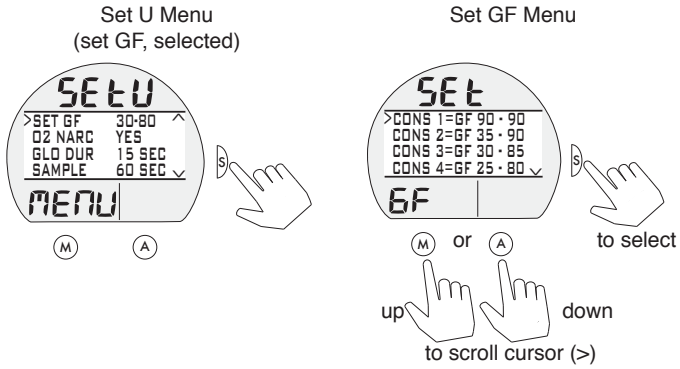
> Select SET (stop depth and time):



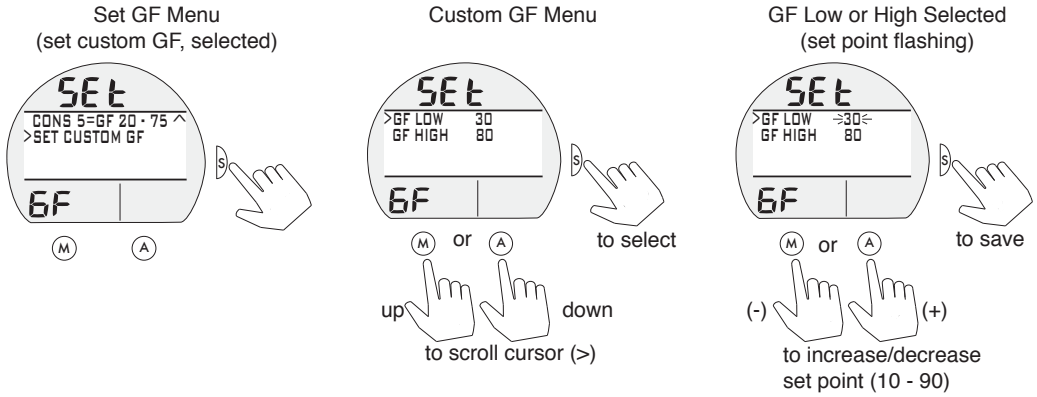
Set GF (Gradient Factor), information includes:
> Graphics SET and GF.

Selections with the last Set Point saved include:

> CONS 1 = GF 90 • 90
> CONS 2 = GF 35 • 90
> CONS 3 = GF 30 • 85
> CONS 4 = GF 25 • 80
> CONS 5 = GF 20 • 75
> SET CUST GF



Selecting a Custom Gradient Factor:

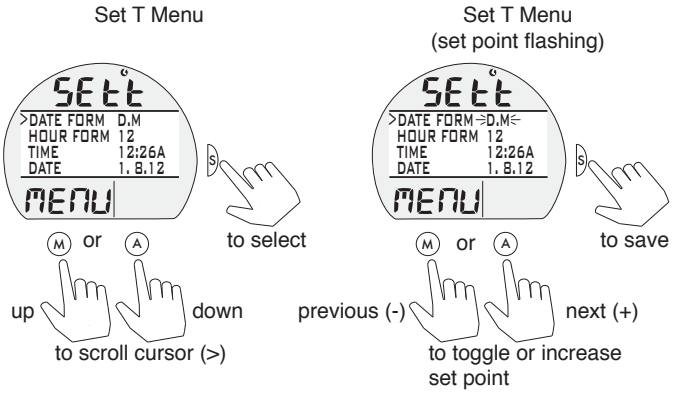


Further information on Gradient Factors can be found in the Dive Mode Features section of this manual.

SET T (Time/Date) Menu, information includes:
> Graphics SEt t and MENU with Time (clock) icon.

Selections with their last Set Points saved include:

> DATE FORM with Set Point (M.D or D.M) >> date format, M.D = Month.Day, D.M = Day.Month
> HOUR FORM with Set Point (12 or 24) >> hour format, 12 = 12: A to 11: P, 24 = 0: to 23:
> TIME with Set Point (hr:min) >> 12:01 A to 11:59 P, if 12 Hour Format (or 0:01 to 23:59, if 24 Hour Format).
> DATE with Set Point (M.D.Y or D.M.Y) >> Month.Day.Year or Day.Month.Year, arranged by Date Format set:

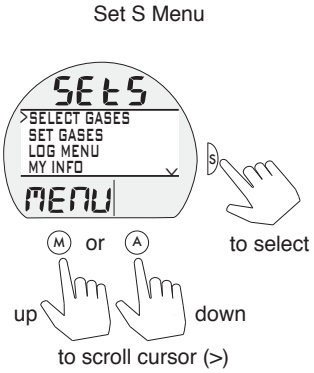


> The left digits of the Time and Date selections will flash first allowing them to be changed after which the next digits (to the right) flash allowing them to be changed.
> TIME (hr:min) >> Hour digits flash, then Minutes.
> DATE (m.d.y or d.m.y) >> Year digits flash, then Month, then Day, regardless of their position.

SET S (Shortcut) Menu, information includes:
> Graphics SEt S and MENU.

One item can be selected from the following menu list. That item (referred to as a Shortcut) can then be accessed directly by pressing M (2 sec) while viewing the Surface Main.

Selections include:
> SELECT GASES.
> SET GASES.
> LOG MENU.
> MY INFO (default Shortcut until another item is selected).
> SET HEADING.
> SET TIME.



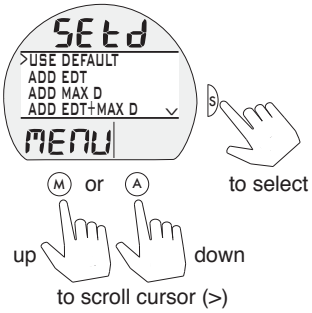
SET D (Dive Main) Menu, information includes:
> Graphics SEt D and MENU.

The default screen for No Deco dives (except while at Stops) displays Current Depth, NDC time, Pressure, and GTR (gas time remaining). Items such as Max Depth and EDT (elapsed dive time) are displayed on Alternate screens. Set D allows certain items to be added to the Main (moving them from the Alternates).

One item can be selected from the following menu list.

> USE DEFAULT >> no change to the display.
> ADD EDT >> adds Elapsed Dive Time also reduces the size of NDC digits.
> ADD MAX D >> adds Max Depth, also reduces the size of NDC digits.
> ADD EDT + MAX D >> displays NDC, EDT, & Max D with smaller digits.
> ADD O2 DATA >> reduces the size of NDC digits & PO2 replaces Pressure (which moves to an Alternate).
> ADD GF>> adds Gradient Factor while reducing the size of NDC digits.

Set D Menu



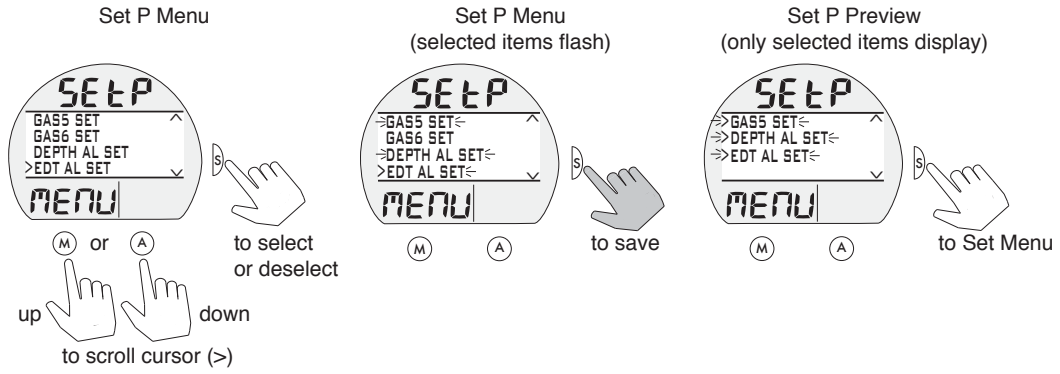
Ensure that the selection to be saved reflects information you want to see on the Dive Main, it cannot be changed during the dive (only while on the surface using this menu).

SET P (Preview) Menu, information includes:
> Graphics SEt P and MENU.

Using this menu, you can chose up to 4 items (Set Points that have been entered) for display on a Preview screen that can be accessed from the Surface Main Menu (see page 19).

Up to 4 items can be selected from the following menu list.

> GAS 1 SET.
> GAS 2 SET.
> GAS 3 SET.
> GAS 4 SET.
> GAS 5 SET.
> GAS 6 SET.
> DEPTH AL SET.
> EDT AL SET.
> TP AL SET.
> END AL SET.
> WOB AL SET
> ICD AL SET
> DEEP STOP SET.
> SAFETY STOP SET.
> GF SET
> LAST STOP SET
> GLO DURA SET.
> MAX DEPTH
> TMT1 SET
> TMT2 SET
> TMT3 SET
> TMT4 SET
> TMT5 SET
> TMT6 SET

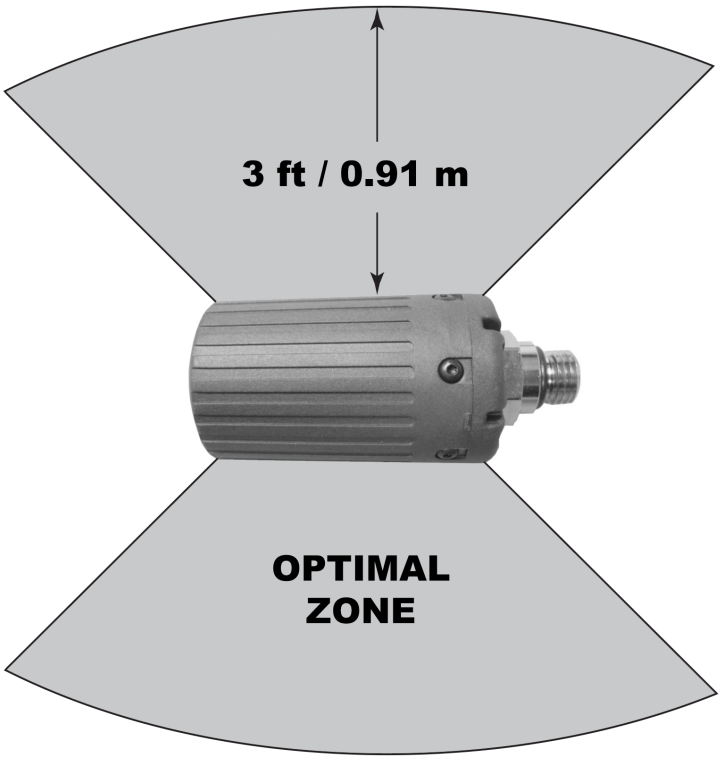


Once 4 items are selected (flashing), another item cannot be toggled to flash until one of the flashing items is toggled to solid.

When satisfied that those items flashing (up to 4) are what you want for the Preview screen, exit to the Set Menu.

DIVE MODE

FEATURES



PROXIMITY OF THE TMTS (TRANSMITTERS) AND TX1 HE
The TMTs emit low frequency signals that radiate out in semicircular patterns parallel to the length dimension of the TMT. A coiled antenna inside the TX1 He wrist unit receives the signals when it is positioned within a zone parallel to or at a 45 degree angle to the TMT as illustrated.

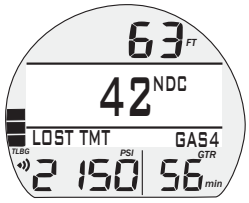
The TX1 He cannot effectively receive a signal when it is held out to the sides of the TMT or held at distances greater than 3 feet (0.91 meters) in front of the TMT. Best reception is achieved when the TX1 He is within less than 3 feet (0.91 meterS) of the TMT.

When installed into the high pressure ports of the Regulator First Stages, the TMTs must be positioned so that they face horizontally outward from the Tank Valves.

Link Interruption Underwater
During a dive, you may at times move the TX1 He out of the signal pattern of the TMT, resulting in a temporary loss of the Link signal. The Link will be restored within 4 seconds after the TX1 He is moved back into its correct position.

An interruption may also occur while the TX1 He is within 3 feet (1 meter) of a running DPV, or shortly after a Strobe flashes. The Link will be restored within 4 seconds after the TX1 He is moved out of that area.

If the Link is not restored within 15 seconds, the Audible will sound, and the graphics LOST TMT, Pressure value, and Link icon will flash until it is restored.



LOSS OF LINK

WET ACTIVATION
The TX1 He is configured with contacts that will automatically activate Dive Mode when the space between the contacts is bridged by a conductive material (immersed in water) and it senses a Depth of 5 FT (1.5 M).

The contacts are the metal pins of the PC Interface Data Port and the stems of the buttons.

When Wet Activation is set OFF, the TX1 He will not enter Dive Mode unless it is first activated by push button and operating in a surface mode or it is a repetitive dive.

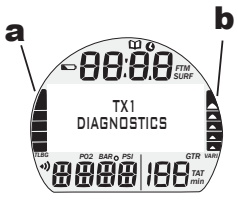
SMARTGLO® BACKLIGHT
The TX1 He is configured with a sensor that measures the intensity of ambient light. This (Smartglo) saves battery power by allowing the Backlight to only come on when light level is low.

To activate the SmartGlo Backlight >> press/release the S button less than 2 seconds.

- If ambient light level is low, the Backlight will activate and illuminate the display for the Duration time set (0, 5, 10, or 15 seconds).
- Pressing any button while the Backlight is on will reset the timer, keeping it on for the duration time set.

NOTE: Extensive use of the Backlight reduces estimated Battery life. Also, the Backlight does not operate during a Low Battery Condition or when the TX1 He is connected to a PC.

BAR GRAPHS
The TX1 He features 2 bar graphs, one on each side of the LCD.
> The one on the left represents inert gas (nitrogen and helium) loading. It is referred to as the TLBG (Tissue Loading Bar Graph).
> The one on the right represents ascent rate. It is referred to as the VARI (Variable Ascent Rate Indicator).



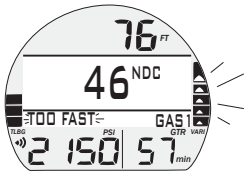
BAR GRAPHS

TLBG
The TLBG represents your relative No Deco or Deco status. The lower 4 segments represent No Deco status and the fifth at the top indicates a Deco condition. As your Depth and Elapsed Dive Time increase segments add, and as you ascend segments recede indicating that additional no deco time is available.

The TX1 He monitors 12 different inert gas compartments simultaneously and the TLBG displays the one that is in control of your dive at any given time.

VARI
The VARI provides a visual representation of ascent speed (i.e., an ascent speedometer).

The segments represent two sets of speeds which change at a reference depth of 60 FT (18 M). Refer to the chart. When ascent is too fast, all segments of the VARI and the graphics TOO FAST will be displayed flashing until ascent is slowed.



ASCENT TOO FAST

! WARNING: At depths greater than 60 FT (18 M), ascent rates should not exceed 60 FPM (18 MPM). At depths of 60 FT (18 M) and shallower, ascent rates should not exceed 30 FPM (9 MPM).

ALGORITHM
BUHLMANN ZHL-16C WITH GRADIENT FACTOR

The TX1 He uses the Bühlmann ZHL-16c algorithm utilizing user selectable gradient factors. The user has full control of gradient factors (GF), to adjust dive profiles and conservatism.

GRADIENT FACTOR (GF)

Gradient factors are a method for setting decompression conservatism. This is accomplished by limiting what pressure gradient, imposed on the leading theoretical tissue compartment, is permissible before further ascent.

M-value is the maximum inert gas saturation in the leading (currently limitting) tissue compartment that the ZHL-16c model predicts will not result in DCS symptoms if the diver were to ascend further.

Gradient factors limit the diver to ascend only with a fraction (factor) of the algorithm's M-value. For example, a gradient factor of 0% would mean no off gassing is taking place in the leading tissue compartment. Gradient factors of 100% would be the maximum allowable off gassing rate permitted by the algorithm.

The settings on the TX1 He allow for a GF Low and a GF High setting. The TX1 He requires the diver to select between 5 GF presets or custom settings (0% to 90%) for both the GF Low and GF High settings. The GF Low setting allows for the setting of the gradient factor of the first decompression stop, effecting what depth the first ceiling will be. The GF High setting allows the user to select the tissue saturation level the TX1 He will allow for surfacing, from the last deco stop.

The TX1 He does not allow for the selection of the GF for each individual deco stop. Though by changing the GF Low and High settings, the depth of the first deco stop and the general slope of the ascent profile can be manipulated to adjust the conservatism. This provides the diver with greater flexibility for planning the conservatism of any dive.

When choosing GF settings, consider your physical condition, the dive conditions, your personally accepted level of decompression risk. The Hollis HDDO software may be utilized to explore how each setting effects any particular dive profile.

DEEP STOP (DS)
When the DS selection is set On, it will trigger during NORM No Deco dives when you descend to 80 FT (24 M) and calculate (and continually update) a Stop Depth equal to 1/2 the Max Depth.

While 10 FT (3 M) deeper than the calculated DS, you will be able to access a DS Preview screen that will display the current Deep Stop Depth (calculated) and Time (fixed at 2 min) for 5 seconds then return to the Main.

Upon initial ascent to within 10 FT (3 M) below the calculated Stop Depth, a DS screen displaying a Stop Depth at 1/2 the Max Depth will appear with a Countdown Timer beginning at 2:00 (min:sec) and counting down to 0:00.

> If you descend 10 FT (3 M) below, or ascend 10 FT (3 M) above, the calculated Stop Depth for 10 seconds during the countdown, the No Deco Main will replace the DS Main display and the DS feature will be disabled for the remainder of that dive. There is no Penalty if the DS is ignored.
> In the event that you enter Deco, exceed 190 FT (57 M), or a High O2 condition (≥80%) occurs, the DS will be disabled for the remainder of that dive.
> The DS is disabled during a High PO2 Alarm condition (≥ Set Point).

SAFETY STOP (SS)

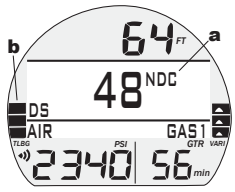
If set On:
Upon ascent to within 5 FT (1.5 M) deeper than the SS Depth set for 1 second on a No Deco dive in which Depth exceeded 30 FT (9 M) for 1 second, a beep will sound and a SS at the Depth set will appear on the Main display with a countdown beginning at the SS Time set and counting down to 0:00 (min:sec).
• If the SS was set for Off or Timer, this display will not appear.
• In the event that you descend 10 FT (3 M) deeper than the Stop Depth for 10 seconds during the countdown, or the countdown reaches 0:00, the No Deco Main screen will replace the SS Main screen which will reappear upon ascent to within 5 FT (1.5 M) deeper than the Safety Stop Depth set for 1 second.
• In the event that you enter Deco during the dive, complete the Deco obligation, then descend below 30 FT (9 M); the SS Main will appear again upon ascent to within 5 FT (1.5 M) deeper than the SS Depth set for 1 second.
• If you surface prior to completing the SS, it will be disabed for the remainder of that dive.
• There is no Penalty if you surface prior to completing the SS or ignore it.

If set for Timer On:
Upon ascending to 20 FT (6 M) for 1 second on a No Deco dive in which Depth exceeded 30 FT (9 M) for 1 second, a beep will sound and a Timer will appear (if set On) displaying 0:00 (min:sec) until started.
• If the SS was set for Off or On, the Timer display will not appear.
• If you descend deeper than 30 FT (9 M) for 10 seconds, the No Deco Main will replace the Timer screen which will reappear upon ascent to 20 FT (6 M) for 1 second.
• If you enter Deco, or a High O2 alarm condition occurs (100%), while the SS Timer is active, the SS function will be disabled for the remainder of that dive.
• If you surface prior to completing the SS, it will be disabled for the remainder of that dive.

DIVE TIME REMAINING (DTR)
The TX1 He constantly monitors nitrogen loading and oxygen accumulation, and will display whichever time is the least amount available as DTR on the No Deco Dive Main screen. The graphic NDC, or OTR, will identify which time is being displayed.

No Deco DTR (NDC)

NDC is the maximum amount of time that you can stay at your present Depth before entering Deco. It is calculated based on the amount of inert gas (nitrogen and helium) absorbed by hypothetical tissue compartments. The rates each of these compartments absorb and release inert gas is mathematically modeled and compared against a maximum allowable inert gas level.



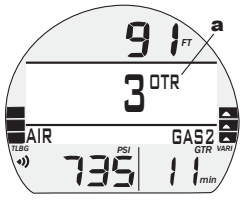
NO DECO MAIN
(NDC is DTR)

Whichever one is closest to this maximum level is the controlling compartment for that Depth. Its resulting value will be displayed as NDC time (a) and graphically as the TLBG.

As you ascend, the TLBG segments will recede as control shifts to slower compartments. This is a feature of the decompression model that is the basis for multilevel diving, one of the most important advantages that Hollis dive computers offer.

O2 Time Remaining (OTR)

During Nitrox and Oxygen operation, O_2 accumulation during a dive or 24 hour period is displayed as a percent of O_2 saturation allowed per dive or per day. Max allowed (100%) is 300 OTU.

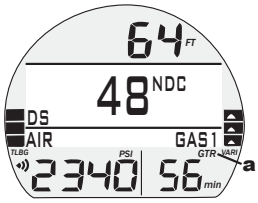


NO DECO MAIN
(OTR is DTR)

When time remaining before reaching the O_2 limit becomes less than NDC, calculations for that Depth will be controlled by O_2. Then OTR will be displayed as DTR on the Dive Main.

GAS TIME REMAINING (GTR)

GTR is the time your current selected gas will last at the present Depth with the Tank Pressure reserve that you selected during setup (End Pressure Alarm Setting). It is displayed on the Dive Main screens.



NO DECO MAIN
(GTR is 56 min)

GTR is calculated using a patented algorithm that is based on a diver's individual Air Consumption Rate and Current Depth. The active tank transmitter pressure is measured once each second, and an average rate of Consumption is calculated over a 90 second period. This Rate of Consumption is then used in conjunction with the Depth to predict the remaining time the active gas will last at the present depth and breathing rate.

Gas Consumption and Depth are continuously monitored and GTR reflects any change in circumstances. For example, when you suddenly find yourself swimming against a strong current and begin breathing more rapidly, the TX1 He will recognize the change and adjust GTR accordingly.

NOTE: GTR ONLY tracks the active gas transmitter. It does not account for additional available tanks with transmitters you may be carrying ie. deco tanks, travel gases, or pony tanks.

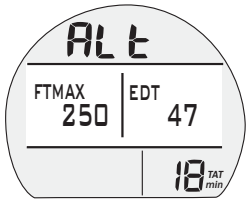
WARNING: Due to the TX1 He design parameters, multiple transmitters and routine use of multiple tanks, GTR does not account for the ascent gas needed to surface. Ensure that you start your ascent with adequate gas reserves (GTR reading). Programming a conservative End Pressure Alarm Setting for the planned depth will enhance your safety.

GTR Alarm

When GTR decreases to 5 minutes, the Audible will sound and the GTR time digits and graphic AIR TIME will flash. If it decreases to 0, the Audible will sound again. The time digits and graphic will continue to flash until GTR becomes greater than 5 minutes.

TOTAL ASCENT TIME (TAT)

Available only on an alternate (ALT) screen when in a decompression requirement, TAT displays the total time to the surface. For calculation, TAT assumes a strict following of the current decompression schedule and prescribed gas switches. It takes into acount all decompression stops and a standard ascent time between stops. Any delays in the decompression schedule, on the part of the diver, will cause the TAT to adjust according to a revised decompression schedule.

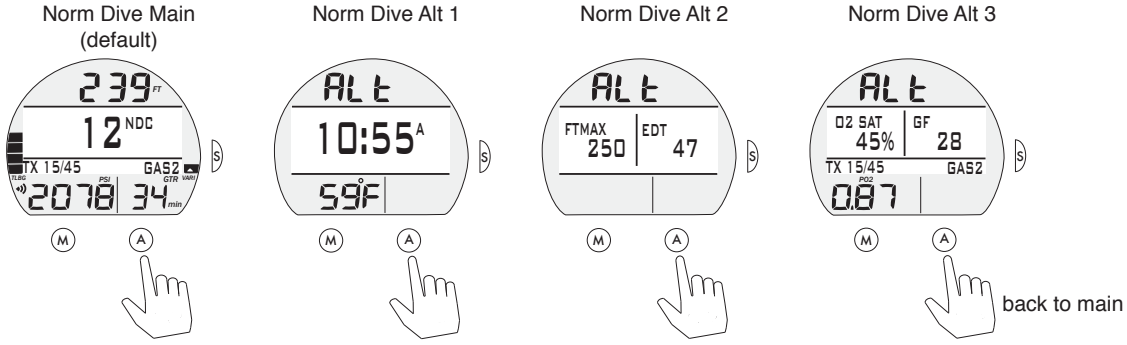


DECO ALT 2
(TAT 18 min)

NORM DIVE

OP MODE

NORM DIVE SCREENS



No Deco Main, information includes**:

***Which information is displayed is determined by the SET D menu selection saved during setup on the surface prior to the dive.*

> Current Depth with FT (or M) icon.
> DTR (up to 999 min) with graphic NDC (or OTR), dashes (- -) if on the surface.
> EDT (up to 999 min) with graphic, if set for display.
> Max Depth with graphic FT (or M) MAX, if set for display.
> Pressure (or letters SPG if no tmt) with PSI (or BAR) and Link icons, if Rcvr and TMT are active, flashing when Link is lost.
> GF (Gradient Factor) if set to display on Dive Main.
> Graphics GAS NAME and GAS# for actual gas
> GTR (up to 199 min) with icons, blank if no TMT, or O2 Data is selected for display, dashes (- -) if on the surface.
> O2 Data, if set for display - including % O2 accumulated with graphic O2 SAT, PO2 value with icon, and FO2 set for Gas
indicated (one in use).
> DS graphic - if Deep Stop is set On and has triggered.
> TLBG, VARI - if they apply.

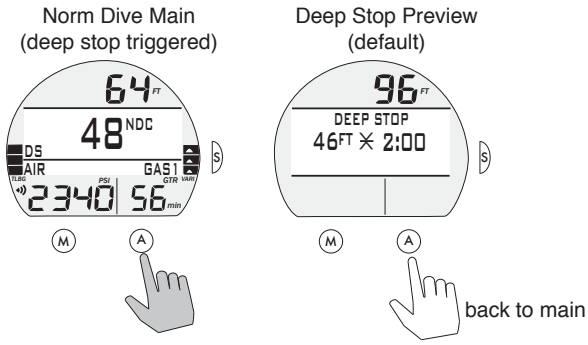
No Deco ALT 1, information includes:
> Graphic ALt.
> Time of day (hr:min) with graphic A (or P) if 12 hour mode.
> Temperature with ° icon and graphic F (or C).

No Deco ALT 2, information includes:
> Graphic ALt.
> Max Depth with graphic FT (or M) MAX, blank if on Main*.
> EDT (min) with graphic, blank if on Main*.
> Pressure with PSI (or BAR) and Link icons, blank if on Main.
> GTR (min) with icons, blank if on Main, dashes (- -) if on the surface.
> TAT** Total Ascent Time (up to 199 min) with TAT and min icons.

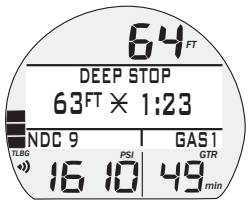
**If max Depth & EDT are both on the Main, ALt 3 becomes ALt 2.*
***Only displayed if in Decompression.*

No Deco ALT 3,
> Graphic ALt.
> %O2 accumulated with graphic O2 SAT (if not already displayed on Dive Main).
> GF (Gradient Factor). GF does not display here if already displayed on Dive Main.
> PO2 value (x.xx ATA) with icon, dashes (--) if on the surface. (Alternately, gas pressure displays if PO2 is set to display on Dive Main.)
> Graphics GAS NAME and GAS# for actual gas
> Tank pressure with psi (or bar) and link icon (if linked to a tmt).

DEEP STOP PREVIEW, information includes:
> Current Depth with FT (or M) icon.
> Graphic DEEP STOP with Stop icon (arrows and bar).
> Stop Depth with graphic FT (or M) and countdown Time as 2:00 (min:sec).



DEEP STOP MAIN, information includes:
> Current Depth with FT (or M) icon.
> Graphic DEEP STOP with Stop icon (arrows and bar).
> Stop Depth with graphic FT (or M) and countdown Time as 2:00 (min:sec).
> DTR (up to 999 min) with graphic NDC.
> Pressure with PSI (or BAR) and Link icons.
> Graphics GAS NAME and GAS# for actual gas.
> GTR (up to 199 min) with icons.
> TLBG, VARI - if they apply.



DEEP STOP MAIN

Deep Stop Alt Screens, information is similar to No Deco ALts.

SAFETY STOP MAIN, information includes* -
> Current Depth with FT (or M) icon.
> Graphic SAFETY STOP with Stop icon (arrows and bar).
> Stop Depth set with graphic FT (or M) with set time (min:sec) counting down to 0:00,
> Graphic TIMER, counting up from 0:00 to 9:59 (min:sec).
> DTR (up to 999 min) with graphic NDC.
> Pressure with PSI (or BAR) and Link icons.
> Graphics GAS NAME and GAS# for actual gas.
> GTR (up to 199 min) with icons.
> TLBG, VARI - if they apply.

SAFETY STOP MAIN
(set for depth/time prior to dive)

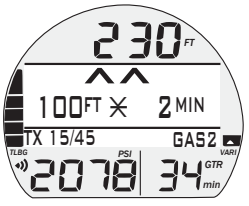
Safety Stop Alt Screens, information is similar to No Deco ALts.

SAFETY STOP MAIN
(set for run time prior to dive)

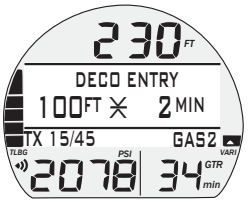
DECOMPRESSION
Decompression mode activates when theoretical No Decompression time and depth limits are exceeded.

Upon entry into Deco, the Audible will sound during which the alarm LED and full TLBG will flash. Two Up Arrows will also flash, until within 10 FT (3 M) of and below the required Stop Depth (the Stop Zone).

> Once within 10 FT (3 M) of and below the required Stop Depth (the Stop Zone), the full Stop icon (smaller Up and Down Arrows with Stop Bar) will be displayed solid.



DECO ENTRY
(1 of 2 alternating)



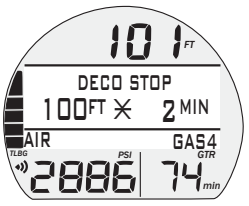
DECO ENTRY
(2 of 2 alternating)

Managing Deco Stops
To fulfill your decompression obligation, you should make a safe controlled Ascent to a depth slightly deeper than, or equal to, the required Stop Depth indicated and decompress for the Stop Time indicated.

The amount of decompression credit time that you receive is dependent on Depth, with slightly less credit given the deeper you are below the Stop Depth indicated.

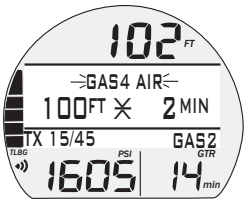
You should stay slightly deeper than the required Stop Depth indicated until the next shallower Stop Depth appears. Then, you can slowly ascend to, but not shallower than that indicated Stop Depth.

DECO STOP MAIN, information includes:
> Current Depth with FT (or M) icon.
> Graphic DECO STOP with Stop icon (arrows and bar).
> Stop Depth with graphic FT (or M) and Stop Time (up to 99 min) with graphic MIN.
> Pressure with PSI (or BAR) and Link icons.
> GTR (up to 199 min) with icons.
> TLBG, VARI - if they apply.
> GAS # with gas name, AIR, NX (FO2), or TX (FO2/FHe), will flash if a gas switch is recommended.



DECO STOP MAIN

Deco Stop Alt Screens, information is similar to No Deco ALts.

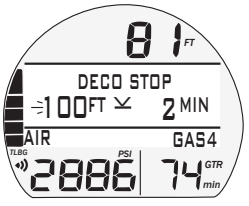


DECO STOP MAIN
(gas switch indicated)

MISSED DECO
Warning >> When the depth is shallower than the deepest Stop Depth (for less than 1 minute).
Alarm >> When the depth is shallower than the deepest Stop Depth (for more than 1 minute).

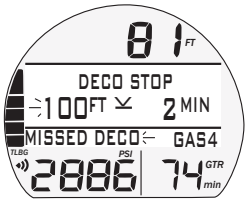
The warning will sound an audible alarm for 10 seconds or until acknowledged. The stop depth will flash while a down arrow appears until returning below the deco stop depth.

If the diver stays above the stop for more than 1 minute the alarm will activate. The audible will sound again for 10 seconds or until acknowledged. In addition to the depth the message MISSED DECO will also flash until returning below the deco stop depth.



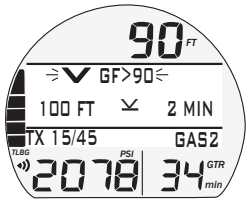
MISSED DECO WARNING

If the warning and alarm are ignored, the TX1 He will continue calculating a less conservative decompression schedule at the depth the diver is currently at unless a gradient factor of 90 is exceeded. If the ascent schedule exceeds a gradient factor 90 the computer will enter Deco Ceiling Violation (see the following).



MISSED DECO ALARM

DECO CEILING VIOLATION (DCV)
The Deco Ceiling Violation triggers when the ascent exceeds a GF (gradient factor) of 90 for less than 5 minutes regardless of GF settings. During which no off gassing credit will be given, meaning Deco Stop Time and TAT will not decrease.



DECO CEILING VIOLATION

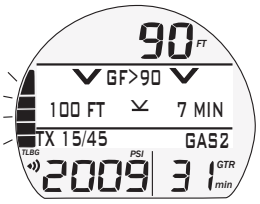
The Audible will sound during which the alarm LED will flash for 10 seconds or until it is acknowledged. A Down Arrow will also flash until descent is made to below the required Stop Depth. Then it is removed.

If the condition is corrected within 5 minutes, operation will then resume in Deco or No Deco mode.

If not corrected within 5 minutes and still underwater, operation enters Delayed Deco Violation (see the following section).

If not corrected within 5 minutes and the diver has surfaced (omitting deco), the co-puter will enter VGM (Violation Gauge Mode).

DELAYED DECO VIOLATION (DDV)
Once the ascent exceeds a GF 90 for more than 5 minutes, operation will enter Delayed Deco Violation. During which no off gassing credit will be given, meaning Deco Stop Time and TAT will not decrease.

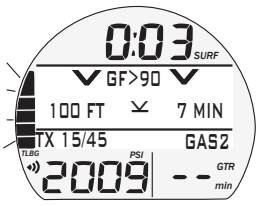


DELAYED DECO VIOLATION
(during audible)

The Audible will sound during which the alarm LED and full TLBG will flash for 10 seconds. Two Down Arrows will flash until descent is made to below the required Stop Depth.

When descent below the required Deco Stop Depth, operation will then resume in Deco or No Deco mode.

5 minutes after surfacing from the dive, operation reverts to VGM (Violation Gauge Mode).



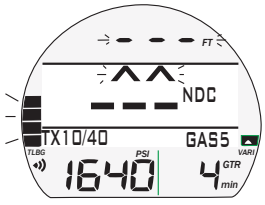
DELAYED DECO VIOLATION
(on surface < 5 min)

After a full 10 minutes on the surface, the TX1 He will switch to VGM Surface Main (Surface functions remain available).

DEPTH VIOLATION (DV)
Upon descent deeper than the depth limitation (400 ft/120 m) of the TX1 He, the Audible will sound during which the alarm LED will flash for 10 seconds. Two Up Arrows and the loaded segments of the TLBG will also flash.

The Decompression Calculations will continue if data is accurate. Though they will not be visible until ascending above 400 ft/120 m.

The Log for that dive will record 3 dashes as the Max Depth.



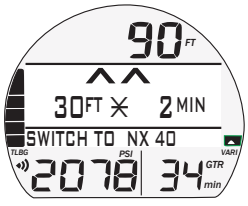
DEPTH VIOLATION

DV MAIN, information includes -
> Current Depth flashing as 3 dashes (- - -) with FT (or M) icon.
> (2) Up Arrows flashing, until at/above MOD.
> DTR as 3 dashes (- - -) with graphic NDC.
> Pressure with PSI (or BAR) and Link icons.
> Graphics GAS NAME and GAS# for actual gas.
> GTR (up to 199 min) with icons.
> TLBG - flashing for the remainder of that dive.
> VARI while ascending.

GAS SWITCH WARNING (AFTER DECO ENTRY)

Warning >> when the actual gas is not the best gas at current depth.

When there is required decompression, the TX1 He shall warn the diver about switching to the best active gas available. The best gas is the gas with highest PO2 that is below the PO2 MAX at current depth. When there is a better active gas available; the audible sound twice and the message SWITCH TO (gas name) will be displayed until the gas is switched or the warning is acknowledged.



GAS SWITCH WARNING
(after deco entry)

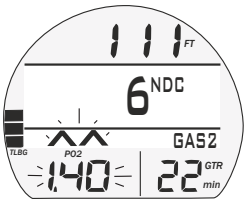
HIGH PO2

Alarm >> at Set Point value, except in Deco then at 1.60 only.

When partial pressure of oxygen (PO2) increases to the Warning level; the Audible will sound during which an Up Arrow and the PO2 value with icon will flash in place of Pressure.

The High PO2 Alarm level, the Audible will sound again during which (2) Up Arrows and the PO2 value with icon will flash in place of Pressure.

> After the Audible is silenced, Pressure is restored, and the Up Arrows remain on solid until PO2 decreases below the alarm level, at which time one of the Up Arrows is removed.



HIGH PO2 ALARM
(during audible)

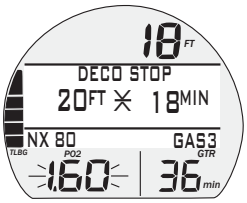
High PO2 during Deco

The PO2 alarm that was set does not apply when in Deco.

If PO2 reaches 1.60, the Audible will sound during which the PO2 value with icon will flash in place of Pressure.

> After the Audible is silenced, the PO2 value with icon will alternate with Pressure once each minute*.

**PO2 will be displayed for 10 seconds, then Pressure will be displayed for 50 seconds once each minute until PO2 decreases below 1.60, then PO2 will not be displayed.*



HIGH PO2 ALARM
(during audible, in Deco)

LOW PO2

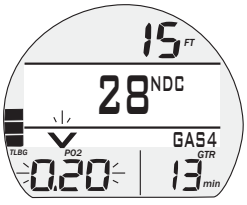
Warning (only during No Deco) >> at 0.17 ≤ PO2 < 0.21
Alarm >> at PO2 < 0.17

When partial pressure of oxygen (PO2) decreases to the Warning level; the Audible will sound during which a Down Arrow and the PO2 value with icon will flash in place of Pressure.

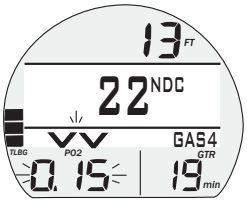
> After the Audible is silenced, Pressure is restored, and the Down Arrow remains on solid until PO2 increases above 0.20 ATA.

If PO2 continues to decrease and reaches the Low PO2 Alarm level, the Audible will sound again during which (2) Down Arrows and the PO2 value with icon will flash in place of Pressure.

> After the Audible is silenced, Pressure is restored, and the (2) Down Arrows and PO2 icon remain on (flashing) until PO2 increases above 0.17 ATA. At which time the screen reverts to the Low PO2 Warning Screen until PO2 increases above 0.20 ATA.



LOW PO2 WARNING
(during audible)

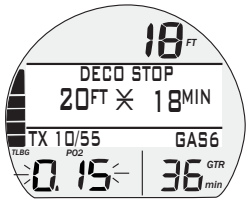


LOW PO2 ALARM
(during audible)

Low PO2 during Deco
If PO2 drops below 0.17 ATA, the Audible will sound during which the PO2 value with icon will flash in place of Pressure.

> After the Audible is silenced, the PO2 value with icon will alternate with Pressure once each minute*.

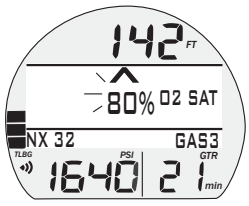
**PO2 will be displayed for 10 seconds, then Pressure will be displayed for 50 seconds once each minute until PO2 increases above 0.17, then PO2 will not be displayed.*



LOW PO2 ALARM
(during audible in Deco)

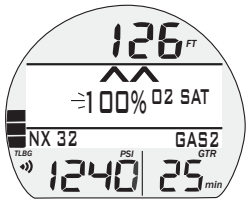
HIGH O2 SATURATION
Warning >> at 80 to 99% (240 OTU).
Alarm >> at 100% (300 OTU).

When O2 reaches the Warning level; the Audible will sound during which the O2 value with graphic %O2SAT and an Up Arrow will flash (in place of DTR) until the audible is silenced. Then DTR will be restored. The Up Arrow will remain on solid until O2 decreases below 80%.



O2 WARNING
(during audible)

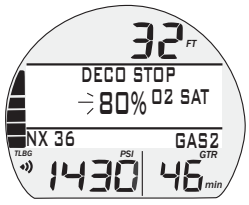
If O2 reaches the Alarm level; the Audible will sound again during which (2) Up Arrows and the O2 value 100 with graphic %O2SAT will flash until the audible is silenced. Then O2 value with graphic %O2SAT will flash until on the surface.



O2 ALARM
(during audible)

High O2 during Deco
When O2 reaches the Warning Level; the Audible will sound during which the O2 value with graphic %O2SAT will flash in place of Stop Depth/Time with the graphic DECO STOP until the Audible is silenced. Then Stop Depth/Time will be restored. No indication (Up Arrow) is given to ascend.

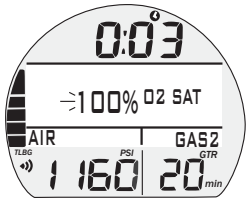
When O2 reaches 100%, the Audible will sound again during which the O2 value 100 with graphic %O2SAT and (2) Up Arrows will flash in place of the graphic DECO STOP until the audible is silenced. Then O2 value with graphic %O2SAT will flash until on the surface, and the full TLBG remains on solid as a reminder of Deco.



O2 WARNING
(during audible, in Deco)

High O2 on Surface
Upon ascent to 2 FT (0.6 M) for 1 second (surfacing), the Dive Main screen is displayed for 10 minutes with access to the Dive ALTs allowed. Surface Interval Time with the SURF icon flashing will be displayed in place of Depth.

> If O2 is 100%, the value will flash on the Main until it is < 100%, then it will be replaced with dashes and graphic NDC until 10 minutes elapse, then NORM Surface Main.

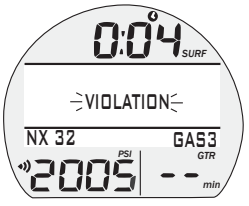


O2 ALARM
(during audible, in Deco)

> If you surface due to 100% O2 without having completed the Deco obligation, the O2 value 100 with graphic % O2 SAT will flash for the first 5 minutes. Then dashes will be dipslayed and operation will enter VGM.

VIOLATION GAUGE MODE (VGM)

VGM turns the TX1 He into a digital instrument without any decompression or oxygen related calculations or displays. This would be the result of severe decompression violations or 100% O2 SAT condition.

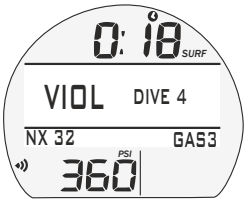


VGM MAIN
(on surface < 10 min)

The graphic VIOL flashes for the first 10 minutes, then VIOLATION alternates with NORM (each On 3 seconds) until unit shut down after 24 hours with no dives*.

**A full 24 hour surface interval must then be served before all functions are restored.*

During that 24 hours, access to all menus and screens is available except those associated with decompression calculations such as Gas Menu, Plan Menu, Set GF, Last Stop, Deep Stop, and Safety Stop. The Fly countdown timer provides the time remaining (of the 24 hours required) before normal operation can resume with full features and functions.



VGM MAIN
(on surface > 10 min)

NORM DIVE MAIN MENU

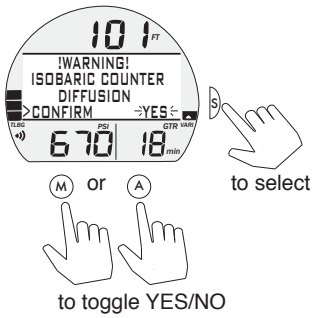
Gas Switch

Similar to Surface Gas Switch (p. 22) with the inclusion of ICD warning when appropriate (see below).

Isobaric Counter Diffusion (ICD) Warning

During a gas switch the TX1 He will display a warning if there is a risk of ICD. The risk must be accepted or declined by selecting YES or NO in the ICD Menu. If declined the TX1 He will not complete the gas switch. Instead it will return the user to the Dive Main Screen.

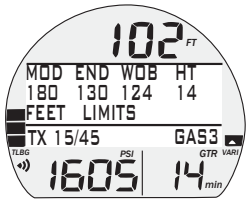
> Graphic selection YES or NO.



Select Gases

Similar to the Surface Select Gases Menu (pg. 25)**.**

Depth Limits



DEPTH LIMITS

This feature displays the depth limits of the current gas, based on MOD, END, WOB, and HT physiological and alarm settings limits.

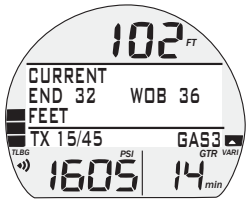
Depth Limit types:
MOD - is the Maximum Operating Depth calculated by the PO2 MAX set for the active gas.
END* - is the depth limit that the active gas reaches the Equivalent Nitrogen Depth Alarm setting for the active gas.
WOB* - is the depth limit that the active gas reaches the Work Of Breathing Alarm setting for the active gas.
HT - is the depth that the PO2 of the active gas equals 0.21 ATA.

**In this menu WOB and END stand for the limits set not the current (at actual depth) of the gas.*

Information includes:
> Current Depth with FT (or M) icon.
> Tank Pressure with PSI (or BAR) and Link icons, if the receiver and transmitters are active.
> PO2 value (x.xx ATA) with PO2 icon, replacing Pressure when option E is selected.
> GTR (up to 199 min) with GTR and min icons.
> TLBG with icon, Inert Gas Loading.
> VARI, Ascent Rate.
> Graphics MOD, END**, WOB**, and HT**.
> Graphic FEET (or METERS) LIMITS.

***END, WOB, and HT are only displayed if their respective alarms are set ON and the actual gas is Trimix.*

Current END (w/O2 NARC Yes/No) WOB



CURRENT END WOB

This feature displays the current (at actual depth) END and WOB values of the active gas.

Current Value types:
END - is the Equivalent Narcotic Depth value of the actual gas at the current depth.

> **NOTE: The TX1 He allows the inclusion of oxygen as a narcotic gas by setting O2 NARC to yes in the Utilities Menu. If set to yes, oxygen is considered equally narcotic as nitrogen. If O2 Narc is set to No, oxygen narcotic effect will be disregarded in END calculations.**

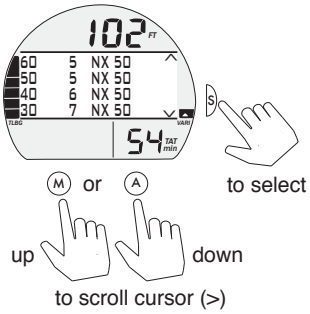
WOB - is the equivalent depth that AIR would have the same Work Of Breathing as the actual (active gas) has at the current depth.

Information includes:
> Current Depth with FT or M icon.
> Graphics CURRENT.
> Graphics END (with the value) and WOB (with the value) of the actual gas*.
> Graphic FEET or METERS.
> Graphics GAS NAME (AIR, NX (FO2), or TX (FO2/FHe) and GAS# of the actual gas.
> Tank Pressure with PSI (or BAR) and Link icons, if the receiver and transmitters are active.
> PO2 value (x.xx ATA) with PO2 icon, replacing Pressure when option E is selected.
> GTR (up to 199 min) with GTR and min icons.
> TLBG with icon, Inert Gas Loading.
> VARI, Ascent Rate.

**If FN2=0, the END shall not be calculated and 400 ft (or 120 m) shall be displayed as END value (N2 only). If any value is greater than 400 ft (120 m), 400 ft (or 120 m) shall be displayed. 0 (zero) shall be displayed if any calculated value is negative.*

Deco Stops
Deco Stops is a menu that displays all of the currently required decompression stops, times, and the gases to be used.

Information includes:
> Current Depth with FT or M icon.
> PO2 value (x.xx ATA) with PO2 icon, replacing Pressure when option E is selected.
> TAT (Total Ascent Time).
> TLBG with icon, Inert Gas Loading.
> VARI, Ascent Rate.
> Graphic FEET (or METERS) (depth of deco stops), MIN (duration of deco stops, Max 99 min), and GAS (Gas Names).
> Graphic list of Depths, Duration, and Gas Names (AIR, NX FO2, or TX FO2/FHe).

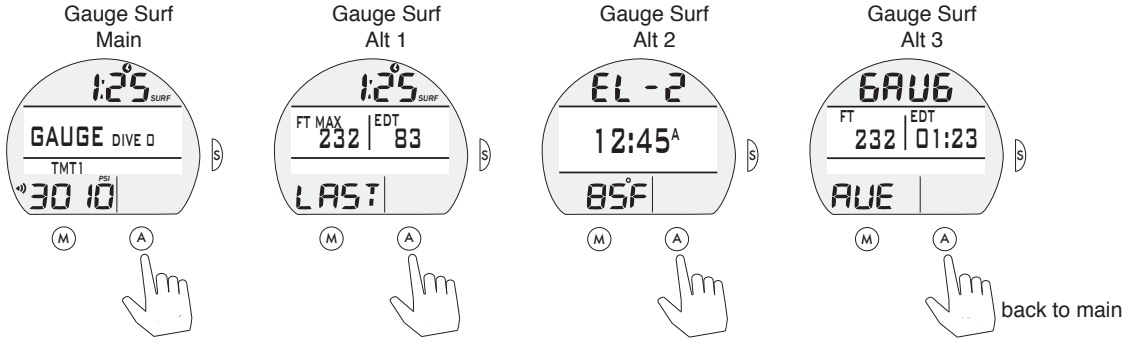


Batt/TMT
Similar to the Surface Batt/TMT Menu (p.21).

GAUGE

OP MODE

GAUGE SURF SCREENS



GAUGE SURF MAIN, information includes:
> SI (hr:min) with Time (clock) and SURF icons; if no dive yet, this is time since activation.
> Graphic GAUGE (operating mode).
> Graphic DIVE and number of dives completed during that operating period, up to 24 (0 if no dive made yet).
> Graphic TMT 1, default on surface before first dive and 10 minutes after surfacing from dives.
> Tank Pressure with PSI (or BAR) and Link (speaker) icons, if the Receiver is successfully Linked with an active TMT (Transmitter), 000 flashing after 15 seconds of lost Link.
> Battery icon, if voltage is low.

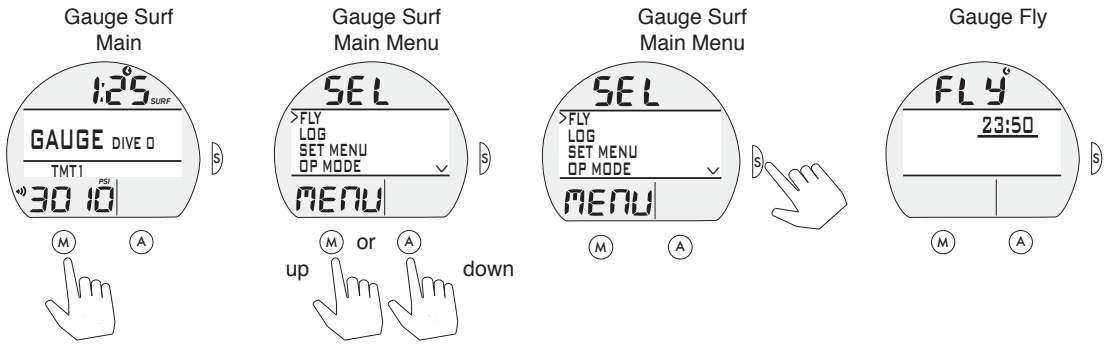
GAUGE SURF ALT 1, information includes:
> SI* (hr:min) with Time (clock) and SURF icons.
> Max Depth* with graphics FT (or M) and MAX.
> Elapsed Dive Time* (hr:min) with graphic EDT.
> Graphic LAST, indicating that data is from the dive previously conducted while in GAUGE mode.

GAUGE SURF ALT 2, information includes:
> Altitude graphic, if EL - 2 (to EL - 7), blank if Sea level.
> Time of Day (hr:min) with graphic A (or P).
> Temperature with ° icon and graphic F (or C).

GAUGE SURF ALT 3, information includes:
> Graphics GAUG and AVE (average).
> Average Depth* with graphic FT (or M).
> Average EDT* (min) with graphic.

**These are average values calculated for the dive, or series of repetitive dives, conducted while still in GAUGE.*

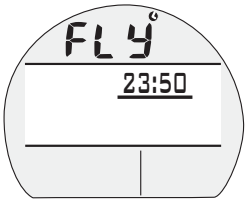
GAUGE MAIN MENU
Selections include:
> SWITCH TMT
> FLY.
> LOG.
> SET MENU.
> OP MODE.
> HISTORY.
> TX1 HE ID.
> BATT/TMT
> DIVE PREVIEW



SWITCH TMT
The Switch TMT Menu selection provides access to a listing of sub menus that allow the changing of the current TMT.

These Switch TMT Sub Menus are described after the Gauge Main Menu items (starting on page 54).

FLY, information includes:
> Graphic FLY with countdown time (hr:min) and Time (clock) icon, dashes if no dive yet.



Fly
(10 min. after dive)

LOG, shared with NORM (see page 21).

SET MENU, similar to NORM (see page 22).
> GAUGE does not access the Set Gases Menu.

OP MODE, similar to NORM (see page 22).

HISTORY, shared with NORM (see page 23).

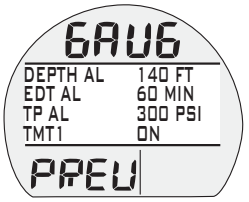
TX1 ID, same as NORM (see page 23).

BATT/TMT STATUS, same as NORM (see page 23).

DIVE PREVIEW
This feature provides quick access to a screen that displays up to 4 settings that can be pre selected* using the Set P Menu.

Preview, information includes:
> Graphics GAUG and PREV.
> Selections* with Set Points entered using that menu.

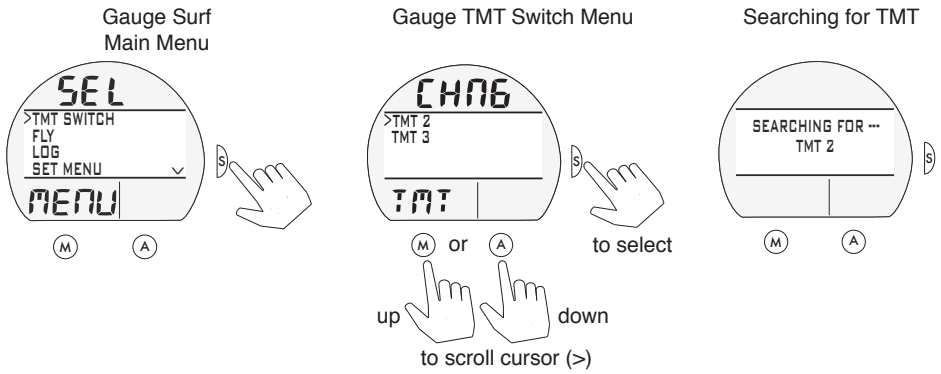
• Press S button to revert to the Main Menu.



Gauge Dive
Preview

SWITCH TMT SUB MENUS

Information that follows describes the sub menus (GAUGE TMT SWITCH, TMT SWITCH CONFIRMATION, SEARCHING TMT) that are accessed from the Gauge SURF Main Menu.



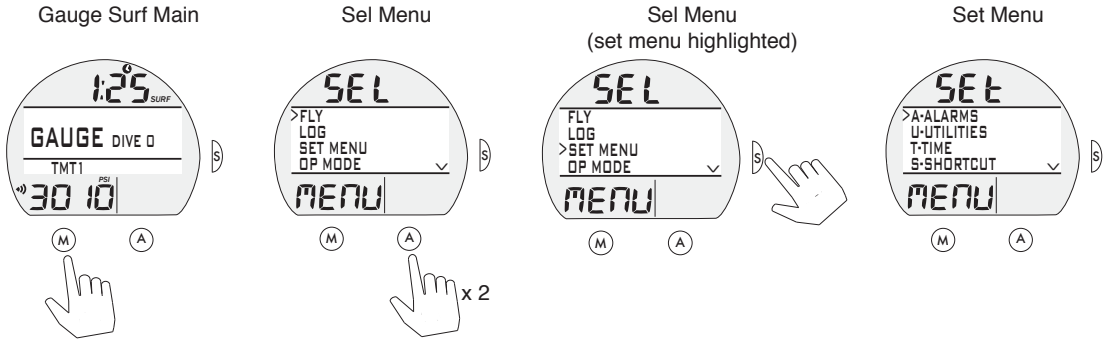
GAUGE TMT SWITCH, information includes*:
> Graphic CHNG and TMT
selections include:
> all active TMTS displayed as TMT #

** If there are no active TMTs then the TMT Switch Menu is unavailable.*
*** The current TMT and TMTs turned OFF will not display as options on the menu.*

SEARCHING FOR TMT, information includes:
> Graphic SEARCHING FOR --- TMT (1, 2, 3, 4, 5, or 6).

SET GROUPS

Information that follows describes the selections contained in the GAUGE Set Groups (A, U, T, S, D, P) that are accessed from the Set Menu.



SET A (ALARMS), shared with NORM (see page 28).

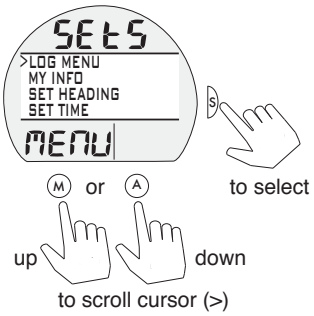
SET U (UTILITIES), shared with NORM (see page 29).
> GAUGE includes TO SET TMT MENU similar to NORM Set TMT Menu (see page 27).

SET T (TIME/DATE), shared with NORM (see page 31).

SET S (Shortcut) Menu, information includes:
> Graphics SEt S and MENU.

Selections include:
> LOG MENU.
> MY INFO (default Shortcut until another item is selected)
> SET HEADING.
> SET TIME.

Gauge Set S Menu

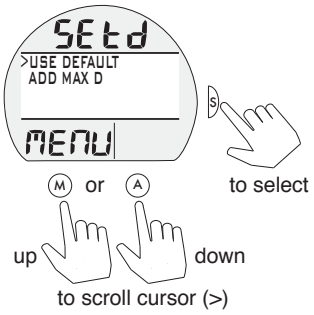


One item can be selected from the list. That item (referred to as a Shortcut) can then be accessed directly by pressing M (2 sec.) while viewing the Surface Main.

SET D (Dive Main) Menu, information includes:
> Graphics SEt d and MENU.
The default screen for dives displays Current Depth, Run Timer, Pressure, and GTR (gas time remaining). Max Depth is displayed on an Alternate screen. Set D allows it to be added to the Main (moving it from the Alternate).

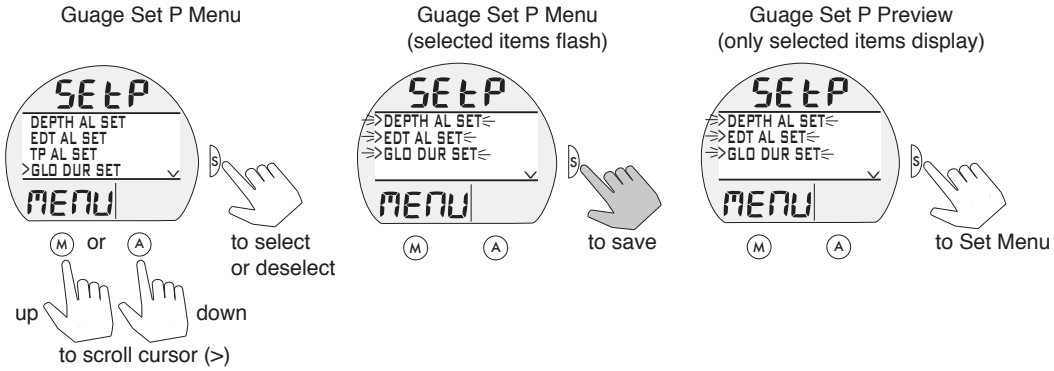
Selections include:
> USE DEFAULT >> no change to the display.
> ADD MAX D >> also reduces the size of NDC digits.

Gauge Set D Menu



**Ensure that the selection to be saved reflects information you want to see on the Dive Main, it cannot be changed during the dive (only while on the surface using this menu).*

SET P (Preview) Menu, *information includes:*
> Graphics SEt P and MENU.
Using this menu, you can chose up to 4 items (Set Points that have been entered) for display on a Preview screen that can be accessed from the
Surface Main Menu.
Selections include:
> DEPTH AL SET.
> EDT AL SET.
> TP AL SET.
> GLO DUR SET.
> MAX DEPTH
> TMT1 SET
> TMT2 SET
> TMT3 SET
> TMT4 SET
> TMT5 SET
> TMT6 SET



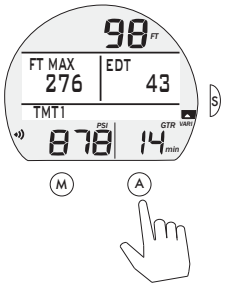
**Once 4 items are flashing, another item cannot be toggled to flash until one of the flashing items is toggled to solid.*

When satisfied that those items flashing (up to 4) are what you want for the Preview screen, press S (2 sec) to display all items flashing, then press S (< 2 sec) to revert to the Preview screen with all items solid.

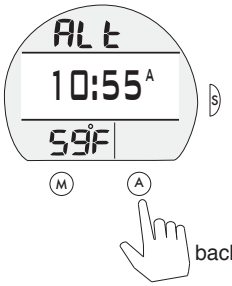
Upon descent to 5 FT (1.5 M) for 5 seconds, operation will enter GAUGE Dive Mode.

GAUGE DIVE SCREENS

Gauge Dive Main
(optional main, no timer)

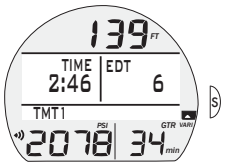


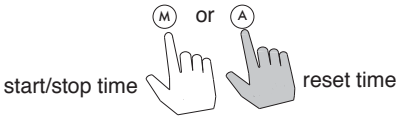
Gauge Dive Alt
(timer not on)



back to main

Gauge Dive Main
(using timer, default main)





GAUGE DIVE MAIN, information** includes -
***Which information is displayed on the Main screen and which is on the Alternates is determined by the SET D menu selection saved during setup on the surface prior to the dive.*

> Current Depth with FT (or M) icon.
> Graphic TIMER with Time (up to 999:59 min:sec), 0:00 until started and after reset.
> Max Depth with graphics FT (or M) and MAX, if set for display.
> Graphic EDT with Elapsed Dive Time (up to 999 min).
> Graphic TMT (1, 2, 3, 4, 5, or 6), one in use.
> Pressure (or letters SPG if no tmt) with PSI (or BAR) and Link icons, if Rcvr and TMT are active, flashing when Link is lost.
> GTR (up to 199 min) with GTR and min icons, dashes (- -) if on the surface.
> VARI while ascending.

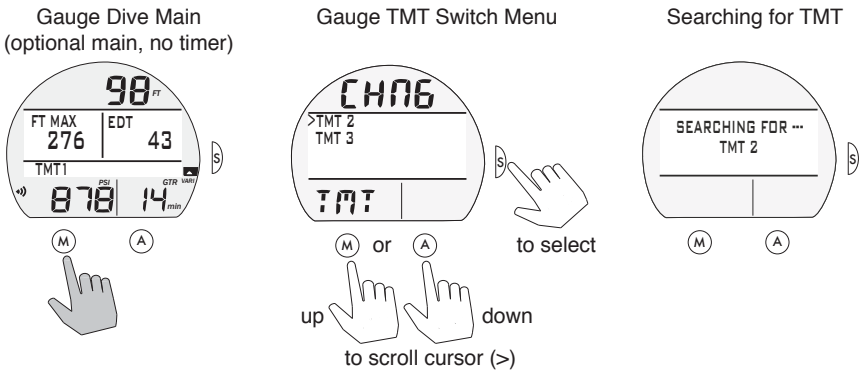
• A (< 2 sec) to access ALT.
• A (2 sec) to Reset Run Timer (to 0:00).
• A (< 2 sec) to Start/Stop the Timer.
• M (2 sec) to access TMT Switching*.
• S (< 2 sec) to activate Smartglo® Backlight or acknowledge alarms.
• S (2 sec) to access Compass*.

*These items can only be accessed while viewing the Main.

GAUGE DIVE ALT, information includes -
> Graphic ALt.
> Max Depth with MAX and FT (or M) icons, if Timer is on Main.
> Time of Day (hr:min) with graphic A (or P) if 12 Hour.
> Temperature with ° icon and graphic F (or C).

• A (< 2 sec) to revert to Main.
• Revert to Main in 5 sec, if A is not pressed.
• S (< 2 sec) to activate Smartglo® Backlight.

GAUGE DIVE CHANGE TMT SCREENS



GAUGE TMT SWITCH, shared with GAUGE SURF MODE (see page 54).

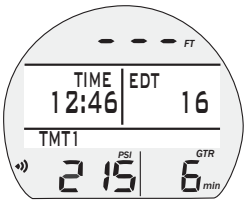
SEARCHING FOR TMT, shared with GAUGE SURF MODE (see page 54).

GAUGE DEPTH VIOLATION

Upon descent deeper than the Max Functional Depth of 400 FT/120 M, the Audible will sound during which the alarm LED will flash.

Current Depth and Max Depth (if no timer on Main) will only indicate 3 dashes (- - -) signifying that you are Out of Range.

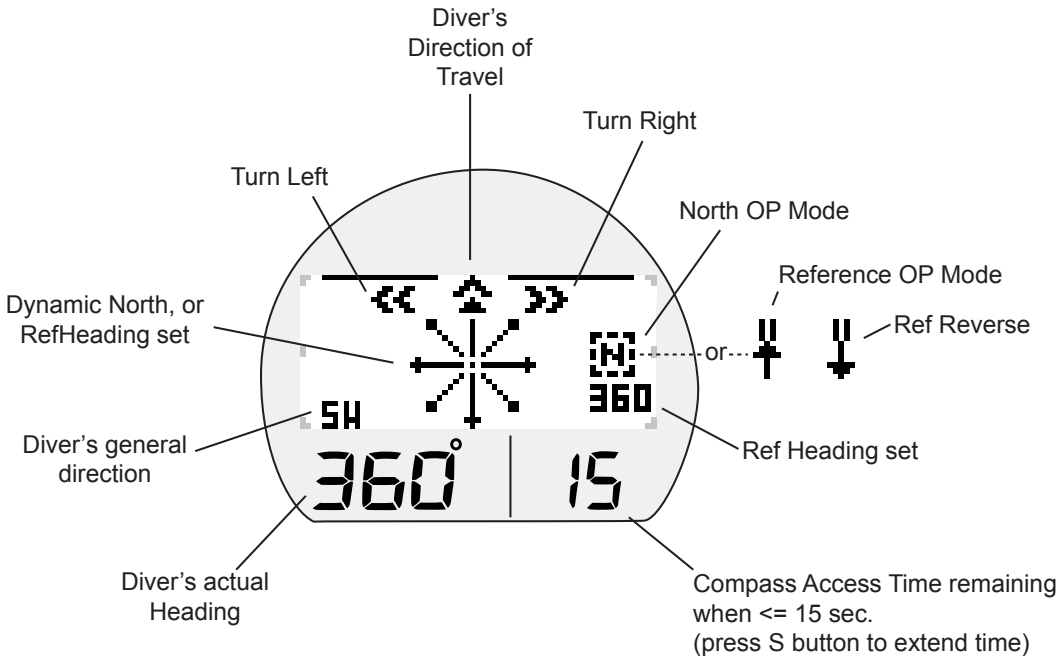
Upon ascending above the Max Functional Depth, Current Depth will be restored, however, Max Depth (if no timer on Main) will display 3 dashes for the remainder of that dive. Also, the Log for that dive will display 3 dashes as the Max Depth.



Gauge Depth Violation

COMPASS

MODE

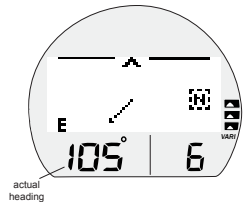


! WARNING: You must become thoroughly familiar with setup and operation of the TX1 He Digital Compass before using it as your primary device for navigation. Failure to do so could result in serious errors relating to activities involving navigation.

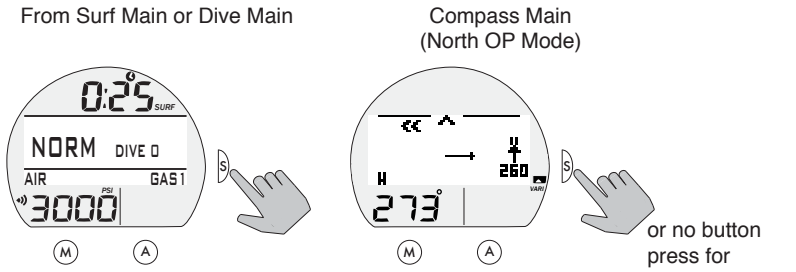
> Practice on land before use in water.
> Practice on the surface before use underwater.

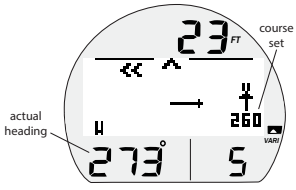
OVERVIEW

> Compass OP Mode selected (North or Reference) - remains until changed.
> Reference OP Mode - can set a course, then also select a Reverse course while on the surface and during dives.
> Numeric values are displayed as 3 digits (000 to 360°), have a resolution of 001°, and an accuracy of +/- 005°.
> Operation will be normal and display of values will be within specified tolerances up to 90° tilt at which time the Heading
(diver's direction) digits are removed until the tilt angle is corrected.

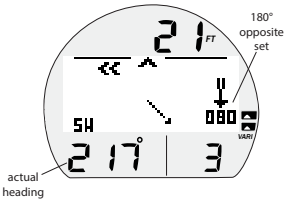


NORTH OP MODE





REF OP MODE



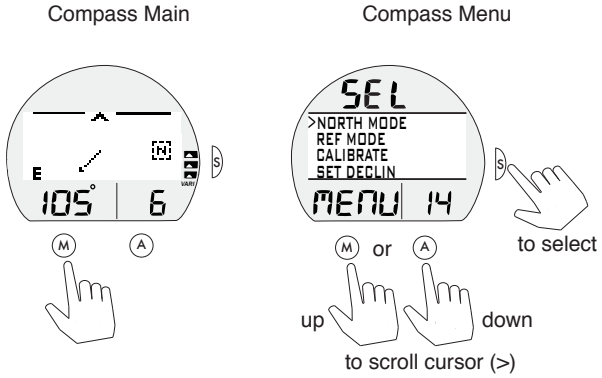
REVERSE REF OP MODE

**During the final 15 seconds, the remaining On time is displayed in the lower right corner. If a button is pressed during that time, the 2 minute On time will reset allowing operation to remain in Compass Mode.*

Upon accessing the Compass, the OP (operating) Main of the last mode selected will be displayed >> North, Reference, or Reverse Reference.

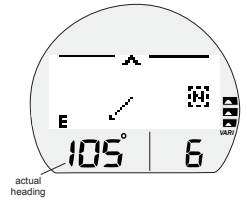
COMPASS MENU

Selections include:
> NORTH MODE -select as OP Mode with no set heading.
> REF MODE - select as OP Mode with set heading allowed.
> CALIBRATE - access to initiate Calibration.
> SET DECLINATION - access to set Declination.

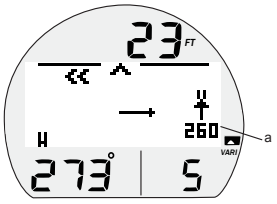


NOTE: Compass Menu is only available while in Surface Mode.

NORTH OP MAIN, information includes -
> Current Depth with FT (or M) icon, Surface Interval during first 10 min on surface, blank on surface > 10 min.
> North Mode icon (letter N in box).
> Static Arrow icon (at 12 o'clock), diver direction of travel.
> Dynamic Arrow, relative direction of magnetic North.
> Numeric heading (diver's current direction), 001 to 360°, with position graphic (N, E, SE, etc.).
> On time remaining, counting down, if 15 to 0 (sec) remaining.



NORTH OP MAIN
(at 105°)

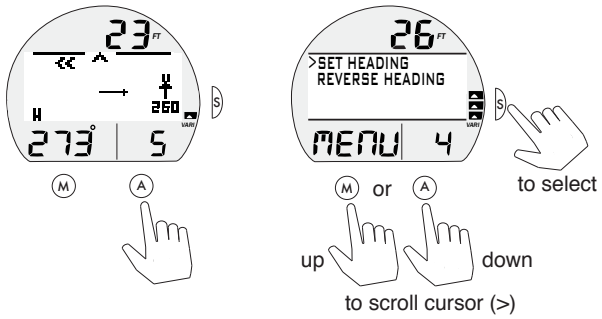


REF OP MAIN
(at 277°, turn left to 260°)

REFERENCE OP MAIN, information includes -
> Current Depth with FT (or M) icon, Surface Interval during first 10 min on surface, blank on surface > 10 min.
> Reference Mode icon (2 bars with arrow) with numeric Reference heading (course) set below it.
> Static Arrow icon (at 12 o'clock), diver direction of travel.
> Turn Arrow icon (left or right) flashing during any time the diver deviates ≥ 10° off the heading set.
> Dynamic Arrow, tracking Reference direction set.
> Numeric heading (diver's current direction), 001 to 360°, with position graphic (N, E, SE, ESE, etc.).
> On time remaining, counting down, if 15 to 0 (sec) remaining.

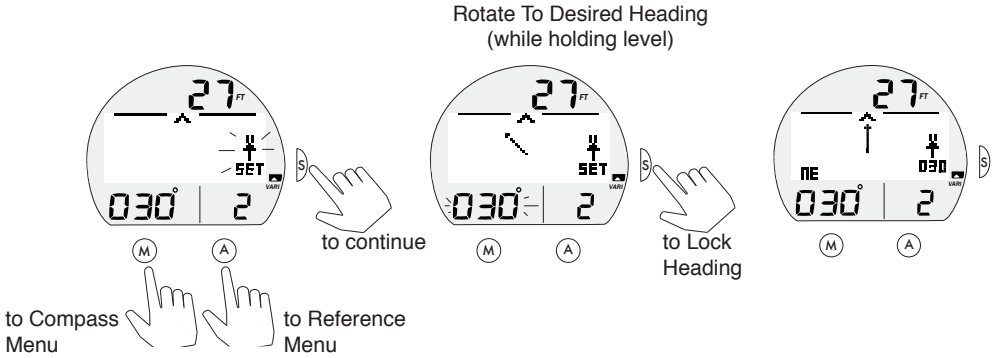
REFERENCE MENU, information includes -
> Current Depth with FT (or M) icon, blank on surface.
> Graphic MENU, with selections ->
> SET HEADING.
> REVERSE HEADING.
> On time remaining, counting down, if 15 to 0 (sec) remaining.

REF OP Main REF Menu

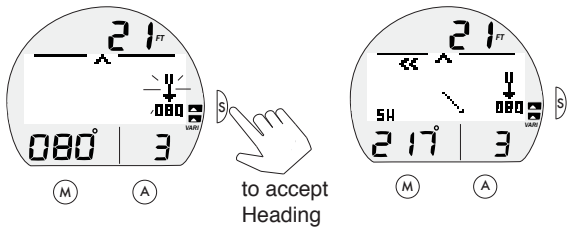


Set Reference Heading, information includes -
> Current Depth with FT (or M) icon, blank on surface.
> Reference Mode icon (2 bars with arrow) with graphic SET (flashing) below it.
> Static Arrow icon (at 12 o'clock), diver direction of travel.
> Dynamic Arrow, tracking Reference direction set.
> Numeric heading (diver's direction), with position graphic.
> On time remaining, counting down, if 15 to 0 (sec) remaining.

Rotate To Desired Heading
(while holding level)



Reverse Ref Heading, information includes -
> Current Depth with FT (or M) icon, blank on surface.
> Reverse Mode icon (2 bars with arrow) with reverse Heading (180° opposite of Reference Heading set) below it (flashing).
> Static Arrow icon (at 12 o'clock), diver direction of travel.
> Dynamic Arrow, tracking Reference direction set.
> Numeric heading (diver's direction), with position graphic.
> On time remaining, counting down, if 15 to 0 (sec).



The value below the Reverse Mode icon will stop flashing indicating the Heading has been reversed.

CALIBRATION (surface only)
Local magnetic fields can effect display of actual location when reading a digital compass.

It may be advantageous to Calibrate the Compass before its first use after purchase, before use in new global regions, or if inaccuracies are experienced.

Calibration will be required when the battery is changed.

Upon selecting Calibration on the Compass Menu (by S < 2 sec), a screen appears displaying the graphics CAL with Face Down Until Beep*.

**This screen will also be accessed after the Battery is changed and Data is either saved or cleared.*

To initiate Calibration -
> turn the unit over (face down) until it beeps, then -
> turn the unit over (face up) until it beeps, after which a screen appears displaying the graphics CAL with Rotate To Calibrate 360°.
> while keeping it in a flat level position, slowly and steadily rotate* it 360° while keeping it in a flat level position (keeping it level is critical for accuracy), progress will be indicated by a circle forming on the display.

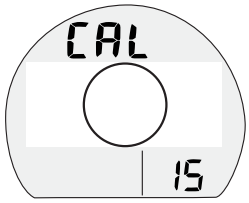
**Rotation should take about 15 seconds. If not fully rotated in 15 seconds, operation will revert to the Compass Menu.*

Calibration complete -
> Once fully formed, the circle will be replaced with the graphics Ready Passed Calibration or Failed Calibrate Again, flashing for 3 seconds, then -
> If READY, operation reverts to the Compass OP Main.
> If FAILED, operation reverts to the CAL Face Down Until Beep screen for repeat of the procedure.
> If Calibration fails 3 times, operation reverts to the Surface Main screen.

ACCES TO CAL
(turn unit upside down)

AFTER BEEP
(turn unit right side up)

TO START CAL



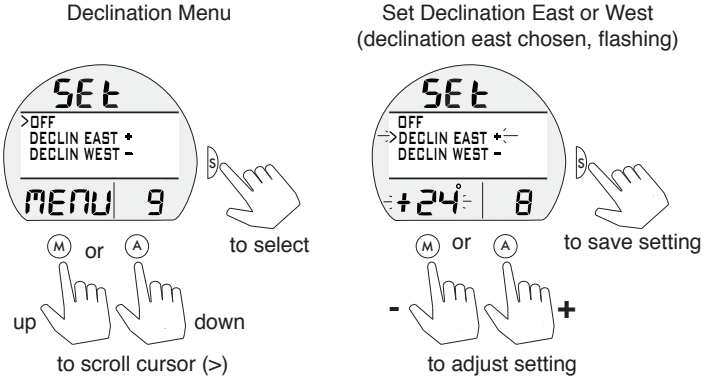
CAL PROGRESS
(circle forms while rotating)

CAL PASSED

DECLINATION

Magnetic Declination is taken from numbers provided on maps or charts that apply to a specific location. The numbers represent
the easterly or westerly angular difference (Declination) in degrees between magnetic North and true (geometric or polar) North.
A Compass will point to magnetic North unless its reference is adjusted to true North prior to conducting activities.

Declination Menu, information includes -
> Graphics SEt and MENU, with selections -
> OFF.
> DECLIN EAST + .
> DECLIN WEST - .



> If OFF is selected, Declination is set for 0° and operation reverts to the Compass Menu.
> If DECLIN EAST (or WEST) is selected, that graphic will flash and the numeric value with ° icon will flash in place of the
graphic MENU.

ALARMS

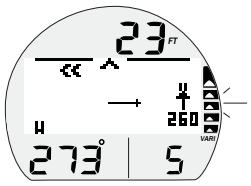
When most Alarms strike, operation in Compass Mode will be terminated and the Dive Main will be displayed indicating the alarm condition. Compass Mode can then be reentered by pressing S (2 sec).

During several types of alarms, indication will be given while remaining in Compass Mode without interuption. They are -

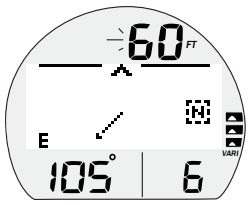
Ascent Alarm -
> VARI, all segments flashing until slowed.

Depth Alarm -
> Depth digits flashing until < alarm depth set.

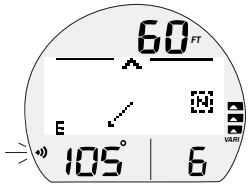
Loss of Link -
> Link icon on flashing until Link is regained.



ASCENT ALARM



DEPTH ALARM



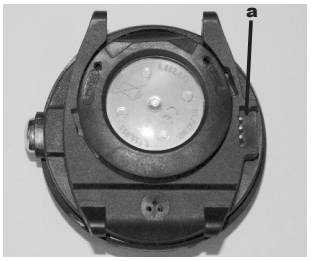
LOSS OF LINK

REFERENCE

CAUTION: When the procedure provided in this section is used to change the TX1 He battery, you must be sure that the case O-ring is not pinched and that the TX1 He is water tight before conducting diving activities. Pre-dive pressure testing by an Authorized Hollis Facility is highly recommended.

PC INTERFACE

The TX1 He is configured with a Data Port that enables it to be connected to a PC through a USB port using a special
Interface Cable supplied or available as an optional accessory.



TX1 He
(a - data port)

A USB Driver is provided on the HCI CD. This must be installed on the PC with the program.

The Settings Upload feature can be used to set/change all of the unit's settings except FO2 and FHe which must be entered using the unit's control buttons and menu system.

Information* available for retrieval (Download) from the TX1 He to the PC HCI program includes items such as dive number, surface interval time, max depth, elapsed dive time, start date and time, lowest temperature underwater, sampling rate, dive profile, Set Points, start/end pressure, Gas Time Remaining, O2 data, ascent rate, TLBG, and Switching events.

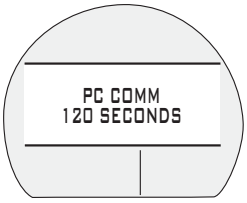
The TX1 He checks for the presence of an interface device connection to the Data Port once every second while in Surface Mode. Checks are not made if the Wet Activation contacts are wet.

Upon sensing an interface connection, the requesting device (PC) connects to the TX1 He and is prepared for Upload of settings or Download of data which is then initiated using the PC HCI program.

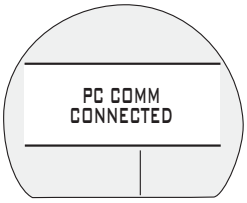
Prior to attempting to Download data from your TX1 He or Upload settings to it, review the Help section of the HCI program. Recommended is to print those sections of Help that you consider appropriate for your interface activities.

The TX1 He checks for a connection to the Data Port once every second while the Surface Main is displayed. Checks are not made if the Wet Activation contacts are wet.

When the PC Interface cable is plugged in, the graphic PC COMM is displayed with a 2 minute countdown timer that runs until the connection is confirmed, then the graphics PC COMM CONNECTED are displayed until completion of the upload or download operation.



PCI CABLE
(connected)



PCI CONNECTION
(confirmed)

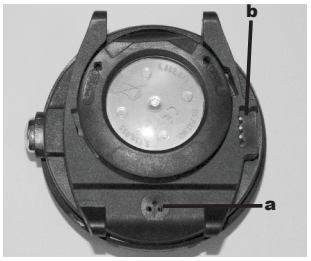
PC REQUIREMENTS:

- IBM®, or compatible, PC with USB Port
- Intel® Pentium 200 MHz or better microprocessor
- Microsoft® Windows® 2000, XP, Vista, or 7
- Super VGA card or compatible video graphics adaptor (256 color or greater) with a minimum 800 X 600 pixel screen area of display settings
- 16MB of available RAM
- 20MB of available hard drive storage
- Mouse
- CD ROM drive
- Printer

For software updates, refer to the Hollis web site at ->> www.HollisGEAR.com
For support, call Hollis Support toll free at ->> (510)729-5110, 8 AM TO 5 PM USA Pacific time.

CARE AND CLEANING

Protect your unit from shock, excessive temperatures, exposure to chemicals, and tampering. Protect the lens against scratches with a Instrument Lens Protector. Small scratches will naturally disappear underwater.



TX1 He
(a - depth sensor, b - data port)

• Soak and rinse the TX1 He in fresh water at the end of each day of diving, and check to ensure that the areas around the low pressure (depth) sensor, PC interface data port, and buttons are free of debris or obstructions. Soak and rinse the regulator with the transmitter attached.
• To dissolve salt crystals, use lukewarm water or a slightly acidic bath (50% white vinegar/50% fresh water). After removal from the bath, place the TX1 He and the regulator assembly with transmitter under gently running water and towel dry before storing.
• Transport your TX1 He system cool, dry, and protected.

INSPECTIONS AND SERVICE

Your TX1 He should be inspected annually by an Authorized Hollis Dealer who will perform a factory prescribed function check and inspection for damage or wear. To keep the 2 year limited warranty in effect, this inspection must be completed one year after purchase (+/- 30 days).

Hollis recommends that you continue to have an inspection performed every year to ensure it is working properly.

> *The costs of annual inspections, or inspections relating to water tight integrity, are not covered under the terms of the 2 year limited warranty.*

To Obtain Service:
Take your TX1 He to your local Authorized Hollis Dealer.

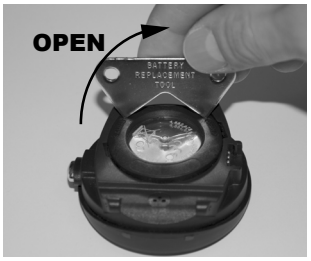
If required to return your TX1 He to the Hollis USA factory:
• Obtain an RA (Return Authorization) number by contacting Hollis USA at (510)729-5110 or send an e-mail to service@HollisGear.com.
• Record all dive data in the Log and/or download the data stored in memory. All data will be erased during factory service.
• Package it using a protective cushioning material.
• Include a legible note stating the specific reason for return, your name, address, daytime phone number, serial number(s), and a copy of your original sales receipt and Warranty Registration.
• Send freight prepaid and insured using a traceable method.
• Non-warranty service must be prepaid. COD is not accepted.
• Additional information is available on the Hollis web site HollisGear.com or on the local Hollis web site that serves your global region.

Doc. 12-4101-r06 (1/21/14)

BATTERY REPLACEMENT

The procedures that follow must be closely adhered to avoid entrance of water into the unit. Damage due to improper Battery replacement (or subsequent leakage of moisture into the unit) is not covered by the TX1 He's 2 year warranty.

When replacing the Battery in the TX1 He, it is recommended that you also consider replacing the Battery(s) in the Transmitter(s) to be used, and vice-versa.



TX1 He
(cover removal)

The Battery Compartment should only be opened in a dry and clean environment with extreme care taken to prevent the entrance of moisture or dust.

As an additional precautionary measure to prevent formation of moisture in the Battery Compartment, it is recommended that the Battery be changed in an environment equivalent to the local outdoor temperature and humidity (e.g., do not change the Battery in an air conditioned environment then take it outside during a hot sunny day).

Inspect the Buttons, Lens, and Housing to ensure they are not cracked or damaged. If there is any sign of moisture inside the unit, DO NOT attempt to use it for diving until it receives proper service by the Hollis factory or an Authorized Regional Facility.

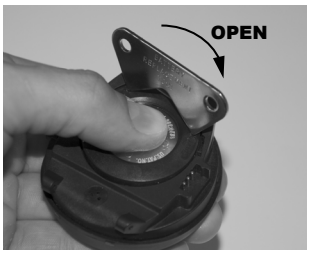
Data Retention

When the battery is removed, settings* and calculations for repetitive dives are retained in volatile memory until a new battery is installed. You will have the choice of saving or deleting the data (see page 70).

Date will have to be set, Time may require adjustment for the time duration that the battery remains out of the unit.

Battery Cover Removal

• Locate the Battery Compartment on the back of the module.
• While applying steady inward pressure on the clear Battery Cover, rotate the Cover Ring clockwise 10 degrees (using a battery replacement tool).



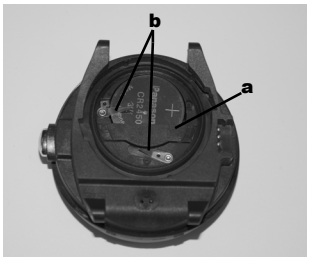
TX1 He RELEASE COVER RING

• Lift the Cover Ring up and away from the Housing.
• Remove the clear Battery Cover.

Battery Removal

• Remove the Retaining Bar located across the lower portion of the Battery.
• Remove the Cover O-ring. DO NOT use tools.
• Using care not to damage the Battery Contacts, slide the Battery up and out of the right side of the Battery Compartment.

DO NOT allow a metal object to short circuit the top of the Battery which is positive (+) to the negative (-) contact of the Compartment.



TX1 He
(a - retaining bar, b - contacts)

Inspection

• Closely check all of the sealing surfaces for any signs of damage that might impair proper sealing.
• Inspect the Buttons, Lens, and Housing to ensure they are not cracked or damaged.
• Remove the Battery Cover O-ring and inspect it for any signs of deterioration or deformity. DO NOT use tools to remove the O-ring.
• To ensure proper sealing, O-ring replacement is highly recommended each time the Battery is replaced.
• Closely examine the Battery Cover and Housing for any signs of damage that might prevent proper threading.
• Closely examine the inside of the Battery Compartment for any signs of corrosion indicating entrance of moisture into the unit.

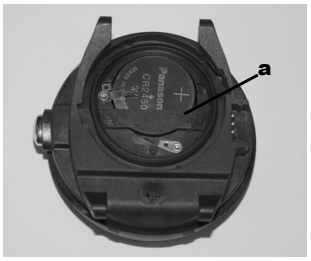
! WARNING: If damage, moisture, or corrosion is found, return your unit to an Authorized Hollis Dealer, and DO NOT attempt to use it until it has received factory prescribed service.

TX1 He Battery Installation

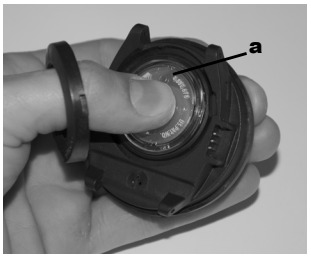
• Slide a new 3 volt CR2450 Lithium Battery, negative (-) side down into the cavity of the battery compartment. Slide it in from the right side and ensure that it slides under the contact clip on the left rim of the cavity.
• Orient the Retaining Bar across the lower portion of the Battery and carefully push it down into position.
• Replace the Cover O-ring with a new one which must be a genuine Hollis part that can be purchased from an Authorized Hollis Dealer.

Use of any other O-ring will void the warranty.

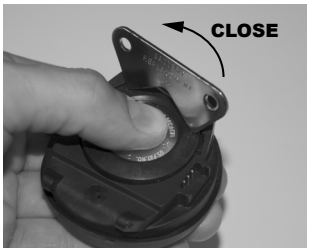
• Lightly lubricate the new Cover O-ring with silicone grease and place it on the inner rim of the Battery Cover, and ensure that it is evenly seated.
• Slide the Cover Ring, top portion first (small opening), onto your thumb.
• Carefully place the Cover (with O-ring) into position on the rim of the Battery Compartment, then press it completely and evenly down into place with your same thumb.
• Maintain the Cover securely in place and, using your other hand, slide the Cover Ring off your thumb and into position around the Battery Compartment. The tabs on the Ring fit down into the slots located at the 2 and 9 o'clock positions.
• Using your fingers, turn the Ring counter clockwise 5 degrees until the tabs engage, then tighten it 5 more degrees by turning it counter clockwise with the aide of a battery removal tool.



TX1 He BATTERY & HOUSING
(installed, a - retaining bar)



TX1 He COVER & RING
(a - battery cover)

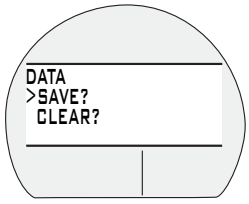


TX1 He TIGHTEN COVER
RING

Testing

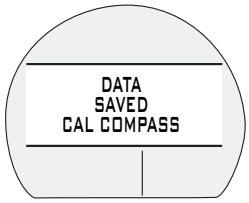
> Ensure that the LCD is clear and sharp in contrast. If any portions are missing or appear dim, or if a Low Battery condition is indicated, return the TX1 He with Transmitter to an Authorized Hollis Dealer for evaluation before use.

> During 24 hours after completion of a dive, the graphic DATA with selections SAVE and CLEAR will be displayed giving you the option to retain or delete settings and Ni-O2 calculations for repetitive dives.



SELECT ITEM

• Press the A button to toggle between SAVE and CLEAR.
• Press the S button to save the selection.



DATA SAVED

> Graphics DATA SAVED (or CLEARED) with CAL COMPASS appear for 3 seconds, then operation reverts to the
Compass CAL screen.

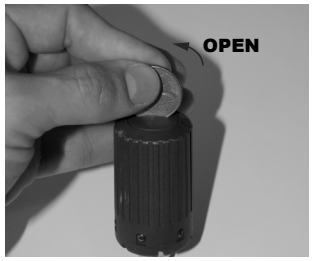
> Calibrate the Compass. Refer to page 63.

> Verify all Set Points prior to diving.

• Pressurize the Regulator assembly (with Transmitter).
• Verify that the Link icon is displayed.
• Check the TMT Status screens. Refer to page 23.

TRANSMITTER BATTERY REMOVAL

Locate the Battery Cover on the end of the housing:
• Apply a coin to the recessed slot of the Cover and turn it counter clockwise out of the housing.
• Remove the Battery and discard it according to local regulations governing disposal of Lithium batteries.



TMT COVER REMOVAL

TRANSMITTER BATTERY INSTALLATION

• Lightly lubricate the new Battery Cover O-ring with silicone grease and install it onto the Battery Cover. DO NOT roll the O-ring over the Threads, instead stretch it slightly to work it down over the slotted end of the Cover into the groove at the base of the threads.
• The O-ring must be a genuine Hollis part that can be purchased from an Authorized Hollis Dealer.

Use of any other O-ring will void the warranty.


INSTALLING COVER O-RING

• Place a new 3 volt CR2 Lithium Battery (Duracell model DL-CR2 or equivalent) positive (+) side down into the Battery compartment with the negative end facing up/out.
• Ensure that the Battery is properly oriented and the Cover O-ring is evenly seated around the Cover.
• Carefully place the Cover (with Spring) into the housing and turn clockwise slowly by hand to ensure proper threading.
• Apply a coin and tighten until secure. The outer surface of the Battery Cover should be flush with the outer surface of the housing.

BATTERY ORIENTATION

INSTALLING A TRANSMITTER ON A REGULATOR

• Remove the existing pressure gauge and high pressure hose, or the high pressure port plug from the port marked HP using the proper size hex key.
• Lightly lubricate the O-ring and threads of the Transmitter fitting with a halocarbon based lubricant such as Tribolube® 71 or Christo-Lube® MCG111.
• Thread the Transmitter clockwise by hand into the regulator's HP port and tighten until secure with an appropriate sized open end wrench.
• Attach the regulator First Stage to a full scuba tank and pressurize by slowly opening the tank valve, listening for any indication of air leaking around the fitting.
• If air leakage is present, DO NOT use, take the complete regulator assembly to an Authorized Hollis Dealer for inspection and service.

TRANSMITTER COMPATIBILITY WITH NITROX

When packaged and shipped from the factory, Hollis Transmitters are rated for use with compressed Air, Nitrox, and Trimix breathing gas mixtures containing up to 99% O2 by volume and with 100% O2.

ALTITUDE SENSING AND ADJUSTMENT

Prior to the first dive of a series of repetitive dives, Altitude (i.e., ambient pressure) is measured upon activation then every 15 minutes until a dive is made.

> Measurements are only taken when the unit is dry.
> Two readings are taken, the second reading 5 seconds after the first. The readings must be within 1 foot (30 cm) of each other to record that ambient pressure as the current Altitude.
> No adjustments are made during any time that the Wet Contacts are bridged.

When diving in high altitude waters from 3,001 to 14,000 feet (916 to 4,270 meters), the TX1 He automatically adjusts to these conditions providing corrected Depth, and reduced No Deco and O2 Times at intervals of 1,000 feet (305 meters).

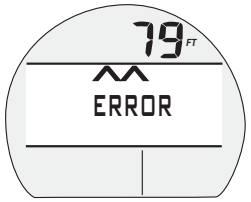
At an elevation of 3,001 feet (916 meters), Depth calibration automatically changes from feet of seawater to feet of fresh water. This is the first adjustment to the algorithm.

The TX1 He will not function above 14,000 feet (4,270 meters).

RESET DURING A DIVE

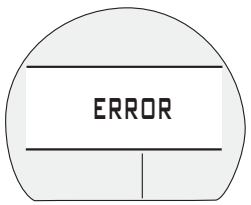
The intent of the feature is to assist the diver by providing indication of Depth during the ascent and encourage return of the affected unit to the factory for evaluation prior to further use.

If the TX1 He Resets (i.e.; is On, turns Off, then turns On again) for any reason during any dive, inert gas, O2, and GTR calculations are terminated (upon turning Off). Upon turning On, the graphic ERROR and the UP Arrow icons appear solid, and Current
Depth is displayed. No other information is displayed. The Backlight remains operational.



ERROR
(during dive)

Upon surfacing, the graphic ERROR is displayed solid for 5 seconds, then the unit will shut off with operation blocked permanently, even if the battery is replaced and attempts are made to reactivate the unit.



ERROR
(after surfacing)

! WARNING: In the unlikely event that this should ever happen, DO NOT continue diving with the unit, return it to the factory as soon as possible.

WRIST STRAP

The TX1 He allows for two different style wrist straps the optional shock cord version (P/N 204.2365) and the standard elastic band version. The shock cord version is excellent if you will routinely mount the TX1 He in the same position and use the same thermal protection. In this scenario the shock cord version will only need to be adjusted once. If you find that you are changing configurations, environments, and switching from drysuits to wetsuits routinely, you may find the elastic band version more convenient.

SHOCK CORD
WRIST STRAP

ELASTIC BAND
WRIST STRAP

Strap Removal

There are two retaining screws holding the wrist strap to the TX1 He.

• Using two small blade style screwdrivers, turn the opposing screw heads counter clockwise to remove. It may be necessary to use a fine needle or pick to pull the screws from the TX1 module boot if they do not drop out. Be careful to not scratch or damage any parts in doing so.

• Repeat the above step for the other retaining screw.

• With the retaining screws removed, the strap should lift away from the computer body.

Strap Replacement

Installing the shock cord or elastic band versions is essentially the same.

• Align and hold the strap end or plastic base in place on the computer body as shown.

• While holding the strap end or plastic base in place, slide the long screw post through the body and strap end or plastic base.

• On the opposing side thread and tighten the retaining screw clockwise into the screw post with a small flat blade screwdriver*. **DO NOT** overtighten. It will be necessary to hold one end stationary with a small flat blade screwdriver when doing this.

The threads of the screws must be clean, and a drop of medium strength liquid thread lock should be applied to the retaining screw before installation.

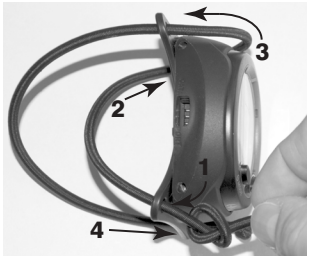
REMOVING RETAINING
SCREW

• Repeat the above steps for the other strap end and retaining screw.

REPLACING SCREW
(shock cord version)

REPLACING SCREW
(elastic band version)

Adjusting the Shock Cord Version (P/N 204.2365)
The shock cord should be fitted in position over any gloves, wetsuit, or drysuit. Keep in mind neoprene compresses with depth, and compensate the tension accordingly.
• Knot one end of the shock cord.
• Thread the other end of the shock cord through the eyelets, as shown in sequence (arrow 1 - 4).
• Pull the loose end until the proper tension is reached.
• Then tie a new knot to hold the tension.
• Cut the excess shock cord*. Then burn the freshly cut end of the shock cord with a match or lighter to avoid future fraying.



ADJUSTING THE SHOCK CORD

You may want to try the new shock cord length on an actual dive before cutting the shock cord. Once the shock cord is cut too short, it will need to be replaced to lengthen once again.

TECHNICAL DATA

Doc. 12-4101-r06 (1/21/14)

SPECIFICATIONS

CAN BE USED AS
• Dive Computer (Air, Nitrox, or Trimix) with up to 6 Gases, 6 Transmitters, and gas mixes containing up to 100% O2.
• Digital Depth Gauge/Timer with up to 6 Transmitters.
• Compass.

DIVE COMPUTER PERFORMANCE
• Bühlmann ZHL-16c w/Gradient Factors, algorithm.
• Decompression in agreement with Bühlmann ZHL-16c.
• No Deco Deep Stops >> Morroni, Bennett.
• Deco Deep Stops >> Blatteau, Gerth, Gutvik.
• Altitude >> Bühlmann, IANTD, RDP (Cross).
• Altitude corrections and O2 limits based on NOAA tables.

TRANSMITTERS (TMTs)
• Battery and Pressure check
> every 2 seconds when awake
• Startup
> Pressure ≥ 120 PSI (8 BAR)
> Battery ≥ 2.75 volts
• Shutdown
> Pressure < 50 PSI (3.5 BAR)

TMT Compatibility with Nitrox
• When packaged and shipped from the factory, Hollis Transmitters are rated for use with compressed Air and Nitrox mixtures containing up to 99% O2 by volume and with 100% O2.

OPERATIONAL PERFORMANCE

Function:	Accuracy:
• Depth	±1% of full scale
• Timers	1 second per day

Dive Mode Activation:
• Must first be activated by button press, if Wet Activation is set OFF.
• Automatic by immersion in water, if Wet Activation is set ON.
• Cannot be manually activated deeper than 4 FT (1.2 M), if Wet Activation is set OFF.
• Cannot operate as a DC at elevations higher than 14,000 feet (4,270 meters).

Unit Shutoff:
• 2 hours after activation, if no dive conducted.
• 24 hours after conducting a dive, if no further dives conducted.

Dive Counter:
• NORM/GAUGE displays Dives #1 to 24 (0 if no dive made yet).
• Resets to Dive #1, upon diving (after 24 hours with no dives).

Dive Log Mode:
• Stores 24 most recent NORM/GAUGE dives in memory for viewing.
• After 24 dives, adds 25th dive in memory and deletes the older dive.

Altitude:
• Operational from sea level to 14,000 feet (4,270 meters) elevation.
• Measures ambient pressure upon activation and every 15 minutes while in Surface modes.
• Does not measure ambient pressure when Wet.
• Compensates for Altitudes above sea level beginning at 3,001 feet (916 meters) elevation and every 1,000 feet (305 meters) higher.

Power:
• Battery (1) 3 vdc, CR2450, Lithium battery (Panasonic or equivalent)
• Transmitter Battery (1) 3 vdc, CR2, .75 Ahr, Lithium battery (Duracell model DL-CR2 or equivalent)
• Shelf life Up to 5 years
• Replacement User replaceable (annual recommended)
• Use Life 1 year or 300 dive hours if (2) 1 hour dives per dive day
• Use Life (Transmitter) 300 dive hours if (2) 1 hour dives per dive day

Battery Indicator:
• Warning >> icon on solid when ≤ 2.75 volts, Battery change recommended.
• Alarm >> icon on flashing when ≤ 2.50 volts, change the Battery, will not function.

Operating Temperature:
• Out of the water >> between 20 °F and 140 °F (-6 and 60 °C).
• In the water >> between 28 °F and 95 °F (-2 and 35 °C).

SPECIFICATIONS (CONTINUED)

BAR GRAPHS:

TLBG	segments
• No Deco Normal zone	1 to 3
• No Deco Caution zone	4
• Decompression zone	5 (all)

VARI	60 FT (18 M) & Shallower			Deeper than 60 FT (18 M)		
	segments	FPM	MPM	segments	FPM	MPM
	0	0 - 10	0 - 3	0	0 - 20	0 - 6
• Normal zone	1	11 - 15	3.5 - 4.5	1	21 - 30	6.5 - 9
Normal zone	2	16 - 20	5 - 6	2	31 - 40	9.5 - 12
Normal zone	3	21 - 25	6.5 - 7.5	3	41 - 50	12.5 - 15
• Caution zone	4	26 - 30	8 - 9	4	51 - 60	15.5 - 18
• Too Fast zone (flashing)	5 (all)	> 30	> 9 5	(all)	> 60	> 18

NUMERIC DISPLAYS:	Range:	Resolution:
• Time of Day	0:00 to 23:59 hr:min	1 minute
• PCI Countdown Timer	1:59 to 0:00 min:sec	1 second
• Altitude Level	Sea, EL-2 to EL-7	1 (level)
• Time to Fly	23:50 to 0:00 hr:min	1 minute
• Time to Desaturate	23:50 to 0:00 hr:min	1 minute
• Temperature	0 to 99°F (-18 to 60°C)	1°F (C)
• Depth (display)	0 to 400 FT (120 M)	1 FT (0.1/1 M)
• Max Op Depth (NORM)	400 FT (120 M)	
• Max Op Depth (GAUGE)	400 FT (120 M)	
• Tank Pressure	0 to 5000 PSI (345 BAR)	5 PSI (1 BAR)
• NORM/GAUG SI Time	0:00 to 23:59 hr:min	1 minute
• NORM/GAUG Dive Number	0 to 24	1 (dive)
• NORM/GAUG EDT	0 to 999 min	1 minute
• NORM DTR	0 to 999 min	1 minute
• NORM/GAUG GTR	0 to 199 min	1 minute
• FO2 (1, 2, 3, 4, 5, 6) Set Points	Air, 21 to 100 %	1 %
• FHe (1, 2, 3, 4, 5, 6) Set Points	0 to 93%	1 %
• PO2 Value	0.00 to 5.00 ATA	0.01 ATA
• O2 Saturation	0 to 100 %	1 %
• GF High	10 to 90	1
• GF Low	10 to 90	1
• No Deco Deep Stop Time	2:00 to 0:00 min:sec	1 second
• No Deco Safety Stop Time	5:00 to 0:00 min:sec	1 second
• Safety Stop Timer	0:00 to 9:59 min:sec	1 second
• GAUGE Dive Run Timer	0 to 999 min	1 minute
• Deco Stop Time	1 to 99 min	1 minute
• Total Ascent Time	1 to 199 min	1 minute
• Violation Countdown Timer	23:50 to 0:00 hr:min	1 minute
• Compass Heading	001 to 360°	001°
• Compass Op Time Remaining	15 to 1 sec	1 sec

! WARNING: If your TX1 He stops working for any reason while operating, it is important that you have anticipated this possibility and are prepared for it. This is an important reason for not pushing the tables, oxygen exposure limits, and a critical reason to avoid entering decompression, without proper training. If you dive in situations where your trip would be ruined or your safety would be jeopardized by losing the use of your TX1 He, a backup instrument system is highly recommended.

FCC COMPLIANCE:
This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1.) this equipment may not cause harmful interference, and 2.) this equipment must accept any interference received, including interference that may cause undesired operation.

FCC INTERFERENCE STATEMENT:
This equipment has been tested and found to comply with the limits for an Intentional Radiator, a Class B Digital Device, pursuant to Part 15 of FCC Rules, Title 47 of the Code of Federal Regulations. These rules are designed to provide reasonable protection against harmful interference in a commercial or residential installation. This equip-ment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

There is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be deter-mined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician.

! WARNING: Changes or modification to this unit not expressly approved by HOLLIS/2002 Design could void the user's authority to operate the equipment.

INSPECTION / SERVICE RECORD

TX1 HE SERIAL NUMBER: _____

TX1 HE FIRMWARE REV: _____

TRANSMITTER 1 SERIAL NUMBER: _____

TRANSMITTER 2 SERIAL NUMBER: _____

TRANSMITTER 3 SERIAL NUMBER: _____

TRANSMITTER 4 SERIAL NUMBER: _____

TRANSMITTER 5 SERIAL NUMBER: _____

TRANSMITTER 6 SERIAL NUMBER: _____

DATE OF PURCHASE: _____

PURCHASED FROM: _____

Below to be filled in by an Authorized Hollis Dealer:

Date	Service Performed	Dealer / Technician

HOLLIS USA
2002 Davis Street
San Leandro, CA 94577
Tel: (510) 729-5110
Fax: (510) 729-5115
Web: www.HollisGear.com
E-mail: info@HollisGear.com

International Offices
See (http://hollisgear.com/international.asp) for current contact info.