



IMPORTANT UPGRADE NOTICE:

Users of firmware V34 and lower must first load a Transition Version before loading V37.

Upgrade Instructions:

- 1) Download and install the latest Shearwater Desktop version. Available here: <http://www.shearwaterresearch.com/pages/library/>
- 2) Update the Predator to "Predator Transition Version.aes"
- 3) Update the Predator again to "Predator_V37.aes".

V37 Bug Fix Notice:

Predator firmware V37 corrects a bug that affects the PROCT-SA and Kiss GEM Predator models.

In V36, on the PROCT-SA (closed-circuit standalone) model, when the "OC Only" mode was turned off, the external PPO2 sensors were enabled. This is not correct since the SA (standalone model) has no external connector. Turning the unit off then on again corrected the problem.

On the Kiss GEM model, when "OC Only" was turned off, semi-closed circuit mode became inaccessible. This is incorrect because the GEM is a semi-closed circuit only model. . Turning the unit off then on again corrected the problem.

V37 corrects the above bugs. Users of PROT, PROCT-E and rebreather controller models that have already upgraded to V36 do not need to upgrade to V37.

New Features in V36:

Gas On/Off:

There are now 2 ways to turn gases on/off:

- 1) **Classic:** define gas as 00/00 to turn off.
- 2) **Gas On/Off:** each gas has on/off setting.

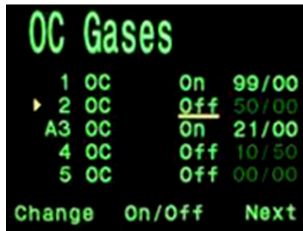
Gases that are turned off are not included in decompression calculations. Also, the Predator will not suggest a gas switch to an off gas.



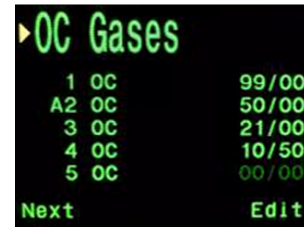
Enabling Gas On/Off mode



System Menu Gas Setup:



On/Off Mode: Each gas is set on or off.

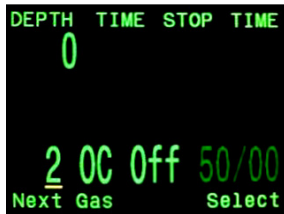


Classic: Gasses are off when undefined (00/00)

When Diving:



When Diving: Turn on/off in Dive Setup->Define Gas menu



Selecting gases: An Off gas CAN be selected. This will automatically turn it on.



20ft (6m) Last Stop:

The last stop depth can be set to 20ft (6m) or 10ft (3m) in the System Setup->Deco Setup menu.

Seconds Bar:

The dive time seconds are displayed above the minutes as a bar graph. Each of the 4 letters in 'TIME' is 15 seconds.

Ascent Rate Bar Graph:

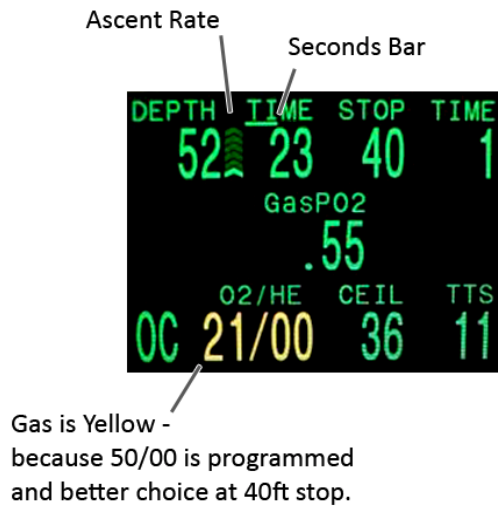
The ascent rate bar graph has moved to beside the depth. The look has also changed to up arrow indicators.

The ascent rate bars display the current ascent rate. Each bar represents 10 ft/min (3m/min).

Note: This is not telling you to ascend, it is telling you how fast you are ascending.

Gas Switch Suggestions in Yellow:

During decompression, if a more suitable gas than the currently selected one is available, the current gas will display in yellow (previously flashed red).



New Features on the Main Screen



“OC Only” Mode:

On models with closed or semi-closed circuit capabilities, there is now an “OC Only” option. Turning this on makes the Predator easier to operate when you will be diving OC only.

This feature is not available on controllers hard-wired to rebreathers.

Semi-Closed Dual PPO2/FiO2 display:

When in semi-closed mode, there is a new option to show both PPO2 and FiO2 simultaneously on the main screen.



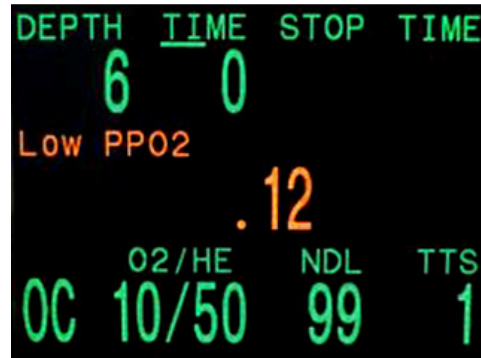
New Warnings:

For a few serious situations, warnings will now be displayed in red on the center line.

These warnings only need to be confirmed once. After that, they will come and go as they occur.

There are currently 3 warnings that appear here:

Low PPO2: PPO2 has been less than 0.16 for more than 10 seconds.

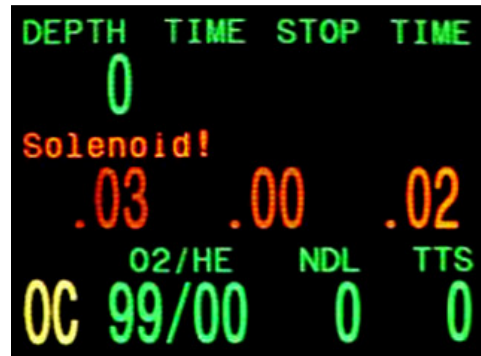


High PPO2: PPO2 has been higher than 1.65 for more than 10 seconds.



Solenoid!: The solenoid has failed to fire properly (on rebreather controllers only).

Also, note that for rebreather controllers, OC now displays in yellow.





Release Notes:

Version 37:

- Corrects a bug that affected the PROCT-SA and Kiss GEM models when turning off the “OC Only” mode.

Version 36:

- Nicer Fonts.
- Option to turn gases on/off.
- 20ft (6m) last stop option.
- When only 0.5ft (0.2m) below stop depth, do not flash red warning.
- Dive planner now uses maximum PPO2 of 1.4 to pick bottom gas in OC mode (was using the deco gas value of 1.6).
- When gas is off or cleared to 00/00, display dimmer to indicate off state.
- Use yellow font to indicate when more appropriate deco gas is setup but not currently selected (previously flashed red).
- Added seconds bar graph above dive time.
- Moved ascent rate graph to beside depth. Changed ascent rate graph to up arrows.
- New “OC Only” option on some models. Simplifies operation when diving OC only.
- Display “OC” in yellow, on models when CC or SC is available (if diving only OC, use the new “OC Only” option).
- In SC mode, new option to display both PPO2 and FiO2 on the main screen.
- Improved TTS deco calculations for SC mode when using multiple gases.
- The conservatism settings (GF Low and GF High) can now be edited in the Dive Setup menu. While diving, the GF High value can now be edited. This allows changing the surfacing conservatism during a dive. For example, if you worked much harder on the bottom segment than expected, you may wish to add conservatism by reducing the GF High setting.
- Increase ADC sampling time. Improves reading stability by a few tenths of a millivolt, especially for O2 sensor 3.



- Added permanent warning to center line of main screen for conditions that persist. For example, Low PPO2, High PPO2 and Solenoid problem. These warning clear automatically when condition goes away.
- When all sensors voted out, alternate centre line between PPO2 values and “VOTING FAILED” in yellow.
- For PROCTE, when in external PPO2 mode, remove high and low setpoint settings from menu.
- Use yellow for system menu arrows and underlining into increase visibility.
- In System Menu, show error conditions in yellow.
- Gas definition fails if duplicate gas.
- Gas sorting prefers gases with less helium if O2 is equal (that is, lower helium gas to be used at shallower depth).
- Fixed bug where clearing dive log would lead to blank spots in displayed dive logs when viewed in Desktop application.
- Changed the label “Cal PPO2” to “Cal FO2”. Since the Predator compensates for altitude or weather changes in atmospheric pressure automatically, the FO2 label is correct.
- After upgrade, show alternating “FAIL FAIL FAIL” and “NEEDS CAL.” on centre line.
- Fixed transition point between showing percentage and ‘on gas’ for GF99.
- Don’t show GF99 in place of NDL when on surface. Was too confusing, just show NDL.

Version 32:

- Added Dive Planner.
- Modifications to Buhlmann GF code to better match Erik Baker’s original implementation (when his program set to short Minimum_Deco_Stop_Time. i.e. to mimic “real-time” calculations). Biggest change is to profiles with minimal decompression obligations. Also, in some cases the deep stop may be shallower by a few stops versus previous Shearwater products, although total deco time roughly the same.
- Added @+5 display (based on Dan Wible’s CCR2000). This shows the TTS if diver was to remain at current depth for 5 minutes more. Can be set to replace NDL on main screen once deco is required.



- Added info screen to show all deco displays (GF99, CEIL, @+5/TTS).
- In Semi-closed mode, the external sensors can optionally display FiO2 instead of PPO2.
- Increased menu timeout when in Dive Planner and on surface to 3 minutes.
- Models heat transfer between water and battery compartment to account for insulation provided by case. Purpose is to reduce false low battery internal warnings caused by changes in water temperature.
- Adjusted levels of low battery internal warnings.
- Added averaging of internal battery reading.
- Fixed bug where menu time-out during gas editing resulted in improperly sorted gases.
- When writing error to info log, update error flags before writing log (or else error flags do not appear properly in log).
- Added “Searching...” animation while looking for next dive log to display.
- Info screens now time-out after 10 seconds (was 6 seconds). Also, can jump from any info screen back to main screen by pressing left button.
- Fixed bug where pressing confirm button during the very short time window between error being set and being displayed caused the wrong error to be acknowledged.
- When on surface, do not correct AvgPO2 or GasPO2 with CE_WATER_CORRECTION (Since there is no water to correct).

Version 30:

- Added Brightness setting with fixed values of Low, Med and High and an Auto-adjusting setting. All previous versions of the Predator firmware used the Auto setting.
- Added Altitude setting. When set to ‘Auto’, pressure changes due to altitude will be used for depth and decompression calculations. When set to ‘SeaLvl’, the surface pressure will always be assumed to be 1013mBar (1 atmosphere). **Important:** The default value is SeaLvl. If you will be diving at altitude, please ensure this value is set to Auto.
- Added button labels to make navigating menus and changing settings easier.
- Changed system menu to make changing settings easier.
- OC/CC Gases setup added to system menu. All gases can now be edited on one screen.



- Added dive plots to Dive Log viewer. Also added average depth to dive log.
- Added option to clear dive log.
- Added option to manually set dive number (useful when dive log cleared or to sync dive number with another computer).
- Added average depth to info screens.
- Added average depth in atmospheres to info screens.
- Added fraction inspired O₂ (FiO₂) to info screens.
- Reorganized info screens to show information most relevant to current diving situation.
- Added reset to defaults option.
- Changed internal battery level measurement to compensate for temperature. Was giving false low-battery warnings when in cold water.
- PROT model (OC only model) now shows the gas PPO2 on the center line of the display.
- In OC mode, changed warning level for high PPO2 (was warning at 1.6, now warns at 1.65).

NOTE: Before upgrading, please download all existing dive logs.

The dive log format has changed so there is a possibility of corrupting the existing dive logs on the Predator. If after upgrading to V30 you have troubling viewing the dive log, use the new 'Clear Log' function.

Version 29:

- Fixed external battery display for ISC users.

Version 28:

- Flash red PPO2 value when outside range 0.4 to 1.6.
- A voted-out PPO2 sensor will display as yellow (unless outside 0.4 to 1.6, then it will flash red).
- During calibration, display of O₂ Cell millivolts turns yellow when millivolts are outside of acceptable range (range varies with O₂% and altitude, but at 1 ATM and 98% O₂, the acceptable range is 30mV to 70mV).
- Fixed saving of Auto Setpoint Switch settings.



PREDATOR FIRMWARE V37 RELEASE NOTES

Revision: 1.0

Date: Apr. 29, 2011

- Changed so external (solenoid) battery is only updated when the solenoid is firing. This is done because the battery voltage can be erroneously high when solenoid is not on. If you see Ext. V = 0.0 after turning Predator on, this may be because the solenoid has not yet fired.
- Separated ascent rate graph into distinct bars for easier reading.