

2024, Part III: Un-boxing the iX3M 2 Deep

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... only paper!



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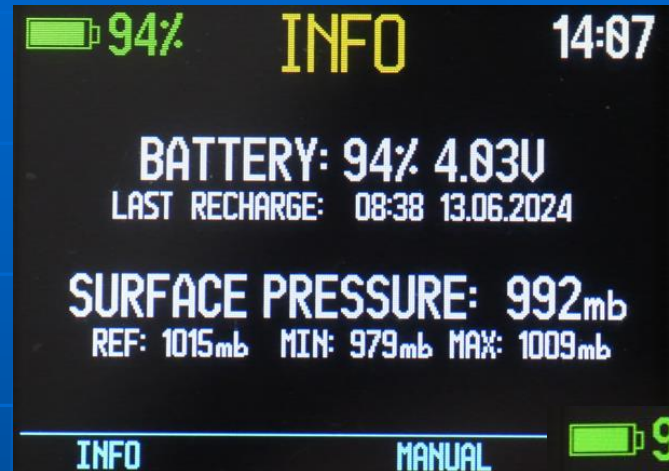


The new iX3M 2 Deep and the old iX3M →



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1st. Power On!
The „MANUAL“ does not lead to the manual,
instead to a generic support landing page:

<http://www.ratio-computers.com/support/>

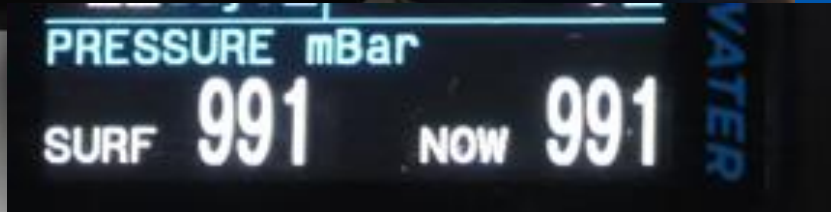
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ambient pressure: quite OK!

temperature: always wrong
(sensor still misplaced near
the CPU)



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**the compass:
there is different opinion on which one
should be the lodestar ...**

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OC PLANNER	
DEPTH: 6m	TIME: 45
NDL:	546
CNS:	41%
OTU:	87
MIX QTY:	1433L
RATIO Φ	

DEPTH: 7m	TIME: 45
NDL:	546
CNS:	63%
OTU:	93

DEPTH: 8m	TIME: 45
NDL:	546
CNS:	100%
OTU:	100


the NOAA / USN Ox-Tox implementation still questionable:
for EAN 99 (nearly 100 % O₂) it should give s.th. around
100 % of a CNS ox-tox dose after 45 min @ 6 m ... with EN 13 319;
the OTU values are OK!

[@ 7 m EAN 99: %CNS = 115 %, OTU = 93

@ 8 m EAN 99: %CNS = 130 %, OTU = 100; calculated with DIVE 3_11]

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OC PLANNER	
DEPTH: 6m	TIME: 45
NDL: 546	
CNS: 41%	
OTU: 87	
MIX QTY: 1433L	
RATIO 	

DEPTH: 7m	TIME: 45
NDL: 546	
CNS: 63%	
OTU: 93	

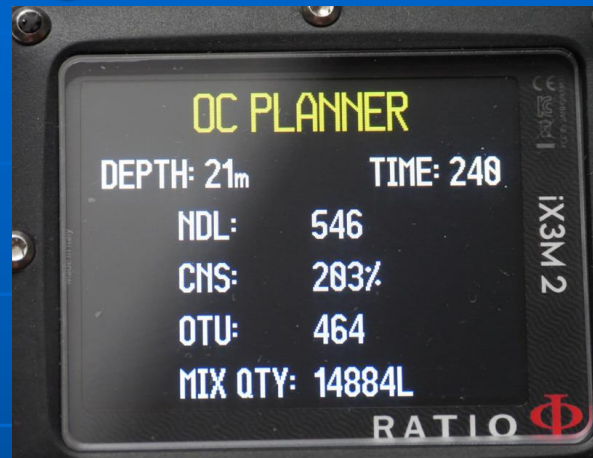
DEPTH: 8m	TIME: 45
NDL: 546	
CNS: 100%	
OTU: 100	

	FRESH			EN13319			SALT	
	CNS	OTU		CNS	OTU		CNS	OTU
depth								
6 m	41	87		42	87		43	87
7 m	63	93		-	-		70	93
8 m	100	100		-	-		100	100

the EAN 99 dives to 6, 7 & 8 m for 45 min
with water density („WATER“) set to:
FRESH / EN13319 / SALT

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the NOAA / USN Ox-Tox implementation still questionable:
for EAN 50 it should give s.th. around
290 % of a CNS ox-tox dose and OTU: 450
the NDL is, according to the EAN50 table from A. A. Bühlmann,
ca. 270 min:
the displayed NDL of 546 seems to be an artefact, as it appears also
in other simulations ...

{so these new ox-tox doses / risk indicators like the
K-values from Ran Arieli et al. and the ESOT (NDTT)
should be implemented very quickly into the next firmware!!!}

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the „546“ artefact:
simulation with EAN 32:

MIX TABLE	
1:32/00	ON
2:21/58	OFF
3:99/00	OFF

the „546“ appears constantly as „NDL“ from
depth: 3 → 15 m &
bottom time: 1 → 57 min;
it only changes @ 58 min, then a „NDL“ of 178 min appears;
Where the displayed „NDL“ is not, but
for us regular folks rather the „RBT“,
the remaining bottom time. Here is:
„TIME“ + „NDL“ = NDL; i.e. for
EAN32 @ 15 m, NDL = 237 min

OC PLANNER	
DEPTH: 15m	TIME: 45
NDL:	546
CNS:	9%
OTU:	29
MIX QTY:	2245L

DEPTH: 15m	TIME: 50
NDL:	546
CNS:	10%
OTU:	32

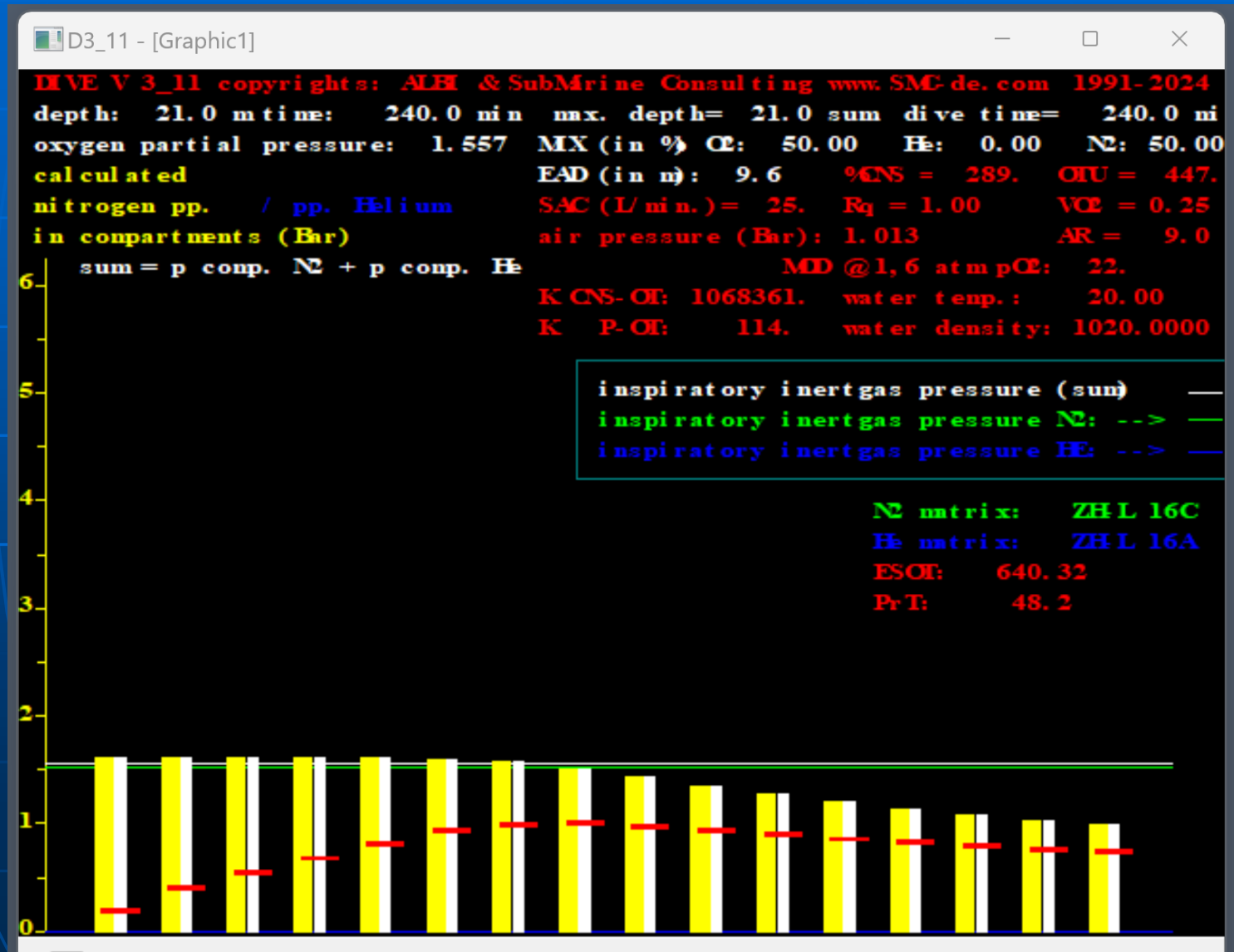
DEPTH: 15m	TIME: 60
NDL:	177
CNS:	12%
OTU:	38

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the real NDL
is, according
to the
EAN50 table
from
Bühlmann,
ca. 270 min;

calculated
with
DIVE 3_11,
parameters:
 $fO_2 = .5$
EN 13 319;
Bühlmann
Safety Factor;
ZH-L 16 C
 $R_q = 1.00$



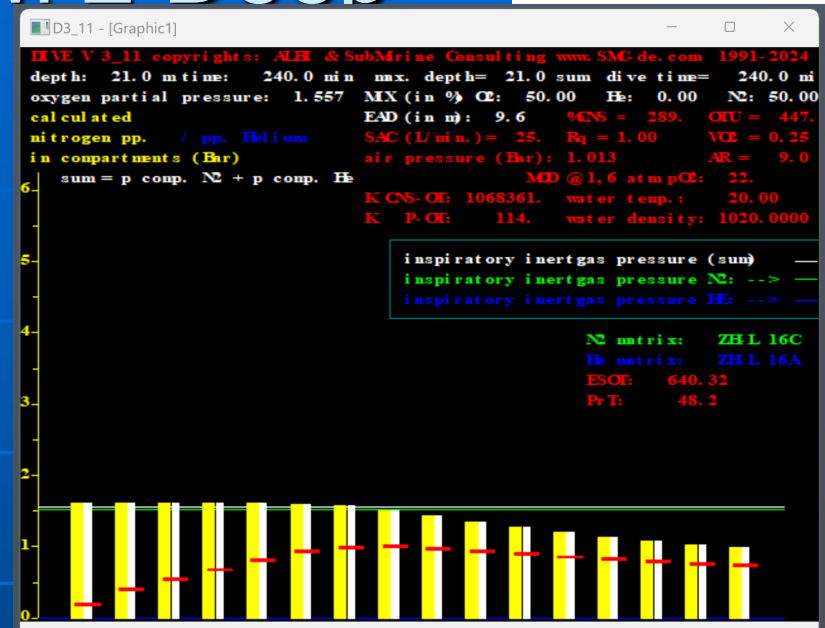
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Un-boxing the iX3M 2 Deep

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NDL for the dive on EAN50;
bottom depth: 21 m,
bottom time: 240 min

calculated
with DIVE 3 11,
parameters: $fO_2 = .5$ (EAN50);
water density according to EN 13 319;
Bühlmann Safety Factor; respiratory quotient $R_q = 1.00$



coefficient set	NDL [min]
ZH-L 16 C	272
ZH-L ₁₂	346
ZH-L 16 B	376

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**PC connection via USB works, Toolbox as well;
so let's wait for the next firmware update ...**

**(during the lifetime of my old iX3M [serial #: 937] from 2016 to 2023
there have been 24 (sic!) twenty-four from 3.3.0 to 4.0.85.15)
[and minimum 6 versions of the dive-logger / toolbox ...]**

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more tests & benchmarks
@ RESEARCHGATE:

On the reliability of dive computer
generated run-times; Part XIII

[https://dx.doi.org/10.13140/RG.2.2.13820.
96647](https://dx.doi.org/10.13140/RG.2.2.13820.96647)