

Luminescence DO (LDO) Daily Check

Although many manufacturers of LDO probes indicate that the probes require calibration only every 6 months or so, NC WW/GW LC requires that an LDO probe must be calibrated or have the calibration verified each day of use. Below is a procedure for verifying the calibration of an LDO probe.

- 1) Place probe in a plastic bag with a wet sponge or a BOD bottle partially filled with water
- 2) Make sure the bag is effectively sealed (zip, rubber band, or twist tie)
- 3) Allow appropriate instrument warm up time
- 4) Read D.O. and temperature
- 5) Check the reading vs. the Solubility Table below and apply appropriate atmospheric (barometric) pressure or altitude correction factor
- 6) Calculated D.O. value must verify meter reading within ± 0.5 mg/L (do NOT calculate and apply a correction factor to calculated D.O.).

Temp. °C	D.O. mg/L	Temp. °C	D.O. mg/L
4	13.11	19.5	9.18
4.5	12.94	20	9.09
5	12.77	20.5	9.00
5.5	12.61	21	8.92
6	12.45	21.5	8.83
6.5	12.30	22	8.74
7	12.14	22.5	8.66
7.5	11.99	23	8.58
8	11.84	23.5	8.50
8.5	11.70	24	8.42
9	11.56	24.5	8.34
9.5	11.42	25	8.26
10	11.29	25.5	8.18
10.5	11.16	26	8.11
11	11.03	26.5	8.04
11.5	10.90	27	7.97
12	10.78	27.5	7.90
12.5	10.66	28	7.83
13	10.54	28.5	7.76
13.5	10.42	29	7.69
14	10.31	29.5	7.62
14.5	10.20	30	7.56
15	10.08	30.5	7.50
15.5	9.98	31	7.43
16	9.87	31.5	7.37
16.5	9.77	32	7.31
17	9.67	32.5	7.24
17.5	9.57	33	7.18
18	9.47	33.5	7.12
18.5	9.38	34	7.07
19	9.28	34.5	7.01

Atmospheric Pressure mm Hg	Equivalent Altitude Ft.	Correction Factor
760	0	1.00
752	278	.99
745	558	.98
737	841	.97
730	1126	.96
722	1413	.95
714	1703	.94
707	1995	.93
699	2290	.92
692	2587	.91
684	2887	.90
676	3190	.89
669	3496	.88
661	3804	.87
654	4115	.86
646	4430	.85
638	4747	.84
631	5067	.83
623	5391	.82
616	5717	.81
608	6047	.80
600	6381	.79
593	6717	.78

Ref: YSI Model 5000/5100 DO Meter Manual. Slight variations in DO, pressure, and/or altitude may be found in other manuals.

Example: If ambient temperature is 21°C and elevation is approximately 1126 ft, the theoretical DO would be:

$$8.92 \times 0.96 = 8.56 \text{ mg/L}$$

or, If ambient temperature is 21°C and the atmospheric (barometric) pressure is 745 mm Hg, the theoretical DO would be:

$$8.92 \times 0.98 = 8.74 \text{ mg/L}$$