# Dissolved Oxygen Indicator

## Instruction Manual


**TECHNICAL SPECIFICATIONS**

READ OUT : 3 .5 digit LED
INDICATION : Direct Dissolved Oxygen in PPM
RANGE : 0 to 20 PPM
RESOLUTION : 0.1 PPM
ANALOG O/P : Isolated 4 – 20mA.
ACCURACY : ± 0.2 PPM ± 1 digit
Temp.Comp : 10 °C to 50 °C (ATC).

**SENSOR:**
DO : Amperometric Gold/Silver membrane type.
Temperature : PT- 100
Mains Supply : 230v ± 10%, 50Hz AC

**FRONT PANEL:**
1). SPAN : With the help of this knob, the DO value is calibrated.
2). Zero : The Zero display is being adjusted with this knob.
3).On/Off : To ON & OFF the instrument

**MEASUREMENT OF DO**
ASSEMBLY OF DO PROBE:

Dissolved Oxygen probe mainly consists of Silver and Gold Electrode, an electrolyte tube with the ring. The following procedure should be Followed for assembly of DO probe.

1).The membrane has to be handled carefully, fix up the membrane on the lower Part of the electrolyte tube.
2).Fix up the ring on the electrolyte tube.
3).Fill Potassium Chloride (KCl) solution (7.5%) in the electrolyte tube to its top.
4).Insert the electrodes in the electrolyte tube and tightly screw it up.
Now the probe is ready for use.

**NOTE:**
1). The electrolyte tube should not contain any air bubbles which if present will cause fluctuations in the reading.
2). 7.5% POTTASIUM CHLORIDE solution acts as a good electrolyte
In DO probe, presence of any other salt in electrolyte may damage the probe.

**OPERATION:-**
1). Place the DO probe in 2% solution of SODIUM SULPHITE. Allow the display to attain equilibrium. If the meter does not read zero, operate the "Zero Knob" to bring the display to zero.
2). Now place the DO probe in the saturated water & with the help of span pot set the values as given below in the table

**MAINTENANCE OF DO PROBE :**

1. Do not touch the silver strip.

2. The membrane must not have any pin holes, punctures. The DO reading will be erratic at constant DO concentrations and temp. if the membrane has a puncture.

3. Any accumulation of organic matter on the membrane will effect the calibratio n. It is advisable to clean the membrance with a soft tissue paper after use.

4. Any new membrane should be activated as below :
   a) Clean the silver strip thoroughly in the tap water and then in distilled water. Assemble it and connect it to the DO socket keeping colour code in to account
   b) Bring the instrument in DO mode and keep the electrode first in tap water and then in hot water say at 50 degree C for few minutes alternatively to condition the membrane.
   c) Leave the electrode in the respective beakers for 2 minutes and cycle 3 times the above procedures.

5. As long as the electrode gives zero reading in sodium sulphite solution it is ready for use. When the membrane is charged for the first time then water will give high read ing but will gradually settle to equilibrium.

6. After sufficient use the silver may get blackened due to the formation of silver chloride and silver oxide which may further decrease the response time. This can be removed by rubbing with zero no. sand paper.

7. When not is use dissemble the probe. Clean and dry every part and store it in a dry place.

8. Use BOD bottle for better results.

9. It is recommended that the D.O probe should be washed weekly to avoid membrane damage due to KCL if it is not in use.

**TABLE I**

**SATURTION VALUES FOR FIELD TEST**

| TEMP(°C) | DO (ppm) | TEMP(°C) | DO (ppm) |
|---|---|---|---|
| 00. | 14.6 | 26. | 08.2 |
| 01. | 14.2 | 27. | 08.1 |
| 02. | 13.8 | 28. | 07.9 |
| 03. | 13.5 | 29. | 07.8 |
| 04. | 13.1 | 30. | 07.6 |
| 05. | 12.8 | 31. | 07.5 |
| 06. | 12.5 | 32. | 07.4 |
| 07. | 11.2 | 33. | 07.3 |
| 08. | 11.9 | 34. | 07.2 |
| 09. | 11.6 | 35. | 07.1 |
| 10. | 11.3 | 36. | 07.0 |
| 11. | 11.1 | 37. | 06.9 |
| 12. | 10.8 | 38. | 06.8 |
| 13. | 10.6 | 39. | 06.7 |
| 14. | 10.4 | 40. | 06.6 |
| 15. | 10.2 | 41. | 06.5 |
| 16. | 10.0 | 42. | 06.4 |
| 17. | 09.7 | 43. | 06.3 |
| 18. | 09.5 | 44. | 06.2 |
| 19. | 09.4 | 45. | 06.1 |
| 20. | 09.2 | 46. | 06.0 |
| 21. | 09.0 | 47. | 05.9 |
| 22. | 08.8 | 48. | 05.8 |
| 23. | 08.7 | 49. | 05.7 |
| 24. | 08.5 | 50. | 05.6 |
| 25. | 08.4 | | |

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AT NORMAL PRESSURE