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| **Sensors** | **Significance** | **Range** |
| LM35 Temparature sensor | Measures thermal energy by the movement of the molecules with kinetic energy. | It should not exceed 25° C |
| pH sensor | pH is a logarithmic scale that measures how acidic or basic a body of water is. | The pH of most suitable water lies within the range 6.5–8.5. |
| TDS sensor | Total dissolved solids (TDS) indicates harmful contaminants, like iron, manganese, sulfate, bromide, and arsenic | 50–150 ppm: Excellent for drinking  150–250 ppm: Good  250–300 ppm: Fair |
| Turbidity Sensor | Turbidity sensors are used to reduce waste, improve yields, and analyze water quality in a wide range of industries. | 0.5-1.0 NTU, but should never exceed 1.0 NTU |
| Conductivity Sensor | to measure the purity of water or the concentration of ionized chemicals in water. | Distilled Water: 0.5-3  Tap Water: 50-800  Potable Water: 30-1,500  Freshwater Streams: 100-2,000  Industrial Wastewater: 10,000  Seawater: 55,000 |

**Temparature Sensor**

The kinetic energy results in the movement of the molecules with internal

thermal energy. Thus, it affects the concentration of the dissolved gases and the saturation of

the water. To be precise, oxygen amount, rate of photosynthesis by plants inside the water,

metabolic rates of aquatic animals are adversely impacted by the increased temperature.

**Souce:** <http://ln.run/urPeC>

LM35 series sensors are one of the choices in this sensor type. These sensors are accurate

integrated circuit temperature sensors whose output voltage is linearly proportional to the

temperature of the system. Since the sensor is directly calibrated in Celsius the user does not need

to manually calculate the result in centigrade scaling. This sensor is recalibrated as it does not

need any external calibration to provide accurate results.

**Source:** <http://www.state.ky.us/nrepc/water/ramp/rmtemp.htm#:~:text=Criteria:%20Water%20quality%20criteria%20for,22.2C%20(72%20F)>

**pH Sensor**

pH is a logarithmic scale that measures how acidic or basic a body of water is. It's a crucial parameter for assessing water quality because it can affect the chemical and biological processes that occur in water bodies.

**Source:** <https://shorturl.at/uALS3>

**TDS Sensor**

Total dissolved solids (TDS) in water can be important for water pollution because high levels can indicate harmful contaminants, like iron, manganese, sulfate, bromide, and arsenic. TDS can also impact the water's flavor, odor, and overall palatability.

**Source:** <https://shorturl.at/epsJ0>

**Turbidity Sensor**

Turbidity sensors are used to reduce waste, improve yields, and analyze water quality in a wide range of industries.

For samples with high amounts of TSS and TDS, the difference in the light intensity from the transmission beam is measured to obtain the turbidity result, while light scattering is more suitable for samples with low amounts of TSS and TDS. Since turbidity sensors use light to detect a solution’s turbidity level, it is important to reduce the amount of external light when using the sensor.

**Source:** <https://tinyurl.com/2ya3ryjk>

**Conductivity Sensor**

Water conductivity sensors are used in water-quality applications to measure how well a solution conducts an electrical current. This type of measurement assesses the concentration of ions in the solution. The more ions that are in the solution, the higher the conductivity.

**Source:** <https://tinyurl.com/3nwepf22>