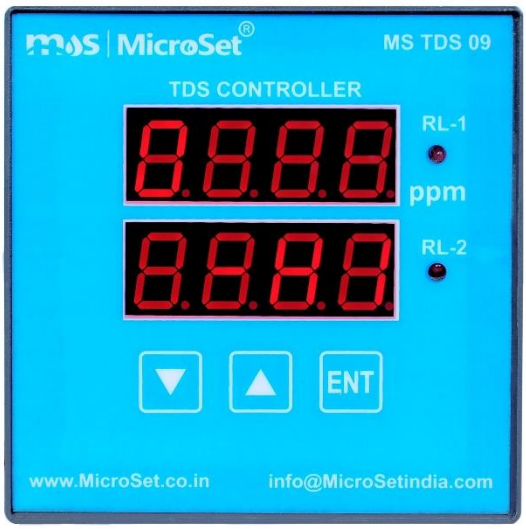
Online TDS Indicating Controller Transmitter with Sensor

MS TDS 09





FEATURE

- Advanced Embedded Microcontroller Based Design
- Panel Mounting
- Easy Front Key Calibration
- LED Display
- 4 to 20 mA DC Isolated Output
- RS 485 Isolated Output (Optional)

DESCRIPTION

Total Dissolved solids, smaller than 2 microns, refer to any minerals, salts, metals, in the form of molecules, atoms, cations or anions dissolved in water. Total dissolved solids (TDS) comprise inorganic salts (principally calcium, magnesium, potassium, sodium, bicarbonates, chlorides and sulfates) and some small amounts of organic matter that dissolve in water.

The TDS concentration is the sum of all filterable substances in water that can be determined gravimetrically. However, in most cases, TDS is primarily comprised of ions. TDS is mainly used in the studies of water quality in the natural bodies of water, including surface and ground sources.

Why Measure Total Dissolved Solids?

TDS in drinking water can originate from natural sources, urban run-off, municipal and industrial waste, chemicals used in treating water and the actual plumbing infrastructure.

While TDS is not considered a primary pollutant, it is an indicator of water quality. The USEPA secondary water quality standard for TDS concentration is 500 mg/L to ensure drinking water palatability. High levels of dissolved solids in drinking water can affect the taste causing it to be bitter or salty. High levels of TDS can also lead to scaling and corrosion in any application but especially in boilers and cooling water.

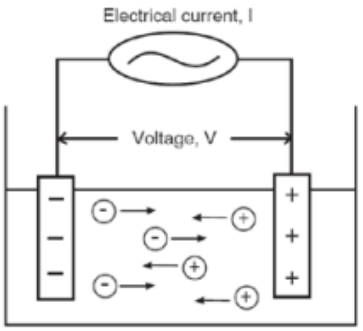
PRINCIPLE

TDS is basically measurement of conductivity and indicated with multiplying factor of 0.5 to 0.68. Conductivity is the ability of a solution, a metal or a gas - in brief all materials to pass an electric current. In solutions the current is carried by cations and anions whereas in metals it is carried by electrons. How well a solution conducts electricity depends on a number of factors :

- Concentration of ions
- Mobility of ions
- Valence of ions
- Temperature

All substances possess some degree of conductivity.

In aqueous solutions the level of ionic strength varies from the low conductivity of ultrapure water to the high conductivity of concentrated chemical samples. Conductivity may be measured by applying an alternating electrical current (I) to two electrodes immersed in a solution and measuring the resulting voltage (U). During this process, the cations migrate to the negative electrode, the anions to the positive electrode and the solution acts as an electrical conductor.



The resistance of the solution (R) can be calculated using Ohm's law as shown below. The resistance unit is [Ohms] or [Ω].

$$R = U/I$$

Where:

U = voltage [V]
I = current [A]
R = resistance of the solution [Ω]

The conductance (G) is defined as the reciprocal of the electrical resistance (R) of a solution between two electrodes. It is measured in Siemens [S] which equals [Ω^{-1}].

102 Chinmay 1103A 10 Lakaki Road Model Colony Shivajinagar Pune Maharashtra 411016 INDIA +91 9112455550
Team@MicroSetindia.com | Accounts@MicroSetindia.com www.MicroSetindia.com

TECHNICAL SPECIFICATION

TDS Indicating Controller Transmitter

Range	: 20.00 ppm, 200.0 ppm, 2000 ppm, 20.00 ppt, 200.0 ppt
	(Specify while ordering)
Resolution	: 0.01 ppm,0.1 ppm,1 ppm, 0.01 ppt, 0.1 ppt
Accuracy	: ± 1% of FS
Display	: 4 digit Dual Red LED Display
	(Upper Display for TDS & Lower Display for Set Value)
Calibration	: Single point manual Calibration
Calibration Slope	: ± 30% of Display Reading
Current Output	: Isolated 4-20 mA DC
Relay Output	: Two Relay Outputs (potential free Contact of 5 Amp Max.)
Control Setting	: Two Set Point with High & Low Value Setting
Environment	: 5 to 50°C
Power Requirement	: 230V AC ±10%, 50Hz single phase
Dimension	: 96 x 96 x 65 mm (Grey ABS Cabinet)
Weight	: 400 grams for Instrument only (Approx.)

With

TDS Sensor

MOC of Sensor Body	: Delrin
MOC of Electrode	: SS 316 for 20, 200, 2000 ppm Range
	Glass / Platinum for 20, 200 ppt Range
Operating Temp.	: 60°C Max
Operating Pressure	: 2.5 Bar
Process Connection	: ½” BSPM and ¾” BSPM
Cable	: Integral 4 Meter for 20, 200, 2000 ppm Range
	Integral 5 Meters for 20, 200 ppt Range
Flow Cell (Optional)	: MOC: PVC
	Connection for Inlet / Outlet : ¼” BSPF, Sensor : ½” BSPF

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APPLICATION

Water Treatment Plant (WTP)	Wastewater Treatment Plant (WWTP)
Effluent Treatment Plant (ETP)	Sewage Treatment Plant (STP)
RO Water Plant	Power Plant
Hydroponics	Chemical Industry
Textile Industry	Paper & Pulp
Beverages / Food Industry	Pharma Industry
Scrubber Application	Pigment Industry
Steel Industry	Aqua Culture

Note : Due to continuous improvement in product specifications & appearance may vary

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