

SD Card real time data recorder

pH/ORP, DO, CD, TDS, Salt *all in one*

Model : WAC-2019SD

ISO-9001, CE, IEC1010



LUTRON ELECTRONIC

The Art of Measurement

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FEATURES

* One meter for multi purpose operation : PH/ORP, CD/TDS, Dissolved Oxygen, Salt measurement.
* pH : 0 to 14.00 pH, ORP : ±1999 mV.
* Conductivity : 200 uS/2 mS/20 mS/200 mS.
* Hardness : 0 to 100,000 ppm.
* Resistance : 5 ohm to 99.99 M ohm .
* Dissolved oxygen : 0 to 20.0 mg/L.
* Salt : 0 to 12 % salt (% weight).
* Optional PH, ORP, CD/TDS/Salt, Dissolved Oxygen and ATC probe.
* PH meter function can select PH or ORP.
* PH measurement can select ATC or manual temperature adjustment.
* PH measurement can make the auto calibration for pH 7, pH 4 and pH 10 or other value.
* Conductivity measurement can select uS/mS or TDS
* Conductivity measurement can select Temp. Coefficient of measurement solution.
* ATC for the conductivity measurement.
* Dissolved oxygen meter use the polar graphic type oxygen probe with temperature sensor, high precision measurement for Dissolved Oxygen (DO) and temperature measurement.
* Heavy duty dissolved oxygen probe, probe head can connect with BOD bottle.
* DO use the automatic Temp. compensation.
* DO meter build in " % SALT " & " Mountain Height " compensation value adjustment.
* Separate probe, easy for operation of different measurement environment.
* Wide applications: water conditioning, aquariums, beverage, fish hatcheries, food processing, photography, laboratory, paper industry, plating industry, quality control, school & college, water conditioning.
* 2.4" TFT LCD with green light backlight, easy reading.
* Can default auto power off or manual power off.
* Data hold, record max. and min. reading.
* Microcomputer circuit, high accuracy.
* Power by DC 9 V (006 P) batteries or DC 9V adapter.
* RS232/USB PC COMPUTER interface.

General Specifications

Circuit	Custom one-chip of microprocessor LSI circuit.
Display	TFT LCD size : 2.4 "
Measurement Function	PH/ORP Conductivity/TDS(Total Dissolved Solids) Dissolved Oxygen Salt
Advanced setting	* Auto power OFF management * Set beep Sound ON/OFF * Set temperature unit to °C or °F * Set DO salt% compensation value * Set DO height (meter) compensation value * Set DO height (feet) compensation value * Set CD temperature compensation factor * Set CD to TDS or TDS to CD, CD only * Set pH manual Temp. compensation value
Data Hold	Freeze the display reading.
Memory Recall	Maximum & Minimum value.
Sampling Time of Display	Approx. 1 second.
Data Output	RS 232/USB PC computer interface. * Connect the optional RS232 cable UPCB-02 will get the RS232 plug. * Connect the optional USB cable USB-01 will get the USB plug.
Operating Temperature	0 to 50 °C.
Operating Humidity	Less than 85% R.H.
Power Supply	Alkaline or heavy duty DC 9 V (006 P) battery or equivalent. DC 9V adapter input. (AC/DC power adapter is optional).
Power Current	Normal operation (LCD Backlight is OFF) : Approx. DC 14 mA. * If LCD backlight on, the power consumption will increase approx. 12 mA.
Weight	489 g/1.08 LB.
Dimension	180 x 77 x 45 mm (11.5 x 8.7x 3.6 inch)
Accessories Included	* Instruction manual.....1 PC..... * Conductivity/TDS, Salt probe CDPB-04 1 PC * Hard carrying case CA-06 1 PC

Optional Accessories	* PH electrode..... PE-03, PE-11, PE-01, PE06HDA PE-04HD, PE-03K7 * ATC probe (Automatic Temperature Probe)..... TP-07 * pH 7 buffer solution..... PH-07 * pH 4 buffer solution..... PH-04 * Conductivity/TDS probe, Salt probe..... CDPB-03 * 1.413 mS Conductivity Standard Solution..... CD-14 * Oxygen probe..... OXPB-11 * Spare Probe head with Diaphragm set OXHD-04 * Probe-filling Electrolyte..... OXEL-03 * ORP Electrode..... ORP-14 SD memory card (4 GB) AC to DC 9V adapter. USB cable, USB-01. RS232 cable, UPCB-02. Data Acquisition software, SW-U801-WIN.
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Electrical Specification (23 ±5 °C)

A. PH/ORP		
PH Electrode	Optional, Any PH electrode with BNC connector.	
Measurement	PH	0 to 14 PH
	mV	-1999 mV to 1999 mV
Input Impedance	10 ¹² ohm	
Temperature Compensation for pH measurement	Manual	0 to 100 °C, be adjusted by push button on front panel.
	Automatic (ATC)	With the optional temperature probe (TP-07) 0 to 65 °C.
pH Calibration	PH7, PH4, and PH10, 3 points calibration ensure the best linearity and accuracy.	
Optional probe and accessories	* PH electrode..... PE-03, PE-11, PE-01, PE06HDA PE-04HD, PE-03K7 * ATC (automatic temperature probe)..... TP-07 * pH 7 buffer solution..... PH-07 * pH 4 buffer solution..... PH-04 * ORP electrode..... ORP-14	

Measurement	Range	Resolution	Accuracy
PH	0 to 14 PH	0.01 PH	±(0.02 PH + 2 d)
mV	-1999 to 1999 mV	1 mV	±(0.5% + 2 d)
* PH accuracy is based on calibrated meter only.			

B. Conductivity

Conductivity probe Function	Optional, Carbon rod electrode for long life. * Conductivity (uS, mS) * TDS (Total Dissolved Solids, PPM) * Temperature (°C, °F)		
Temperature Compensation	Automatic from 0 to 60 °C (32 - 140 °F), with temperature compensation factor variable between 0 to 5.0% per C.		
Probe Operating Temp.	0 to 60 °C.		
Probe Dimension	Round, 22 mm Dia. x 120 mm length.		
Optional probe and accessories	* Conductivity probe..... CDPB-03 * 1.413 mS Conductivity Standard Solution..... CD-14		

1. Conductivity (uS, mS)

Range	Measurement	Resolution	Accuracy
200 uS	0 to 200.0 uS	0.1 uS	±(2% F.S.+1d) * F.S. - full scale
2 mS	0.2 to 2.000 mS	0.001 mS	
20 mS	2 to 20.00 mS	0.01 mS	
200 mS	20 to 200.0 mS	0.1 mS	

2. TDS (Total Dissolved Solids)

Range	Measurement	Resolution	Accuracy
200 PPM	0 to 132 PPM	0.1 PPM	±(2% F.S.+1d) * F.S. - full scale
2,000 PPM	132 to 1,320 PPM	1 PPM	
20,000 PPM	1,320 to 13,200 PPM	10 PPM	
200,000 PPM	13,200 to 132,000 PPM	100 PPM	

C. Salt

Conductivity probe	Optional, Carbon rod electrode for long life.		
Measurement Range	0 to 12 % salt (% weight).		
Resolution	0.01 % salt.		
Accuracy	0.5 % salt value * F.S. : full scale.		
Temperature Compensation	Automatic from 0 to 60 °C (32 - 140 °F), with temperature compensation factor variable between 0 to 5.0% per C.		
Probe Operating Temperature	0 to 60 °C.		
Probe Dimension	Round, 22 mm Dia. x 120 mm length.		
Optional probe and accessories	* Conductivity probe..... CDPB-03		

Hardness

Range	Measurement	Resolution	Accuracy
10 PPM	0 to 10.00 PPM	0.01 PPM	±(2% F.S.+1d) * F.S. - full scale
100 PPM	0 to 100 PPM	0.1 PPM	
1,000 PPM	100 to 1,000 PPM	1 PPM	
10,000 PPM	1,000 to 10,000 PPM	10 PPM	
100,000 PPM	10,000 to 100,000 PPM	100 PPM	

Resistivity

Range	Measurement	Resolution	Accuracy
automatic	5 ohm to 99.99 M ohm	1 ohm	±(2% F.S.+1d)
Range		0.01 M ohm	* F.S. -full scale

D. Dissolved oxygen

Oxygen Probe	Optional, OXPB-11 The polarographic type oxygen probe with Temp.		
Measurement & Range	Dissolved Oxygen	0 to 20.0 mg/L (liter).	
	Oxygen in Air	0 to 100.0 %.	
	Temperature	0 to 50 °C.	
Resolution	Dissolved Oxygen	0.1 mg/L.	
	Oxygen in Air	0.1 % O2 .	
	Temperature	0.1 °C.	
Accuracy (23±5 °C)	Dissolved Oxygen	±0.4 mg/L.	
	Oxygen in Air	±0.7% O2.	
	Temperature	±0.8 °C/1.5 °F.	
Probe Compensation & Adj.	Temperature	0 to 50 °C, Automatic	
	Salt	0 to 50 % Salt	
	Height (M. T.)	0 to 8900 meter	
Probe Weight	335 g/0.74 LB (batteries & probe included)		
Probe Size	190 mm x 28 mm Dia. (7.5" x 1.1" Dia.)		
Optional Accessories	* Oxygen probe..... OXPB-11 * Spare Probe head with Diaphragm set OXHD-04 * Probe-filling Electrolyte..... OXEL-03		

* Spec. tested under the environment RF Field Strength less than 3 V/M & frequency less than the 30 MHz only.

* Appearance and specifications listed in this brochure are subject to change without notice.

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