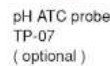


SD Card real time data recorder

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

Model : WAC-2019SD

ISO-9001, CE, IEC1010



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pH/ORP, DO, CD, TDS, Salt

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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 * Pt Conductivity/TDS probe, Salt probe, CDPB-04..... 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 AC to DC 9V adapter. USB cable, USB-01. RS232 cable, UPCB-02. Data Acquisition software, SW-U801-WIN. Hard carrying case (CA-06)..... 1 PC |
|----------------------|--|

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 mS | 0.2 to 2.000 mS | 0.001 mS | ±(2% F.S.+1d) |
| 20 mS | 2 to 20.00 mS | 0.01 mS | * F.S. - |
| 200 mS | 20 to 200.0 mS | 0.1 mS | full scale |

2. TDS (Total Dissolved Solids)

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

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 | |
| 100 PPM | 0 to 100 PPM | 0.1 PPM | |
| 1,000 PPM | 100 to 1,000 PPM | 1 PPM | ±(2% F.S.+1d) |
| 10,000 PPM | 1,000 to 10,000 PPM | 10 PPM | * F.S. - |
| 100,000 PPM | 10,000 to 100,000 PPM | 100 PPM | full scale |

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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