

Bench type, RS232/USB, Data logger

pH/ORP, DO, CD/TDS METER

Model : WA-2015

ISO-9001, CE, IEC1010



DO
OXPB-11
(optional)



CD/TDS/Salt
CDPB-03
(optional)



pH
PE-03
PE-11
PE-01
(optional)



pH ATC
TP-07
(optional)



Lutron

LUTRON ELECTRONIC

The Art of Measurement

Bench type, RS232/USB, Data logger
pH/ORP, DO, CD/TDS METER
Model : WA-2015

1. FEATURES

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| * Professional bench type meter with large size LCD display with green color back light. |
| * One meter for multi purpose operation : pH/ORP, CD/TDS (Total dissolved solids), Dissolved Oxygen. |
| * pH : 0 to 14.00 pH, ORP : ± 1999 mV. |
| * Conductivity : 200 uS/2 mS/20 mS/200 mS. |
| * Dissolved oxygen : 0 to 20.0 mg/L. |
| * Real time data logger (record year, month, date, hour, minute, second), 16,000 data logger. |
| * Auto data record, 16,000 Data logger no. |
| * Wide sampling time adjustment range from one second to 8 hours 59 minutes 59 seconds. |
| * Auto data logger, manual data logger. |
| * RS232 computer interface. |
| * Max., Min., Data hold. |
| * Can default auto power off or manual power off. |
| * Optional pH, ORP, CD/TDS, Dissolved Oxygen and ATC probe. |
| * DC 1.5V (UM-3, AA) x 8 PCs or DC 9V adapter in. |
| * 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. |
| * Super large LCD display with LCD backlight ON/OFF. |
| * 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. |

2-1 GENERAL SPECIFICATIONS

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| Circuit | Custom one-chip of microprocessor LSI circuit. |
| Display | LCD size : 82 mm x 61 mm. * with green color backlight. |
| Measurement | pH/ORP Conductivity/TDS(Total Dissolved Solids) Dissolved Oxygen |
| Sampling Time of Data Logger | Auto data logger : 1 sec to 8 hour 59 min. 59 sec. Manual data logger : Set sampling time to 0 second. |
| Data Hold | Freeze the display reading. |
| Memory Recall | Maximum & Minimum value. |
| Power off | Auto shut off saves battery life or manual off by push Button. @ Can default auto power or manual power off. @ When default auto power function, power will off automatically after 10 MIN, if no Button be pressed. |
| Sampling Time of display | Approx. 1 second. |
| Data Output | RS 232 PC serial interface. |
| Operating Temperature | 0 to 50 °C. - Main instrument. |
| Operating Humidity | Less than 80% R.H. |
| Power Supply | DC 1.5 V battery (UM3) x 8 PCs, (Heavy duty type). DC 9V adapter input. @ AC/DC power adapter is optional. |
| Power Consumption | Operation (LCD backlight ON) : Approx. DC 32 mA Operation (LCD backlight OFF) : Approx. DC 8 mA Power OFF (only internal clock running) : Approx. DC 1.8 uA. |
| Weight * meter @ Meter | 1049 g/2.3 LB. 225 X 125 X 64 mm (8.86 X 4.92 X 2.52 inch) |
| Accessories Included | Instruction manual..... 1 PC |
| Optional Accessories | * pH electrode..... PE-03, PE-11, PE-01, PE06HD PE-04HD, PE-05T, PE-03K7 PE-02, PE-08, PE-21 * ATC (Automatic Temperature Probe)..... TP-07 * pH 7 buffer solution..... pH-07 * pH 4 buffer solution..... pH-04 * pH electrode holder..... EH-20 * ORP electrode..... ORP-14 * Conductivity 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 * Carrying case..... CA-08 |

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| Optional Accessories | * AC to DC 9V adapter. * RS232 cable, UPCB-02. * USB cable, USB-01 * Data Acquisition software, SW-U801-WIN. * Data Logger software, SW-DL2005. |
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2-2 ELECTRICAL SPECIFICATIONS (23± 5 °C)

A. pH/mV

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|---|---|
| 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, PE06HD PE-04HD, PE-05T, PE-03K7 PE-02, PE-08, PE-21 * 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 | 0 to 1999 mV | 1 mV | ± (0.5% + 2 d) |

* pH accuracy is based on calibrated meter only.

B. Conductivity

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|--------------------------------|---|
| Conductivity probe | Optional, Carbon rod electrode for long life. |
| Function | * 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 Temperature | 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. - Full scale |
| 200 mS | 20 to 200.0 mS | 0.1 mS | |

* Temperature Compensation :
Automatic from 0 to 60 °C (32 - 140 °F), with temperature compensation factor variable between 0 to 5.0% per C.
* The accuracy is specified under measurement value ≤ 100 mS.
* mS - milli Simens * @ 23± 5°C

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. - Full scale |
| 200,000 PPM | 13,200 to 132,000 PPM | 100 PPM | |

* Temperature Compensation :
Automatic from 0 to 60 °C (32 - 140 °F), with temperature compensation factor variable between 0 to 5.0% per C.
* The accuracy is specified under measurement value ≤ 66,000 PPM.
* PPM - parts per million * @ 23± 5°C

3. Temperature

| Function | Measuring Range | Resolution | Accuracy |
|----------|-----------------|------------|----------|
| °C | 0 °C to 60 °C | 0.1 °C | ± 0.8 °C |
| °F | 32 °F to 140 °F | 0.1 °F | ± 1.5 °F |

* @ 23± 5°C

C. Dissolved oxygen

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| Oxygen Probe | Optional, The polarographic type oxygen probe with |
| 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. |

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|---------------------------|--|
| 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 |