

## MM-3194

## Multipleparameter Waterproofmeter

pH / mV, ORP, EC, TDS,  
Resistivity, Salinity, Seawater  $\sigma$ ,  
Dissolved Oxygen, Atmospheric  
Pressure and Temperature

- **Waterproof:**
  - IP67 rated waterproof, rugged enclosure for meter, IP68 for probe
- **Digital probe:**
  - Digital probe with three connections for pH (ORP), EC and sensors and integral temperature sensor.
- **Color coded, field replaceable sensor:**
- **Auto-sensor recognition feature:**
- **Quick calibration feature:**
- **Automatic temperature compensation:**
- **Automatic logging:**
  - Store up to
- **Log-on-demand:**
  - Store measurement data at the press of a button.
- **GLP:**
  - GLP data provides data from provides five calibrations good Laboratory Practices are met.
- **Dedicated Help key:**
  - On-screen context specific help is readily available at the press of a button.
- **Backlit LCD display with multifunction virtual keys:**
- **Intuitive keypad:**
  - Hard and virtual soft keys.
- **Connectivity:**
  - PC connectivity via opto-isolated micro-USB with Analytical Software
- **Up to 360 hours of battery life:**
  - Powered by (4) 1.5V AA batteries
- **Quick Connect Probe:**
  - Built in barometer for DO concentration in meter.



### - For Universal Applications:

MM-3194 provides multiparameter measurement in a compact and rugged, IP67 waterproof enclosure, Ideal for demanding applications, each meter features our rugged, replaceable sensors.

A backlit, graphic LCD provides easy to read resolution even in low-light areas. A combination of dedicated and soft keys allows easy, intuitive operation in a choice of languages.

### - Data Logging:

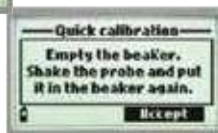
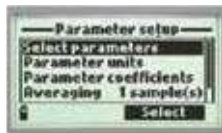
MM-3194 allows user users to store up to 45,000 continuous or log-on-demand samples with logging intervals from one second to three hours logged data can be later transferred to a PC with the MM-3194 Micro USB cable and Analytical Software.

### - Dedicated help button:

The contextual Help Menu can be accessed to obtain on-screen information and assistance about each feature at the touch of a button.

### - Quick connect probe :

The MM-3194 probe features a quick connector to make attaching and removing the probe simple and easy.



### - Field Ready with quick calibration solution:

- Standardize pH and conductivity with one calibration solution.
- Simply screw the calibration beaker filled with (500 mL) or (1 gallon) solution on to the probe, select "Quick calibration" from the menu and press OK. Individual calibration may also be performed using multiple calibration points.

### - Setup:

- Extensive setup screen features.

### - Guides:

- On screen guides are displayed to help you while performing procedures such as calibration.

### - Rugged carrying case with custom thermoformed insert included

## pH Specific Features

### - Calibration:

- Up to a three point calibration with five standard buffers and one custom buffer available.

## EC/TDS/Resistivity Specific Features

### - Calibration:

- Single point calibration from six standards (84µS/cm, 1.413 µS/cm, 5.00mS/cm, 12.88 mS/cm, 80mS/cm, 111.8 mS/cm or custom point)

### - Temperature compensation:

- Automatic Temperature Compensation.
- Configurable temperature coefficient range from 0.00 to 6.00%/°C.
- Choice of reference temperatures at 20 or 25°C.
- Absolute conductivity can be display along with temperature compensated value.

### - Autoranging:

### - Salinity readings:

- Practical Salinity Scale (PSU) based on conductivity calibration.

## Dissolved Oxygen Specific Features

### - Choice of units:

- Display Units in % saturation or mg/L (ppm)

### - Salinity compensation for concentration:

### - Pressure compensation for concentration:

- Built-in barometer with user-selectable units (mmHg, inHg, atm, psi, kPa, mbar)

### - Temperature compensation:

### - Polarization:

- Automatic polarization of probe at startup.

### - Membrane caps:

- Ready-to-use HDPE pre-tensioned membrane caps are easy to replace.



| Probe Specification                    |   | MM-3194    |
|--|---|------------|
| Sensor inputs                          | 3 (pH, DO, EC)  |            |
| Sample Environment                     | Fresh, brackish, seawater   |            |
| Waterproof Protection                  | IP68  |            |
| Operating Temperature                  | -5 to 55°C  |            |
| Storage Temperature                    | -20 to 70°C   |            |
| Maximum Depth                          | 20 m (66')  |            |
| Dimensions (without cable)             | 342 mm (13.5"); 46 mm(1.8") dia   |            |
| Weight (without batteries and sensors) | 570 g (20.1 oz.)  |            |
| Cable specification                    | Multistrand-multiconductor shielded cable with internal strength member rated for 68kg (150lb.) intermittent use. |            |
| Wetted Materials                       | Body  | ABS        |
|  | Threads   | Nylon      |
|  | Shield  | ABS/316 SS |
|  | Temperature Probe   | 316 SS     |
|  | O-rings   | EPDM       |

### Multi-function Sensor

#### - Quick sensor replacement

- Sensor replacement is quick and easy with field replaceable, screw type connectors and are color coded for easy identification. The these meters automatically recognize sensors.



| Sensor Specifications | MM-3819-1                     | MM-3819-2  | MM-3819-3                                       | MM-3819-4                              |
|-----------------------|-------------------------------|--|---|--|
| Description:          | pH sensor                     | pH/ORP sensor  | EC sensor                                       | DO sensor                              |
| Measurement Type      | pH, mV (pH)                   | pH, mV (pH/ORP)                                      | EC  | DO (saturation and concentration)      |
| Measurement Range     | 0.00 to 13.00 pH;<br>600.0 mV | 0.00 to 13.00 pH; $\pm 600.0$ mV;<br>$\pm 2000.0$ mV | 0.0 to 200.0mS/cm;<br>0.0 to 400mS/cm(absolute) | 0.0 to 500.0%<br>0.00 to 50.00mg/L     |
| Temperature range     | -5 to 55°C                    | -5 to 55°C   | -5 to 55°C                                      | -5 to 55°C                             |
| Color code            | Red                           | Red  | blue  | white                                  |
| Description:          | Tip                           | glass (pH)   | glass (pH) Pt (ORP)                             | Stainless steel electrodes<br>AISI 316 |
|                       | junction                      | ceramic  | ceramic   | Membrane: HDPE                         |
|                       | Body                          | PEI  | PEI   | ABS/epoxy                              |
|                       | Electrolyte                   | gel  | gel   | white top ABS                          |
|                       | Reference                     | double   | double  |  |
| Maintenance solution  | MM-3300 (storage solution)    | MM-3300 (storage solution)                           | none  | MM-3425 (DO electrolyte)               |
| Dimensions            | 118 x 15mm                    | 188 x 15mm   | 111 x 17 mm                                     | 99 x 17 mm                             |
| Depth                 | 20 m (65')                    | 20 m (65')   | 20 m (65')                                      | 20 m (65')                             |

| Specifications | MM-3194     |  |
|----------------|-------------|--|
| pH/mV          | Range       | 0.00 to 14.00 pH / $\pm 600.0$ mV  |
|                | Resolution  | 0.01 pH / 0.1 mV   |
|                | Accuracy    | $\pm 0.02$ pH / $\pm 0.5$ mV   |
|                | Calibration | automatic one, two or three points with automatic recognition of five standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or one custom buffer |
| ORP            | Range       | $\pm 2000.0$ mV  |
|                | Resolution  | 0.1 mV   |
|                | Accuracy    | $\pm 1.0$ mV   |
|                | Calibration | automatic one custom point (relative mV)   |

| Specifications       | MM-3194                  |  |
|----------------------|--------------------------|--|
| EC                   | Range                    | 0 to 200 mS/cm (absolute EC up to 400 mS/cm)   |
|                      | Resolution               | Manual: 1 $\mu$ S/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm; automatic: 1 $\mu$ S/cm from 0 to 9999 $\mu$ S/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm; automatic mS/cm: 0.001 mS/cm; 0.001 mS/cm from 0.000 to 9.999 mS/cm; 0.01 mS/cm from 10.00 to 99.99 mS/cm; 0.1 mS/cm from 100.0 to 400.0 mS/cm.                                 |
|                      | Accuracy                 | $\pm 1\%$ of reading or $\pm 1\mu$ S/cm whichever is greater   |
|                      | Calibration              | automatic single point, with six standard solutions (84 $\mu$ S/cm, 1413 $\mu$ S/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm) or custom point   |
| TDS                  | Range                    | 0 to 4,00,000 ppm (mg/L) (the maximum value depends on the TDS factor)   |
|                      | Resolution               | Manual: 1 ppm (mg/L); 0.001 ppt (g/L); 0.01 ppt (g/L); (g/L); 1 ppt (g/L); automatic: 1 ppm (mg/L) from 0 to 9999 ppm (mg/L); 0.01 ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L); automatic ppt (g/L): 0.01 ppt (g/L) from 0.000 to 9.999 ppt (g/L); ppt (g/L) from 10.00 to 99.99 ppt (g/L); 0.1 ppt (g/L) from 100.0 to 400.0 ppt (g/L) |
|                      | Accuracy                 | $\pm 1\%$ of reading or $\pm 1$ ppm (mg/L) whichever is greater  |
|                      | Calibration              | Based on conductivity or salinity calibration  |
| Resistivity          | Range                    | 0 to 999999 $\Omega$ /cm; 0 to 1000.0 k $\Omega$ /cm; 0 to 1.0000 m $\Omega$ /cm   |
|                      | Resolution               | dependent on resistivity reading   |
|                      | Calibration              | Based on conductivity or salinity calibration  |
| Salinity             | Range                    | 0.00 to 70.00 PSU  |
|                      | Resolution               | 0.01 PSU   |
|                      | Accuracy                 | $\pm 2\%$ of reading or $\pm 0.01$ PSU whichever is greater  |
|                      | Calibration              | Based on conductivity calibration  |
| Seawater $\sigma$    | Range                    | 0.0 to 50.0 $\sigma_t$ , $\sigma_o$ , $\sigma_{25}$  |
|                      | Resolution               | 0.1 $\sigma_t$ , $\sigma_o$ , $\sigma_{25}$  |
|                      | Accuracy                 | $\pm 1$ $\sigma_t$ , $\sigma_o$ , $\sigma_{25}$  |
|                      | Calibration              | Based on conductivity or salinity calibration  |
| Dissolved Oxygen     | Range                    | 0.0 to 500.0%; 0.00 to 50.00 ppm (mg/L)  |
|                      | Resolution               | 0.1%; 0.01 ppm (mg/L)  |
|                      | Accuracy                 | 0.0 to 500.0%; $\pm 1.5\%$ of reading or $\pm 1.0\%$ whichever is greater; 300.0 to 500.0; $\pm 3\%$ of reading; 0.00 to 30.00 ppm (mg/L); $\pm 1.5\%$ of reading or $\pm 0.10$ ppm (mg/L), whichever is greater; 030.00 ppm (mg/L) to 50.00 ppm (mg/L); $\pm 3\%$ of reading  |
|                      | Calibration              | automatic one or two points at 0.100% or one custom point  |
| Atmospheric Pressure | Range                    | 450 to 850mm Hg; 1772 to 33.46 in Hg; 600.0 to 1133.2mbar; 8702 to 16.436psi; 05921 to 1.1184atm; 60.00 to 113.32kPa   |
|                      | Resolution               | 0.1 mm Hg; 0.01 in Hg; 0.1mbar; 0.001psi; 0.001 psi; atm; 0.01kPa  |
|                      | Accuracy                 | $\pm 3$ mm Hg within $\pm 15^\circ\text{C}$ from the temperature during calibration  |
|                      | Calibration              | automatic at one custom point  |
| Temperature          | Range                    | - 5.00 to 55.00 $^\circ\text{C}$ ; 23.00 to 131.00 $^\circ\text{F}$ ; 268.15 to 328.15K  |
|                      | Resolution               | 0.01 $^\circ\text{C}$ ; 0.01 $^\circ\text{F}$ ; 0.01K  |
|                      | Accuracy                 | $\pm 0.15^\circ\text{C}$ ; $\pm 0.27^\circ\text{F}$ ; $\pm 0.15\text{K}$   |
|                      | Calibration              | automatic at one custom point  |
| Temperature          | Temperature Compensation | automatic from -5 to 55 $^\circ\text{C}$ (23 to 131 $^\circ\text{F}$ )   |
|                      | Logging Memory           | 45.000 records(continuous logging or log-on-demand of all parameters)  |
|                      | Logging Interval         | one second to three hours  |
| Temperature          | PC Connectivity          | via USB (with Analytical PC software)  |
|                      | Environment              | 0 to 50 $^\circ\text{C}$ (32 to 122 $^\circ\text{F}$ ); RH 100% IP67   |
|                      | Battery Type/Life        | 1.5V AA batteries (4) ? approximately 360 hours of continuous use without backlight (50 hours with backlight)  |
|                      | Dimensions/Weight        | 185 x 93 x 35.2mm (7.3 x 3.6 x 1.4") / 400 g (14.2 oz.)  |

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|                |  |
|----------------|--|
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| Trainings      | :We also take up preventive Maintenance to reduce downtime of HPLC's   |
| AMC's/CMC      | :We offer user training both in-House and at customer sites on HPLC principles, operations, troubleshooting. |
| Validations    | :We have protocols for carrying out periodic Validations as per GLP/GMP/U SFDA norms                         |
| Instruments    | :We offer instruments / Renting Services Modules like pumps, detector etc. on Rent.                          |



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3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds, souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.



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