

# MILWAUKEE

## Mi180

### pH/ORP/EC/TDS/NaCl/Temperature Laboratory Bench Meter

Mi180 measures 6 different parameters: pH, ORP, EC, TDS (Total Dissolved Solids), percentage of NaCl and temperature in a variety of ranges.

pH calibration can be performed in 3 points selectable between 7 memorized buffers, to provide a very accurate calibration curve even when testing different samples, where very wide differences in pH can be found.

The auto-ranging feature for EC and TDS measurements automatically sets the resolution suitable to the tested sample. All measurements can be temperature compensated at 20 or 25°C and the compensation coefficient is selectable by the user.

The automatic temperature compensation can also be disabled for measuring the actual conductivity value. The stability indicator on the LCD ensures accuracy. Conductivity readings are performed with the 4-ring probe supplied with the meter. The GLP feature allows users to store and recall data on system status.



PC compatible through an RS232 port or USB.

- Years warranty 3
- LOG
- MEM
- RS232
- USB
- ATC
- GLP
- Points 2
- Dual Display
- MULTI
- Software CD
- Self magnetism
- CE

Specifications		Mi180
Range	pH	-2.00 to 16.00 pH; -2.000 to 16.000 pH
	ORP	±699.9 mV; ±2000 mV
	EC	0.00 to 29.99 µS/cm; 30.0 to 299.9 µS/cm; 300 to 2999 µS/cm; 3.00 to 29.99 mS/cm; 30.0 to 200.0 mS/cm; up to 500.0 mS/cm (uncompensated EC*)
	TDS	0.0 to 14.99 mg/L (ppm); 15.0 to 149.9 mg/L (ppm); 1.50 to 14.99 g/L (ppt); 15.0 to 100.0 g/L (ppt); up to 400.0 g/L actual TDS (with 0.80 factor)
	NaCl	0.0 to 400.0%
Resolution	Temp	-20.0 to 120.0°C / -4.0 to 248.0°F
	pH	0.01 pH; 0.001 pH
	ORP	0.1 mV; 1 mV
	EC	0.01 µS/cm; 0.1 µS/cm; 1 µS/cm; 0.01 mS/cm; 0.1 mS/cm;
	TDS	0.01 mg/L; 0.1 mg/L; 1.0 mg/L; 0.01 g/L; 0.1 g/L
Accuracy	NaCl	0.1%
	Temp	0.1°C / 0.1°F
	pH	±0.01 pH; ±0.002 pH
	ORP	±0.2 mV; ±1 mV
	EC	±1% of reading ±(0.05 µS/cm or 1 digit)
Rel mV offset	TDS	±1% of reading ±(0.03 ppm or 1 digit)
	NaCl	±1% reading
	Temp	±0.4°C / ±0.8°F
	Calibration	±2000 mV
	pH	1, 2 or 3 points calibration, with 7 memorized buffers (pH 1.68, 4.01, 6.86, 7.01, 9.18, 10.01 and 12.45)
Temperature Compensation	EC	1 point slope calibration with 6 memorized solutions: (84 µS/cm, 1413 µS/cm, 5.00 mS/cm, 12.88 µS/cm, 80.0 µS/cm, 111.8 mS/cm)
	NaCl	1 point, with MA9066 solution
	Temp	2 point, at 0 and 50°C / 32 and 122°F
	Temperature Compensation	automatic or manual, from -20.0 to 120.0°C / -4.0 to 248.0°F
	Temperature Coefficient	selectable from 0.00 to 6.00%/°C (EC and TDS only)
pH Electrode & Temp. Probe	MA917B/1 & MA831R (included)	
EC/TDS/NaCl/Temp. Probe	MA814DB/1 (included)	
TDS Factor	0.40 to 0.80 (default value is 0.50)	
Logging	up to 50 records, LOG on demand or auto-logging	
GLP	last pH, EC, NaCl calibration data	
PC Interface	RS232 / USB Opto-isolated	
Environment	0 to 50°C / 32 and 122°F; max RH 95%	
Input Impedance	10 <sup>12</sup> Ohm	
Power supply	12 VDC power adapter (included)	
Dimensions	230 x 160 x 95 mm	
Weight	0.9 kg	

(\*) Uncompensated conductivity (or TDS) is the conductivity (or TDS) value without temperature compensation.

### Ordering Information

Mi180 is supplied complete with

- MA917B/1 pH Electrode
- MA814DB/1 EC/TDS/NaCl/Temperature probe
- MA831R Temperature Probe

- MA9315 Electrode Holder
- M10004 pH 4.01 Sachet Buffer solution
- M10007 pH 7.01 Sachet Buffer solution
- M10010 pH 10.01 Sachet Buffer solution
- M10030 12880 µS/cm calibration solution
- M10031 1413 µS/cm calibration solution

### Accessories



- MA9004 pH 4.01 buffer, 230 mL bottle
- MA9007 pH 7.01 buffer, 230 mL bottle
- MA9010 pH 10.01 buffer, 230 mL bottle
- MA9015 Electrode storage solution, 230 mL bottle
- MA9016 Electrode cleaning solution, 230 mL bottle
- MA9112 pH 12.45 buffer solution, 230 mL bottle
- MA9060 12880 µS/cm calibration solution, 230 mL bottle
- MA9061 1413 µS/cm calibration solution, 230 mL bottle
- MA9063 84 µS/cm calibration solution, 230 mL bottle
- MA9065 111.8 mS/cm calibration solution, 230 mL bottle
- MA9066 100% NaCl calibration solution, 230 mL bottle
- MA9069 5000 µS/cm solution, 230 mL bottle
- MA9310 12 VDC Adapter, 220 V
- MA9311 12 VDC Adapter, 110 V
- MA9315 Electrode Holder
- MA917B/1 Double junction refillable pH electrode
- MA814DB/1 EC/TDS/NaCl/Temperature probe with DIN connector and 1 m cable
- MA924B/1 ±2000 mV Glass ORP electrode, refillable with BNC connector and 1 meter cable
- SE300 Platinum ORP electrode with 1 meter cable
- MA831R Temperature probe
- MA9350 RS232 connection cable with 2 meters cable

- M10016 Sachet Electrode Cleaning solution
- Mi5200 Application Software
- MA9350 RS232 connection cable (2 meters)
- MA9310 12 VDC Adapter
- Graduate Pipet & Instruction manual