Milwaukee

Wine Lab

Iron
Copper
Color & Phenols
Reducing Sugars
Tartaric Acid
Peroxide Value
Free & Total
Sulphur Dioxide
Titratable Total Acidity
Total Dissolved Solids
Conductivity
Dissolved Oxygen
pH/ORP/ISE
Temperature
NaCl
Turbidity

Wide Range of Professional Instruments for Wine Analysis

Milwaukee

MARTINI instruments

Wine Lab

Committed to Total Customer Satisfaction

Milwaukee is a dynamic worldwide manufacturer of electrochemical Instruments that provide solutions to winemakers giving key information at critical check-points in their winemaking process.
Our instruments measure pH, Conductivity, Sulphur Dioxide, Total Acidity, Tartaric Acid, Reducing Sugars, Turbidity, Dissolved Oxygen, Color, Phenols, Copper, Iron, ORP etc. Our Instruments will supplement wine-makers knowledge and experience, helping them to make the right decisions in pursuit of quality wine.
Milwaukee is a leader also in markets where water quality measurements are required: Laboratory market, food and beverage, environmental, education and government, water and waste water treatment, pharmaceutical and biotechnology, chemical, agriculture and horticulture, hydroponics, aquariums, swimming pools, etc.

Many of our instruments combine 2 or more parameters providing added versatility and excellent value for money. With an extended range of products, from basic hand held instruments to high performance laboratory bench meters, Milwaukee products have a reputation for reliability and accuracy.
Instruments are supplied with probes, electrode holders, buffer solutions and reagents and are ready for use.

Milwaukee Instruments are available worldwide through a selected network of distributors and associated companies that are committed to Total Customer Satisfaction.

Everyone in Milwaukee Instruments is committed to exceeding your expectations.

Beauty of Simplicity

Wine Lab

Milwaukee

www.milwaukeetesters.com

Contents

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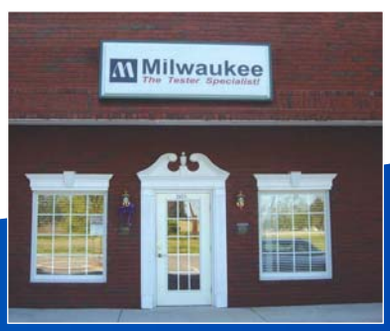

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Mi450 - Photometer

for the determination of COLOR & PHENOLS in wine analysis

Mi450 is a user-friendly photometer for monitoring phenols and color in wine analysis.
Determination of total phenols and color in wine is extremely important in order to decide the production process to be used.

Phenols and color develop during the entire course of life of the wine, and are dependent from factors such as pH, sulfur dioxide (SO_2) and Dissolved oxygen (O_2). The most important molecules are tannins and anthocyanins (see the table below).

Milwaukee's Wine - Photometer are manufactured for easy use, are practical and accurate. Ideal for laboratory use.

The photometer has an advanced optical system based on a special tungsten lamp and a narrow band interference filter that allows most accurate and repeatable readings. The instruments are factrory calibrated.

Step 1

Prepare the sample to be measured with wine or with reagents to measure Color, Phenols or Tint and zero the instrument.

Step 2

Insert each cuvet in the instrument and see the respective reading.

Mi450	Color & Total Phenol	
Range	**White Wine**	**Red Wine**
Color Density (I.C.)	0.000 to 1.000	0.00 to 15.00
Tint ($O.D._{.420}/O.D._{.525}$)	0.00 to 9.99	0.00 to 9.99
Total Phenols (g/L)	0.000 to 0.750	0.00 to 5.00
Accuracy Color Density (I.C.)	typical ±5%	typical ±4%
Tint ($O.D._{.420}/O.D._{.525}$)	typical ±4%	typical ±4%
Total Phenols (g/L)	typical ±4%	typical ±5%
Light Source	tungsten lamp with narrow band interference filter @420 nm, 525 and 610 nm	
Sensor	silicon photocell	
Method	colorimetric	
Environment	0 to 50°C; max RH 95%	
Battery Type	4 x 1.5V AA (included)	
Auto-off	after 15 minutes of non-use	
Dimensions	225 x 85 x 80 mm	
Weight	0.5 kg	

Accumulation of Anthocyanin and Tannins during grape growth

Wine	Grape Growth	Anthocyanin (mg)	Tannis (g)	Tannis of Seeds (g)
Merlot	Halfway to Invaiatura*	310	1.55	3.75
	Before Maturity	881	2.40	2.18
	Mature	784	2.14	1.54
Cabernet Sauvignon	Halfway to Invaiatura*	350	2.10	1.95
	Before Maturity	822	2.10	1.00
	Mature	950	2.05	1.00
Cabernet Franc	Halfway to Invaiatura*	291	1.66	2.75
	Before Maturity	665	2.00	2.60
	Mature	722	1.85	2.10

(*) The grapes color change

Accessories

Mi550-020	Total phenols reagent set (20 tests)
Mi550S1-040	Wine solvent 1 (4 x 100 mL bottle)
Mi550S3-040	Wine solvent 3 (4 x 100 mL bottle)
Mi0004	Tissue for wiping cuvets (4 pcs)
Mi0022	2000 µL pipette (1 pc)
Mi0023	Pipette tips for 2000 µL pipette (4 pcs)
Mi0026	200 µL pipette (1 pc)
Mi0027	Pipette tips for 200 µL pipette (25 pcs)
Mi0011	10 mL glass small cuvets (2 pcs)
Mi0014	Caps for cuvets for wine colorimeters (2 pcs)
Mi0013	Stopper 10 mL small cuvets (2 pcs)
Mi0006	Battery 1.5V AA (4 pcs)

Ordering Information

Mi450 is supplied complete with:
Total phenols reagents for 20 tests, Wine solvents (8 x 100 mL bottle), 2000 µL pipette, 200 µL pipette, 5 mL syringe, 1 mL short pipette, 3 mL pipette, 2 small cuvets with cap, stopper 10 mL small cuvets, tissue for wiping cuvets, 4 x 1.5V AA batteries and instruction manual.

Mi451 - Photometer

for the determination of COPPER in wine analysis

Mi451 is a user-friendly photometer for monitoring copper in wine and will give you direct readings in mg/L, with a range of 0.00 to 0.50 mg/L.
This instrument provides greater resolution, better accuracy and immediate results.

It is important to monitor copper in wine because concentrations of copper higher than 1 mg/L can be considered toxic. When found in higher levels, copper plays an important role in catalyzing oxidation of wine phenols. Excessive levels of copper in wine can be removed or reduced by treatment of potassium ferrocyanide (see the table below).

Milwaukee's Wine - Photometer are manufactured for easy use, are practical and accurate. Ideal for laboratory use.

The photometer has an advanced optical system based on a special tungsten lamp and a nararow band interference filter that allows most accurate and repeatable readings. The instruments is factrory calibrated.

Step 1

Prepare two sample to be measured with wine and reagents and fill the cuvet.

Step 2

Insert the cuvet in the photometer, zero the instrument and see the respective reading on LCD.

Accessories

Mi551-020	Copper reagent set (20 tests)
Mi0004	Tissue for wiping cuvets (4 pcs)
Mi0007	20 mL glass vials with cap (2 pcs)
Mi0011	10 mL glass small cuvets (2 pcs)
Mi0014	Caps for cuvets for wine colorimeters (2 pcs)
Mi0013	Stopper 10 mL small cuvets (2 pcs)
Mi0006	Battery 1.5V AA (4 pcs)

Mi451	Copper
Range	0.00 to 1.50 mg/L
Accuracy	typical ±5%
Light Source	tungsten lamp with narrow band interference filter @ 560 nm
Sensor	silicon photocell
Method	extraction method 2.2 bichinoline
Environment	0 to 50°C; max RH 95%
Battery Type	4 x 1.5V AA (included)
Auto-off	after 15 minutes of non-use
Dimensions	225 x 85 x 80 mm
Weight	0.5 Kg

Ordering Information

Mi451 is supplied complete with:
Reagents for 20 tests, 1 mL short pipette, 3 mL pipette, 2 spoons, 2 small cuvets with cap, stopper 10 mL small cuvets, 2 x 20 mL glass vials with cap, tissue for wiping cuvets, 4 x 1.5V AA batteries and instruction manual.

Copper elimination with potassium ferrocyanide treatment

Wine before treatment		Wine after $Fe(CN)_6K_4$ treatment (blue faning)
Iron (mg/L)	Copper (mg/L)	Copper (mg/L)
20	5	0.2
10	5	0.5
5	5	1.0
2.5	5	1.5
1	5	2.0
Small traces	5	3.0

Mi452 - Photometer

for the determination of IRON in wine analysis

Mi452 is a user-friendly photometer for monitoring iron in red and white wine. This instrument provides greater resolution, better accuracy and immediate results.

It is important to monitor iron content in wine because it plays an important role since it favors oxidation, it alters the sensory characteristics of wine and it partecipates in the formation of complexes with tannins and phosphates which result in instabilities, know as casse. Iron content of wine can be found from very low amounts up to 20 mg/L.

Milwaukee's Wine - Photometers are manufactured to be easy to use, practical and accurate. Ideal for laboratory use.

The photometer has an advanced optical system based on a special tungsten lamp and a nararow band interference filter that allows most accurate and repeatable readings. The instruments is factrory calibrated.

Step 1

Prepare the sample to be measured with wine and Iron Reagents and zero the instrument.

Step 2

Add reagent in the cuvet, insert it in the instrument and note the reading on the LCD.

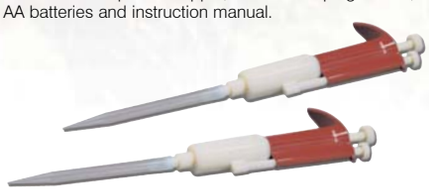
Mi452	Iron
Range	0.0 to 15.0 mg/L
Accuracy	typical ±5%
Light Source	tungsten lamp with narrow band interference filter @ 560 nm
Sensor	silicon photocell
Method	the reaction of iron with the reagent causes the sample to turn purple
Environment	0 to 50°C; max RH 95%
Battery Type	4 x 1.5V AA
Auto-off	after 15 minutes of non-use
Dimensions	225 x 85 x 80 mm
Weight	0.5 kg

Accessories

Mi552-020	Iron reagent set (20 tests)
Mi0004	Tissue for wiping cuvets (4 pcs)
Mi0024	1000 µL pipette (1 pc)
Mi0025	Pipette tips for 1000 µL pipette (25 pcs)
Mi0011	10 mL glass small cuvets (2 pcs)
Mi0014	Caps for cuvets for wine colorimeters (2 pcs)
Mi0013	Stopper 10 mL small cuvets (2 pcs)
Mi0006	Battery 1.5V AA (4 pcs)

Ordering Information

Mi452 is supplied complete with:
Reagents for 20 tests, 1000 µL pipette, 1 mL short pipette, 2 small cuvets with cap and stopper, tissue for wiping cuvets, 4 x 1.5V AA batteries and instruction manual.



Mi453 - Photometer

for REDUCING SUGARS MEASUREMENT in wine analysis

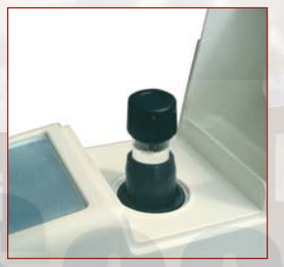
Mi453 is a user-friendly photometer for monitoring reducing sugars in wine analysis. It will give you direct readings in g/L, with a range of 0.00 to 50.00 g/L.
A reducing sugar is a type of sugar with an aldehyde group. This allows the sugar to act as a reducing agent. Reducing sugars include fructose, glucose, glyceraldehyde, lactose, arabinose and maltose.
The determination of concentration of reducing sugars is one of the most important parametres that need to be measured during the wine making process.
Reducing Sugar is the amount of sugar, both fermentable and unfermentable, left in a wine after fermentation is complete or permanently halted by stabilization. Fermentation is complete when either all the fermentable sugar has been converted by the yeast into alcohol and carbon dioxide as byproducts or when the concentration of alcohol produced reaches a level that is toxic to the yeast and they die. Fermentation is permanently halted by stabilization through several means involving intervention by man.
The range of sugar in wine is different from variety to variety and vintage to vintage.

Step 1

Prepare the sample to be measured and zero the instrument.

Step 2

Insert the cuvet in the photometer and note the reading on the LCD.



Accessories

Mi553-020	Reducing sugars reagent set (20 tests)
Mi0004	Tissue for wiping cuvets (4 pcs)
Mi0024	1000 µL pipette (1 pc)
Mi0025	Pipette tips for 1000 µL pipette (25 pcs)
Mi0026	200 µL pipette (1 pc)
Mi0027	Pipette tips for 200 µL pipette (25 pcs)
Mi0008	Filter paper discs (100 pcs)
Mi0001	10 mL glass large cuvets (2 pcs)
Mi0002	Caps for large cuvets (2 pcs)
Mi0006	Battery 1.5V AA (4 pcs)

Mi453	Reducing Sugars
Range	0.00 to 50.00 g/L
Accuracy	typical ±5%
Resolution	0.25
Light Source	tungsten lamp with narrow band interference filter @ 610 nm
Sensor	silicon photocell
Method	fehling
Environment	0 to 50°C; max RH 95%
Battery Type	4 x 1.5V AA
Auto-off	after 15 minutes of non-use
Dimensions	225 x 85 x 80 mm
Weight	0.5 kg

Ordering Information

Mi453 is supplied complete with:
reagents for 20 tests, 1000 µL pipette, 200 µL pipette, 25 filter paper, funnel, spoon, 10 mL glass large cuvets with cap, tissue for wiping cuvets, 4 x 1.5V AA batteries and instruction manual.

Mi454 - Photometer

for the determination of TARTARIC ACID in wine analysis

Mi454 is a user-friendly photometer for monitoring tartaric Acid in the process of wine making. This instrument gives you a direct reading in mg/L, with a range of 0.0 to 5.0 mg/L.

Tartaric acid is a white crystalline organic acid. It occurs naturally in many plants, particularly grapes and tamarinds, and is one of the main acids found in wine. Salts of tartaric acid are known as tartrates. It is a dihydroxy derivative of dicarboxylic acid.

These "tartrates" are harmless, despite sometimes being mistaken for broken glass, and are prevented in many wines through cold stabilization. The tartrates that remain on the inside of aging barrels were at one time a major industrial source of potassium bitartrate.

However, tartaric acid plays an important role chemically, lowering the pH of fermenting "must" to a level where many undesirable spoilage bacteria cannot live, and acting as a preservative after fermentation.

Step 1

Prepare the sample to be measured with wine and tartaric acid reagent, and zero the instrument.

Step 2

Add reagent in the cuvet then insert it in the instrument and note the reading.

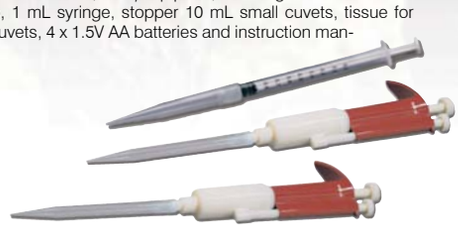
Mi454	Tartaric Acid
Range	0.0 to 5.0 g/L
Accuracy	typical ±5%
Light Source	tungsten lamp with narrow band interference filter @ 525 nm
Sensor	silicon photocell
Method	the reaction of tartaric acid with the reagent causes the sample to turn orange/yellow
Environment	0 to 50°C; max RH 95%
Battery Type	4 x 1.5V AA
Auto-off	after 15 minutes of non-use
Dimensions	225 x 85 x 80 mm
Weight	0.5 kg

Accessories

Mi554-020	Tartaric acid reagent set (20 tests)
Mi0004	Tissue for wiping cuvets (4 pcs)
Mi0026	200 µL pipette (1 pc)
Mi0027	Pipette tips for 200 µL pipette (25 pcs)
Mi0011	10 mL glass small cuvets (2 pcs)
Mi0014	Caps for cuvets for wine colorimeters (2 pcs)
Mi0013	Stopper 10 mL small cuvets (2 pcs)
Mi0006	Battery 1.5V AA (4 pcs)

Ordering Information

Mi454 is supplied complete with:
reagents for 20 tests, 200 µL pipette, 10 mL glass small cuvets with cap, 1 mL syringe, stopper 10 mL small cuvets, tissue for wiping cuvets, 4 x 1.5V AA batteries and instruction manual.



Mi490 - Photometer

PEROXIDE VALUE in the process of oil making

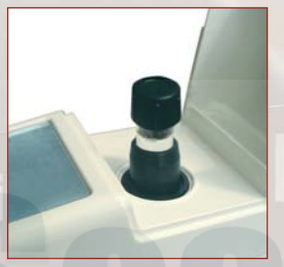
Mi490 is a user-friendly photometer for monitoring peroxide value in the process of oil making. This instrument will give you direct readings, with a range of 0.0 to 25.0 meq O_2/Kg .
The measurement of the oil's chemical degradation is the peroxide value, which measures the degree to which the oil is oxidized. Rancidification is the decomposition of fats and other lipids by hydrolysis and/or oxidation. Hydrolysis will split fatty acid chains away from the glycerol backbone in glycerides. These free fatty acids can then undergo further auto-oxidation. Oxidation primarily occurs with unsaturated fats by a free radical-mediated process.
One of the most widely used tests for oxidative rancidity, peroxide value is a measure of the concentration of peroxides and hydroperoxides formed in the initial stages of lipid oxidation. Milliequivalents of peroxide per kg of fat are measured by titration with iodide ion.
Peroxide values are not static and care must be taken in handling and testing samples. It is difficult to provide a specific guideline relating peroxide value to rancidity. High peroxide values are a definite indication of a rancid fat, but moderate values may be the result of depletion of peroxides after reaching high concentrations.

Easy Steps

Prepare the sample with oil and the reagent then insert it in the instrument and note the reading.

Accurate Readings

Mi490 will give you direct readings, with a range of 0.0 to 25.0 meq O_2/Kg in the process of oil making.



Accessories

Mi590-021	Peroxides reagent set (21 tests)
Mi0001	10 mL glass large cuvets (2 pcs)
Mi0002	Caps for large cuvets (2 pcs)
Mi0004	Tissue for wiping cuvets (4 pcs)
Mi0006	Battery 1.5V AA (4 pcs)

Mi490	Peroxide Value
Range	0.0 to 25.0 meq O_2 /Kg
Resolution	0.5 meq O_2 /Kg
Accuracy	±0.5 meq O_2 /Kg
Method	adaptation of the CE n. 2568/97 method
Environment	0 to 50°C; max RH 95%
Battery Type	4 x 1.5V AA
Auto-off	after 15 minutes of non-use
Dimensions	225 x 85 x 80 mm
Weight	0.5 kg

Ordering Information

Mi490 is supplied complete with:
reagents for 20 tests, 4 x 1 mL syringe, tissue for wiping cuvets, 4 x 1.5V AA batteries and instruction manual.

Mi455 - Mini-titrator

for the determination of FREE & TOTAL SULPHUR DIOXIDE in wine analysis

Mi455 is a user-friendly microprocessor-based mini-titrator for the determination of free and total sulphur dioxide in the process of wine making. This mini-titrator will give you direct readings with a range of 0 to 400 ppm.
The instrument comes with a pre-programmed analysis method for free and total sulphur dioxide measurements on wine sample.

Technically, sulphite is a salt or ester of sulfurous acid, but more commonly, sulfur dioxide (SO_2). Sulfite is the most effective and widely used preservative in winemaking. It preserves by safeguarding musts and wines against premature oxidation and microscopic life forms that could otherwise spoil wine. It preserves a wine's freshness, helps maintain its color, and is essential for aging wines beyond their first year without deterioriation. It also inhibits wild yeasts, thereby allowing cultured wine yeasts to dominate the fermentation. Sulfites may be "bound" or "free." Bound SO_2 combines with aldehyde compounds, those most responsible for oxidation in wines.

Free SO_2 results from the dissipation of active SO_2 and is the only SO_2 that provides antiseptic and oxidative protection to wines. The most efficient what to add free SO_2 to a must, juice or wine is by adding dissolved potassium metabisulfite to it. The effectiveness of free SO_2 is dependent on the pH of the media to which it is added.

Easy Steps

Prepare the sample to be measured with wine and reagent, push the start button and note the reading.

Mi455	Solphur Dioxide Titrator
Range	0 to 400 ppm of SO_2
Resolution	1 ppm
Accuracy	5% of reading
Method	ripper titrimetric method
Principle	equivelance point redox titration
Sample Volume	50 mL
ORP electrode	MA924B/1 (included)
Pump Volume	0.5 mL/min
Stirring Speed	1500 rpm
Environment	0 to 50°C; max RH 95%
Power Supply	220V/50 Hz; 10VA
Dimensions	208 x 214 x 163 mm
Weight	2.2 Kg

Accessories

Mi555-001	Calibration standard, SO_2 (500 mL bottle)
Mi555-002	Titrant SO_2 (100 mL bottle)
Mi555-003	Alkaline reagent for total SO_2, (4 x 100 mL bottle)
Mi555-004	Acid reagent for total SO_2, (4 x 100 mL bottle)
Mi555-005	Acid reagent for free SO_2, (4 x 100 mL bottle)
Mi555-006	Stabilizer, SO_2, (80 pp)
MA924B/1	ORP Electrode
MA9011	Refilling Electrolyte Solution 3.5M KCl, for ORP electrodes, 230 mL bottle
Mi0009	Small stir bars (5 pcs)
Mi0020	50 mL beaker (4 pcs)
Mi0021	25 mL beaker (4 pcs)

Ordering Information

Mi455 is supplied complete with:
Calibration standard SO_2,Titrant SO_2, Alkaline reagent for total SO_2, Acid reagent for total SO_2, Acid reagent for free SO_2, Stabilizer, SO_2, MA924B/1 ORP electrode, small stir bar, 2 x 50 mL beakers, 2 x 25 mL beakers, Refilling Electolyte Solution 3.5M KCl for ORP electrodes 230 mL bottle, test tube set, O-ring, 1 mL syringe, power cable and instruction manual.

Mi 456 - Mini-titrator

for the determination of TITRATABLE TOTAL ACIDITY for wine analysis

Mi456 is a user-friendly microprocessor-based mini-titrator for the determination of the titratable total acidity in the process of wine making. This mini-titrator gives you direct readings in g/L of tartaric acid, with a range of 0.0 to 25.0 g/L.

The instrument comes with a pre-programmed analysis method for the titratable total acidity measurements on wine sample.
Also called TA and sometimes total acidity, titratable acidity is the sum of the fixed and volatile acids present in a wine. This is determined by a chemical process called titration. The titratable acidity is usually expressed in terms of tartaric acid, even though the other acids are also measured. Titratable acidity is expressed either as a percentage or as grams per liter. For example, 0.7% TA is the same as 7 grams per liter (or 7 g/l) TA.

Acidity in the must will result in a poor fermentation and a slightly medicinal and flat taste. Too much acid will give the wine an unpleasant sourness or tartness. Some acid is necessary for fermentation, and up to one-fourth of the initial acid content will be consumed by the yeast during fermentation. Low-acid musts are usually corrected by adding tartaric acid (the principle acid in grapes), malic acid, citric acid, or acid blend. An acid testing kit is indispensable in measuring initial acidity.

Glass electrode & Temp Probe

pH electrodes and Temperature Probe are supplied with the Mi456.

Accessories

Mi556-001	Calibration standard TA (100 mL bottle)
Mi556-002	Titrant TA (100 mL bottle)
Mi556-003	Buffer pH 7.0 (100 mL bottle)
Mi556-004	Buffer pH 8.2 (100 mL bottle)
MA919B/1	pH Electrode
MA831R	Temperature probe
MA9011	Refilling Electolyte Solution 3.5M KCl, for ORP electrodes, 230 mL bottle
Mi0009	Small stir bars (5 pcs)
Mi0020	50 mL beaker (4 pcs)
Mi0022	2000 µL pipette (1 pc)
Mi0023	Pipette tips for 2000 µL pipette (4 pcs)

Mi456	Titratable Total Acidity
Range	0.0 to 25.0 g/L of tartaric acid
Resolution	0.1 g/L
Accuracy	5% of reading
Method	acid-base titration method
Principle	end-point titration
pH calibration	1 point in selected end-point: 7.00 pH or 8.20 pH
Sample Volume	2 mL
Temperature Compensation	Automatic from 0.0 to 100.0°C
pH electrode	MA919B/1 (included)
Temperature Probe	MA831R (included)
Pump Volume	0.5 mL/min
Stirring Speed	1500 rpm
Environment	0 to 50°C; max RH 95%
Power Supply	220V/50 Hz; 10VA
Dimensions	208 x 214 x 163 mm
Weight	2.2 Kg

Ordering Information

Mi456 is supplied complete with:
Calibration standard TA, Titrant TA, Buffer pH 7.0, Buffer pH 8.2, MA919B/1 pH Electrode, MA831R Temperature probe, MA9011Refilling Electolyte Solution 3.5M KCl, for pH electrodes 230 mL bottle, small stir bar, 2 x 50 mL beakers, 2000 µL pipette, test tube set, O-ring, 1 mL syringe, power cable and instruction manual.

Mi150/Mi151 - Bench Meters

pH/ORP/Temperature & pH/ORP/ISE/Temperature Bench Meters

Mi150 is an advanced pH/Temp microprocessor-based bench meter.
Mi151 can also measure with ORP electrodes, thanks to its capability to measure mV with a resolution up to 0.1 mV.
They're ideal for students and technicians who need fast and reliable measurements.
These meters are provided with a series of new diagnostic features which add an entirely new dimension to the measurement of pH, by allowing the user to dramatically improve the reliability of the measurement:

- Automatic Temperature Compensation (ATC) for good accuracy under fluctuating temperatures;
- Easy to read large custom LCD;
- Easy and Quick Push-button Calibration
- 7 memorized buffers (pH 1.68, 4.01, 6.86, 7.01, 9.18, 10.01 and 12.45) for calibration;
- Messages on the LCD to make the calibration easy and accurate;
- User-selectable "calibration time out" to remind when a new calibration is necessary;
- Stability Indicator prompts whenever reading stabilizes.

Moreover, they offer an extended temperature range from –20°C (–4°F) to 120°C (248°F), using the MA831R interchangeable temperature probe.
For accurate measurements, use the electrode holder supplied with the meter.

Glass Electrode & Temp Probe

Choose from our wide selection of pH and ORP electrodes at page 17.

		Mi150	Mi151
Range	pH	-2.00 to 16.00 pH	-2.00 to 16.00 pH
	mV		±699.9 mV / ±1999 mV
	Temp	-20.0 to 120.0°C / -4.0 to 248.0°F	-20.0 to 120.0°C / -4.0 to 248.0°F
Resolution	pH	0.01 pH	0.01 pH
	mV		0.1 mV / 1 mV
	Temp	0.1°C (0.1°F)	0.1°C (0.1°F)
Accuracy (@ 20°C)	pH	±0.01 pH	±0.01 pH
	mV		±0.2 mV / ±1 mV
	Temp	±0.4°C / ±0.8°F	±0.4°C / ±0.8°F
Typical EMC Deviation	pH	±0.02 pH	±0.02 pH
	mV		±0.2 mV / ±1 mV
	Temp	±0.4°C / ±0.8°F	±0.4°C / ±0.8°F
pH Automatic Calibration		1 or 2 point-calibration, with 7 memorized buffers	
Offset Calibration		±1 pH	
Slope Calibration		from 80 to 108%	
Temperature Compensation		automatic, from -20.0 to 120.0°C / -4.0 to 248.0°F or manual, without temperature probe	
pH Electrode		MA917B/1 (included)	
Temperature Probe		MA831R (included)	
Environment		0 to 50°C / 32 to 122°F; max RH 95%	
Input Impedance		10^{12} Ohm	
Power supply		12 VDC power adapter (included)	
Dimensions		230 x 160 x 95 mm	
Weight		0.9 kg	

Accessories

MA917B/1	Glass body, double junction refillable pH electrode
MA921B/1	Double junction, gel filled ORP electrode with platinum sensor
MA831R	Temperature probe
MA9001	pH 1.68 buffer solution, 230 mL bottle
MA9004	pH 4.01 buffer solution, 230 mL bottle
MA9006	pH 6.86 buffer solution, 230 mL bottle
MA9007	pH 7.01 buffer solution, 230 mL bottle
MA9009	pH 9.18 buffer solution, 230 mL bottle
MA9010	pH 10.01 buffer solution, 230 mL bottle
MA9012	Refilling solution for pH electrode, 230 mL bottle
MA9015	Electrode storage solution, 230 mL
MA9016	Electrode cleaning solution, 230 mL
MA9112	pH 12.45 buffer solution, 230 mL bottle
MA9310	12 VDC Adapter, 220 V
MA9311	12 VDC Adapter, 110 V
MA9315	Electrode Holder

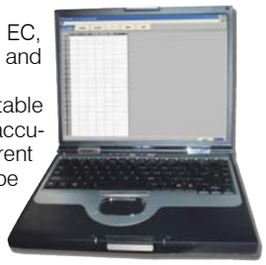
Ordering Information

Mi150 and Mi151 are supplied complete with:

- MA917B/1 Double junction refillable pH electrode
- 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
- M10016 Sachet Electrode Cleaning Solution
- Graduate Pipet
- 12 VDC Adapter
- Instruction manual

Mi180 - Bench Meter

pH/ORP/EC/TDS/NaCl/Temperature Bench Meters



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.

Rear Connector Panel Layout

Communication to the PC is done via opto-isolated USB and RS232 ports.

Accessories

MA917B/1	Double junction refillable pH electrode
MA814D/1	EC/TDS/NaCl/Temperature probe, 1 m cable
MA921B/1	Double junction, gel filled ORP electrode
MA831R	Temperature probe
MA9001	pH 1.68 buffer, 230 mL bottle
MA9004	pH 4.01 buffer, 230 mL bottle
MA9006	pH 6.86 buffer, 230 mL bottle
MA9007	pH 7.01 buffer, 230 mL bottle
MA9009	pH 9.18 buffer, 230 mL bottle
MA9010	pH 10.01 buffer, 230 mL bottle
MA9012	Refilling solution for pH electrode, 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
MA9350	RS232 connection cable with 2 meters cable

Ordering Information

Mi180 is supplied complete with MA917B/1 pH Electrode, MA814D/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, M10016 Sachet Electrode Cleaning Solution, Mi5200 Application Software, MA9350 RS232 connection cable with 2 meters cable, Graduate Pipet, 12 VDC Adapter & Instruction manual

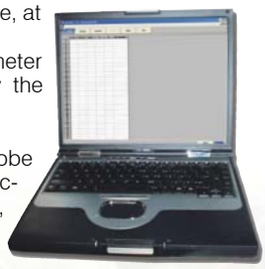
Mi180		pH/ORP/EC/TDS/Temperature
Range	pH / mV	-2.00 to 16.00 pH; -2.000 to 16.000 pH / ±699.9 mV; ±2000 mV
	EC	0.00 to 29.99 µS/cm; 30.0 to 299.9 µS/cm; 300 to 2999 µS/cm; 3.00 to 29.99 mS/cm; 30.0 to 200.0 mS/cm; up to 500.0 mS/cm
	TDS	0.0 to 14.99 mg/L (ppm); 15.0 to 149.9 mg/L (ppm); 150 to 1499 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%
	Temp	-20.0 to 120.0°C / -4.0 to 248.0°F
Resolution	pH / mV	0.01 pH; 0.001 pH / 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
	NaCl	0.1%
	Temp	0.1°C / 0.1°F
Accuracy	pH / mV	±0.01 pH; ±0.002 pH / ±0.2 mV; ±1 mV
	EC	±1% of reading ±(0.05 µS/cm or 1 digit)
	TDS	±1% of reading ±(0.03 ppm or 1 digit)
	NaCl	±1% reading
	Temp	±0.4°C / ±0.8°F
Rel mV offset		±2000 mV
Calibration	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)
	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 Electrodes & Temp Probe		MA917B/1 & MA831R (included)
EC/TDS/NaCl/Temp Probe		MA814D/1 (included)
TDS Factor		0.40 to 0.80 (default value is 0.50)
Log on demand		up to 50 samples on each range (pH, mV, EC, TDS, NaCl)
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^{12} Ohm
Power supply		12 VDC power adapter (included)
Dimensions		230 x 160 x 95 mm
Weight		0.9 kg

Mi190 - Bench Meter

Extended Range Bench Dissolved Oxygen Meter

Ideal for testing Dissolved Oxygen during the winemaking process, as well as monitoring in water treatment plants. The user can choose to measure D.O. readings in mg/L or % of saturation of O_2.
This meter can be used for any type of water, as it allows measurements to compensate for temperature, altitude and salinity factors. The automatic logging interval can be set to perform analysis and store data into the memory.

All logged data can be downloaded to your PC through an RS232 or USB serial port. Memory can store up to 50 samples.
Mi190 features an automatic calibration procedure, at 1 or 2 points (at 0 and 100% of O_2 saturation).
The polarographic probe supplied with the meter (MA840/2) measures the current generated by the reaction of O_2 with Ag.



Mi190 is supplied complete with MA840/2 DO probe with 2 m cable, 2 spare membranes, MA7041 electrolyte solution (30 mL), 12 VDC power adapter, probe holder and instruction manual.

Rear Connector Panel layout

Communication to the PC is made via opto-isolated USB and RS232 ports.

Mi190		Dissolved Oxygen
Range	O_2	0.00 to 45.00 mg/L (ppm)
	% Saturation O_2	0.0 to 300%
	Temp	-5.0 to 55.0°C / 23.0 to 131.0°F
Resolution	O_2	0.01 mg/L (ppm)
	% Saturation O_2	0.1%
	Temp	0.1°C / 0.1°F
Accuracy	O_2	±1.5 Full Scale
	% Saturation O_2	±1.5 Full Scale
	Temp	±0.4°C / ±0.8°F
Logging		50 records, LOG on demand or auto-logging
DO Calibration		automatic, 1 or 2 point at 0% (MA9070) and 100% (in air)
Temperature Compensation		0.0 to 50.0°C / 32.0 to 122.0°F
Altitude Compensation		0 to 4000 m; resolution 100 m
Salinity Compensation		0 to 40 g/L; resolution 1 g/L
DO Probe		MA840/2 with DIN connector (included)
Temperature Probe		included in DO probe
Calibration		2 points (0.0°C and 50.0°C / 32.0 and 122.0°F)
Log on demand		up to 50 records
PC interface		RS232 / USB Opto-isolated
Power supply		12 VDC power adapter (included)
Environment		0 to 50°C / 32 to 122°F; max RH 95%
Dimensions		230 x 160 x 95 mm
Weight		0.9 Kg

Accessories

MA840/2	DO probe with 2 meters cable
MA841	Spare membrane (5 pcs)
MA9070	Zero Oxygen Solution, 230 mL bottle
MA9071	Refilling Electrolyte Solution, 230 mL bottle
MA9310	12 VDC Adapter, 220 V
MA9311	12 VDC Adapter, 110 V
MA9315	Electrode Holder
MA9350	RS232 connection cable with 2 m cable
Mi5200	Application Software

Ordering Information

Mi190 is supplied complete with:
- MA840/2 DO probe with 2 meter cable
- MA841 Spare membrane
- MA9071 Electrolyte solution
- MA9315 Electrode Holder
- Mi5200 Application Software
- MA9350 RS232 connection cable with 2 meters cable
- 12 VDC Adapter
- Instruction manual

Mi605 - Portable Meter

Portable D.O. Meter for Field Applications

Mi605 is a portable, microprocessor-based, Dissolved Oxygen meter with automatic calibration and temperature compensation (ATC) specifically designed for spot sampling applications.
Dissolved Oxygen measurements can be displayed in parts per million (ppm=mg/L) or in % of saturation.
The temperature is indicated in Celsius from 0 to 50°C with 0.1 resolution.
The meter compensates for salinity and altitude automatically after manual input.

Calibration is very simple and fast: just expose the polarographic Dissolved Oxygen probe MA840, supplied with the instrument, to air and press the CAL button.
No need for chemical solutions!

HOLD button allows the user to freeze the reading on the LCD.
The low battery indicator and the easy to replace screw on cap membranes make the Mi605 a compact instrument and ideal for all applications: aquaculture, wastewater, environmental and educational.

Hard Carrying Case

Mi605 is supplied in a hard carrying case complete with a D.O. probe, spare membranes, calibration solutions, battery and instructions.

Polarographic D.O. Probe

Polarographic D.O. probe with 2 meters cable.

Accessories

MA9071	Refilling Electrolyte solution, 230 mL bottle
MA841	Spare membrane (5 pcs)
MA840/3	D.O. Probe

Ordering Information

Mi605 is supplied complete with MA840/3 polarographic D.O. probe with 3 meter cable, 2 spare membranes, 20 mL bottle of electrolyte solution, rugged carrying case, 9V battery and instructions.

Mi605		Dissolved Oxygen
Range	O_2	0.0 to 45.00 mg/L (ppm)
	% Saturation O_2	0.0 to 300%
	Temp	0.0 to 50.0°C / 32 to 122°F
Resolution	O_2	0.01 mg/L (ppm)
	% Saturation O_2	0.1 %
	Temp	0.1°C
Accuracy	O_2	±1.5% Full Scale
(@25°C)	% Saturation O_2	±1.5% Full Scale
	Temp	±0.5°C
Typical EMC	O_2	±0.3 mg/L (ppm)
Deviation	% Saturation O_2	±3.5%
	Temp	±0.5°C
Calibration		automatic in saturated air
Temperature Compensation		automatic, from 0 to 50°C / 32 to 122°F
Altitude Compensation		0 to 4000 m; 100 m resolution
Salinity Compensation		0 to 80 g/L; 1 g/L resolution
DO Probe		MA840/3 (included)
Environment		0 to 50°C / 32 to 122°F; max RH 100%
Battery Type		1 x 9V alkaline (included)
Battery Life		approx. 100 hours of use
Auto-off		after 4 hours of non-use
Dimensions		200 × 85 × 50 mm
Weight		280 g (with battery)

Mi415 - Turbidity Photometer

Turbidity Meter

Turbidity refers to the concentration of undissolved, suspended particles present in a liquid.

Turbidity is a measurement of the clarity of a sample.
For potable water applications turbidity is a good indicator of water quality. Turbidity Measurement is achieved by analyzing the amount of light refracted from suspended particles such as clay, silt and organic material.
By measuring turbidity, by photometric or tube methods, it is possible to estimate suspended solids content.
Mi415 has two operating ranges; 0.00 to 50.00 FNU, and 50 to 1000 FNU that can accommodate the most turbid condition you may encounter.

Mi415 is supplied in a hard carrying case, complete with reagents.

AVAILABLE SOON!

Introduction to Turbidity

The cloudy appearance of water (called Turbidity) is caused by suspended material. The unit of measure adopted by the ISO Standard is the FNU (Formazine Nephelometric Unit) and by EPA is NTU (Nephelometric Turbidity Unit).
The other two methods used to test for turbidity and their measurement units are the JTU (Jackson Turbidity Unit) and the Silica unit (mg/L SiO_2).
See the conversion table of these methods and their units for your reference.

	JTU	FTU (NTU/FNU)	SiO_2 (mg/L)
JTU	1	19	2.5
FTU	0.053	1	0.13
SiO_2	0.4	7.5	1

Mi415	Turbidity
Range	0.00 to 50.00; 50 to 1000 NTU
Resolution	0.01 FNU; 1 FNU
Accuracy	±0.5 FNU or ±5% of reading, whichever is greater
Light Source	high emission infrared LED
Light Detector	silicon photocell
Method	detection of scattered light
Environment	0 to 50°C; max RH 95%
Battery Type	1 x 9V
Auto-off	After 15 minutes of non-use
Dimensions	192 x 104 x 52 mm
Weight	0.5 kg

Accessories

Mi515-00	AMCO-AEPA-1 @ 0 FNU, calibration solution, 30 mL AMCO-AEPA-1 @ 10 FNU, calibration solution, 30 mL AMCO-AEPA-1 @ 500 FNU, calibration solution, 30 mL
Mi0001	Glass cuvets (2 pcs)
Mi0002	Caps for cuvets (2 pcs)
Mi0003	Stoppers for cuvets (2 pcs)
Mi0004	Tissue for wiping cuvets (4 pcs)
Mi0005	9V battery (1 pc)

Ordering Information

Mi415 is supplied complete with 2 cuvets, reagents, hard carrying case, wiping tissue, 9V battery and instructions.

SM102 - Portable Meter

Smart pH/Temperature Portable Meter with no frills

Milwaukee's low cost durable pH meter for quick and reliable measurements.
Milwaukee's SM102 Smart meter is manufactured to be easy to use, practical and accurate. Ideal for the laboratory or for general field use.
SM102 is a microprocessor based pH/Temperature meter with extended range (-2.00 to 16.00 pH), Automatic Temperature Compensation, automatic calibration in 2 points and ±0.02 pH accuracy.

The meter is supplied with pH electrode, temperature probe and calibration solutions.

SM102		pH/Temperature
Range	pH / Temp	-2.00 to 16.00 pH / -5 to 70°C
Resolution	pH / Temp	0.01 pH / 0.1°C
Accuracy	pH / Temp	±0.02 pH / ±0.5°C
Typical EMC Deviation	pH / Temp	±0.02 pH / ±0.5°C
Temperature Compensation		automatic, 0 to 70°C
Calibration		automatic, at 1 or 2 points
pH Electrode		MA911B/1 (included)
Temperature Probe		MA830R (included)
Environment		0 to 50°C, max RH 95%
Battery Type		1 x 9V alkaline (included)
Battery Life		approx. 300 hours of use
Auto-off		after 8 minutes of non-use
Dimensions		145 x 80 x 40 mm
Weight		220 g (with battery)

Ordering Information

SM102 is supplied complete with a MA911B/1 pH electrode, MA830R stainless steel temperature probe, pH 4.01 and pH 7.01 20 mL sachet of calibration solution, 9V battery and instructions.

Accessories

MA911B/1	pH electrode with BNC connector and 1 m cable
MA950	Portable meter wall fixing kit
MA830R	Temperature probe
M10004B	pH 4.01 buffer solution 20 mL sachet (25 pcs)
M10007B	pH 7.01 buffer solution 20 mL sachet (25 pcs)
M10010B	pH 10.01 buffer solution 20 mL sachet (25 pcs)
MA9004	pH 4.01 buffer solution, 230 mL bottle
MA9007	pH 7.01 buffer solution, 230 mL bottle
MA9010	pH 10.01 buffer solution, 230 mL bottle
MA9015	Electrode storage solution, 230 mL
MA9016	Electrode cleaning solution, 230 mL
M10000B	Electrode rinse solution, 20 mL sachet (25 pcs)

pH55/pH56 - Testers

Pocket-size pH/Temperature Meters with replaceable electrode

IP67 Waterproof pH testers with Large dual-level LCD that displays pH and temperature (°C or °F). The large display shows readings in an extended range from -2.0 to 16.0 pH (pH56 has a 0.01 pH resolution) and simultaneously shows temperature from -5.0 to 105.0°C or 23.0 to 221.0°F. They have a stability indicator and hold function that freezes the display for easy and accurate recording. The large display also has graphic symbols to guide you through all operations.
Complete with a temperature probe for faster and more precise temperature measurement they compensate automatically for temperature. Calibration is made automatically in 1 or 2 points with memorized standard and NIST buffer sets. Auto power OFF saves battery power after non-use. The double-junction electrode can be replaced in a very fast and simple way!
The modular design allows easy electrode and battery replacement.

Accessories

Mi56P	Replaceable electrode for pH55 & pH56
M10004B	pH 4.01 buffer solution 20 mL sachet (25 pcs)
M10007B	pH 7.01 buffer solution 20 mL sachet (25 pcs)
M10010B	pH 10.01 buffer solution 20 mL sachet (25 pcs)
MA9004	pH 4.01 buffer, 230 mL bottle
MA9006	pH 6.86 buffer solution, 230 mL bottle
MA9007	pH 7.01 buffer solution, 230 mL bottle
MA9009	pH 9.18 buffer solution, 230 mL bottle
MA9010	pH 10.01 buffer solution, 230 mL bottle
MA9015	Electrode storage solution, 230 mL
MA9016	Electrode cleaning solution, 230 mL
M10000B	Electrode rinse solution, 20 mL sachet (25 pcs)

Ordering Information

pH55 is supplied complete with protective cap, 20 mL, pH 4.01 and pH 7.01 sachets of calibration solution, hard carrying case, batteries and instructions.
pH56 is supplied complete with protective cap, 20 mL pH 4.01 and pH 7.01 sachets of calibration solution, hard carrying case, batteries and instructions.

		pH55	pH56
Range	pH	-2.0 to 16.0 pH	-2.00 to 16.00 pH
	Temp	-5.0 to 60.0°C / 23.0 to 140.0°F	-5.0 to 60.0°C / 23.0 to 140.0°F
Resolution	pH	0.1 pH	0.01 pH
	Temp	0.1°C / 0.1°F	0.1°C / 0.1°F
Accuracy (@25°C)	pH	±0.1 pH	±0.05 pH
	Temp	±0.5°C / ±1°F	±0.5°C / ±1°F
Typical EMC Deviation	pH	±0.1 pH	±0.02 pH
	Temp	±0.3°C / ±0.6°F	±0.3°C / ±0.6°F
Calibration		automatic, 1 or 2 points with 2 sets of memorized buffers (pH 4.01, 7.01, 10.01 or 4.01, 6.86, 9.18)	
Temperature Compensation		automatic, from -5 to 60°C	
Probe		Mi56P (replaceable)	
Environment		-5 to 50°C / 32 to 122°F; max RH 100%	
Battery Type		4 x 1.5V; IEC LR44, A76 (included)	
Battery Life		approx. 300 hours of use	
Auto-off		after 8 minutes of non-use	
Dimensions		200 x dia 38 mm	
Weight		100 g	

Refractometers

Refractometers for Agri-food Applications

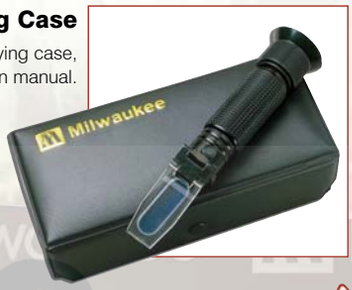
The MR series of refractometers are precision optical Instruments used for measuring concentrations of substances in aqueous solutions. They work using the principle of light refraction through liquids. When passing light through a liquid the refracted angle will be shown on the scale determining the amount of dissolved solids in the liquid.
Very simple to use: simply place one drop of your sample on the prism and read the results on the scales immediately!
They have adjustable focus and they provide direct readings and can measure concentrations of all kinds of solutions such as: fruit juices, beverages, wine, jam, honey, milk, salt water and canned foods.

Models with automatic temperature compensation (ATC) are suitable for applications where the temperature of the samples varies.

	Range	Resolution	Accuracy
MR32ATC	0-32% Brix	0.1% Brix	±0.2%
MR200ATC	0-140°Oe 0-25KMWBabo 0-32% Brix	1°Oe 0.2°KMWBabo 0.1% Brix	±1°Oe ±0.2°KMWBabo ±0.1%
MR210ATC	0-190°Oe 0-40°KMWBabo 0-44% Brix	2.0°Oe 0.5°KMWBabo 0.5% Brix	±2.0°Oe ±0.5°KMWBabo ±0.5%

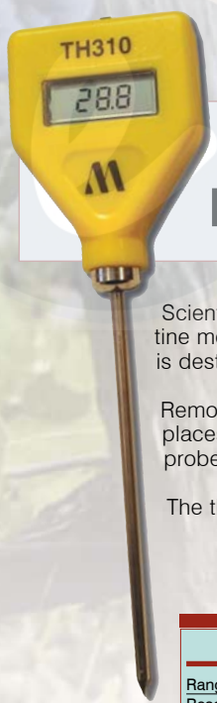
Hard carrying Case

Each refractometer is supplied with hard carrying case, calibration screwdriver, dosing pipette and instruction manual.



TH300/TH310 - Thermometers

Pocked-sized with Automatic Calibration Check & Thermistor Thermometers



Scientists and laboratory technicians rely on the accuracy of their thermometers when performing routine measurements. For this reason, Milwaukee developed the TH310. This palm-sized unit is a highly accurate thermometer that is destined to make glass thermometers obsolete.

Remote temperature measurements require a versatile thermometer with a remote probe that can be used in a hard-to-reach places. The meter must also be easily readable at an angle. The TH300 is equipped with a stainless steel general purpose probe and 1 meter cable to make remote reading a simple task.

The thermometers have easy-to-read display which shows clear readings at any angle.

	TH300	TH310
Range	-50.0 to 150.0°C	-50.0 to 150.0°C
Resolution	0.1°C	0.1°C
Accuracy (@20°C)	±0.5°C (-20 to 90°C)	±0.5°C (-20 to 90°C)
Typical EMC Deviation	±0.3°C	±0.3°C
Probe	Stainless steel with 1 m cable	Stainless steel
Switch ON/OFF	no	yes
Calibration Check	no	yes
Environment	0 to 50°C; max RH 95%	0 to 50°C; max RH 95%
Battery Tipe	1 x 1.4V	1 x 1.5V
Battery Life	1 year approx.	approx 3000 hours of continuos use
Dimensions	106 x 58 x 19 mm	66 x 50 x 25 mm
Weight	70 g	50 g

Ordering Information

TH310 is supplied with stainless steel probe with 1 meter cable, batteries and instruction manual.
TH300 is supplied with batteries and instruction manual.

Accessories - Electrodes & Probes

pH, ORP, CONDUCTIVITY and DISSOLVED OXYGEN Electrodes & Probes

Milwaukee has a wide assortment of pH, ORP, Conductivity and other specialty sensors to meet all your specific requirements. Finding the right electrode for a specific application is a very important task and In order to solve this selection problem it is important to consider the following: electrode body, reference construction and junction.
Below you will find a list of Milwaukee electrodes and probes.
Special electrodes for specific applications can also be manufactured upon request.

Code	Description
MA831R	Temperature probe
MA840	Polarographic D.O. probe with 3 meter cable
MA841	Spare membrane, 5 pcs
MA9108/1	Combined glass-body, refillable, triple junction pH electrode with BNC connector, 1 m cable
MA9198/1	pH probe with 1 meter cable (for M456)
MA9218/1	Double junction, gel filled ORP electrode with platinum sensor, BNC connector, 1 m cable
MA9218/2	Double junction, gel filled ORP electrode with platinum sensor, BNC connector, 2 m cable
MA9230/1	pH/ORP/Temp amplified probe with DIN connector, 1 m cable
MA9238/3	Epoxy-body ORP electrode for swimming pools with BNC connector, 3 m cable
MA9248/1	ORP probe with 1 meter cable (for MI55)

Accessories - Solutions & Reagents

CALIBRATION, MAITENANCE and CLEANING Solutions & Reagents

Milwaukee offers a wide range of calibration, maintenance & Cleaning solutions.
The use of calibration and cleaning solutions is fundamental for the correct use of electrodes and for obtaining the most accurate and reproducible readings. Often readings are not correct because the sensors have not been properly handled. Milwaukee standard solutions are available in 230 mL bottles and 20 mL sachets.
Traditional buffer solutions are packed in 230 mL leak-proof bottles and are recommended for lab applications.
Sachets are sealed against light and air and are ideal for on-the-spot calibration. Simply open, insert the tester or electrode into the sachet and calibrate. Sachets are sold in boxes of 25 pieces.

Code	Reagents
M515-00	AMCO-AEPA-1 @ 0 FNU, calibration solution, 30 mL AMCO-AEPA-1 @ 10 FNU, calibration solution, 30 mL AMCO-AEPA-1 @ 500 FNU, calibration solution, 30 mL
M-550-020	Total phenols reagent set (20 tests)
M-55051-040	Wine solvent 1 (4 x 100 mL bottle)
M-55053-040	Wine solvent 3 (4 x 100 mL bottle)
M-551-020	Copper reagent set (20 tests)
M-552-020	Iron reagent set (20 tests)
M-553-020	Reducing sugars (20 tests)
M-554-020	Tartaric acid reagent set (20 tests)
M-555-001	Calibration standard, SO2 (500 mL bottle)
M-555-002	Titrant SO2 (100 mL bottle)
M-555-003	Alkaline reagent for total SO2, (4 x 100 mL bottle)
M-555-004	Acid reagent for total SO2, (4 x 100 mL bottle)
M-555-005	Acid reagent for free SO2, (4 x 100 mL bottle)
M-555-006	Stabilizer, SO2, (60 pp)
M-556-001	Calibration standard TA (100 mL bottle)
M-556-002	Titrant TA (100 mL bottle)
M-556-003	Buffer pH 7.0 (100 mL bottle)
M-556-004	Buffer pH 8.2 (100 mL bottle)
M-590-021	Peroxides reagent set (21 tests)

Code	Solutions
MA9001	pH 1.68 Calibration Buffer Solution, 230 mL
MA9004	pH 4.01 Calibration Buffer Solution, 230 mL
MA9007	pH 7.01 Calibration Buffer Solution, 230 mL
MA9011	Refilling Electrolyte Solution 3.5M KCl for ORP electrodes, 230 mL
MA9015	Storage Solution for pH/ORP electrodes, 230 mL
MA9016	Cleaning Solution for pH/ORP electrodes, 230 mL
MA9020	200-275 mV ORP Solution, 230 mL
MA9060	12880 µS/cm Conductivity Calibration Solution, 230 mL
MA9061	1413 µS/cm Conductivity Calibration Solution, 230 mL
MA9069	5000 µS/cm Conductivity Calibration Solution, 230 mL
MA9070	Zero Oxygen Solution, 230 mL
MA9071	Electrolyte Solution for D.O. Probes, 230 mL

Warranty

Milwaukee/Martini Instruments warrants its instruments to be free from manufacturing defects as follows: bench meters for 3 years, photometers, mini-titrators, portable meters and testers for 2 years, electrodes/sensor for 6 months (unless otherwise specified).

Milwaukee/Martini Instruments reserves the right to make improvements in design, construction and appearance of its products without advance notice.

Iron
Copper
Color & Phenols
Reducing Sugars
Tartaric Acid
Peroxide Value
Free & Total
Sulphur Dioxide
Titratable Total Acidity
Total Dissolved Solids
Conductivity
Dissolved Oxygen
pH/ORP/ISE
Temperature
NaCl
Turbidity

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