

# MA871/MA872/MA873/MA881

## Digital Refractometers for Brix, Fructose, Glucose and Invert Sugar Measurements

The digital refractometers are optical instruments that employ the measurement of refractive index to determine the % Brix of sugar (MA871), % Fructose (MA872), % Glucose (MA873) and % Invert Sugar (MA881) in aqueous solutions.





The method is both simple and quick. Samples are measured after a simple user calibration with deionized or distilled water. Within seconds the instruments measure the refractive index of the sample and convert it to % Brix or % by weight concentration units.

The digital refractometers eliminate the uncertainty associated with mechanical refractometers and are easily portable for measurements in the field.

The measurement technique and temperature compensation employ methodology recommended in the ICUMSA Methods Book (Internationally recognized body for Sugar Analysis). Temperature (in °C or °F) is displayed simultaneously with the measurement on the large dual level display along with icons for Low Power and other helpful message codes.

**Key features include:**

- Dual-level LCD
- Automatic Temperature Compensation (ATC)
- Easy setup and storage
- Battery operation with Low Power indicator (BEPS)
- Automatically turns off after 3 minutes of non-use

Specifications	 <b>MA871 Brix</b>	 <b>MA872 Fructose</b>	 <b>MA873 Glucose</b>	 <b>MA881 Invert Sugar</b>
Range	0 to 85% Brix 0 to 80°C / 32 to 176°F	0 to 85% mass 0 to 80°C / 32 to 176°F	0 to 85% mass 0 to 80°C / 32 to 176°F	0 to 85% mass 0 to 80°C / 32 to 176°F
Resolution	0.1% Brix 0.1°C / 0.1°F	0.1% 0.1°C / 0.1°F	0.1% 0.1°C / 0.1°F	0.1% 0.1°C / 0.1°F
Accuracy	±0.2% Brix ±0.3°C / ±0.5°F	±0.2% ±0.3°C / ±0.5°F	±0.2% ±0.3°C / ±0.5°F	±0.2% ±0.3°C / ±0.5°F
Light Source	yellow LED	yellow LED	yellow LED	yellow LED
Measurement Time	approximately 1.5 seconds	approximately 1.5 seconds	approximately 1.5 seconds	approximately 1.5 seconds
Minimum Sample Volume	100 µL (cover prism totally)	100 µL (cover prism totally)	100 µL (cover prism totally)	100 µL (cover prism totally)
Sample Cell	SS ring and flint glass prism	SS ring and flint glass prism	SS ring and flint glass prism	SS ring and flint glass prism
Temperature Compensation	automatic between 10 and 40°C / 50 to 104°F	automatic between 10 and 40°C / 50 to 104°F	automatic between 10 and 40°C / 50 to 104°F	automatic between 10 and 40°C / 50 to 104°F
Case Material	ABS	ABS	ABS	ABS
Enclosure Rating	IP 65	IP 65	IP 65	IP 65
Battery Type	1 x 9V AA (included)	1 x 9V AA (included)	1 x 9V AA (included)	1 x 9V AA (included)
Battery Life	5000 reading	5000 reading	5000 reading	5000 reading
Auto-shut off	after 3 minutes of non-use	after 3 minutes of non-use	after 3 minutes of non-use	after 3 minutes of non-use
Dimensions	192 x 102 x 67 mm	192 x 102 x 67 mm	192 x 102 x 67 mm	192 x 102 x 67 mm
Weight	420 g	420 g	420 g	420 g

**Ordering Information**

MA871, MA872, MA873 and MA881 are supplied complete with Mi0005 9V battery and instruction manual.



**Stainless Steel Sample  
Well and Prism**

Place a few drops of the sample in the well and press the READ key.



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# MA882/MA883/MA884/MA885

## Digital Refractometers for Grape Juice Must Measurements

The **MA882**, **MA883**, **MA884** and **MA885** are optical instruments that are based on the measurement of the refractive index of a solution. The measurement of refractive index is simple and quick and provides the vintner an accepted method for sugar content analysis. Samples are measured after a simple user calibration with deionized or distilled water. Within seconds the instrument measures the refractive index of the grape. This digital refractometers eliminate the uncertainty associated with mechanical refractometers and are easily portable for measurements in the field. The four instruments utilize internationally recognized references for unit conversion and temperature compensation.

- **MA882** measures %Brix;
- **MA883** measures °Baumé;
- **MA884** measures %Brix and Potential Alcohol (% vol);
- **MA885** measures %Brix, °Oechsle (°Oe) and °KMW (°Babo).


Temperature (in °C or °F) is displayed simultaneously with the measurement on the large dual level display along with icons for Low Power and other helpful message codes.

### Key features include:

- Dual-level LCD
- Automatic Temperature Compensation (ATC)
- Easy setup and storage
- Battery operation with Low Power indicator (BEPS)
- Automatically turns off after 3 minutes of non-use



### Specifications

				
	<b>MA882</b>	<b>MA883</b>	<b>MA884</b>	<b>MA885</b>
Range	0 to 50% Brix 0 to 80°C / 32 to 176°F	0 to 28 °Baumé 0 to 80°C / 32 to 176°F	0 to 50% Brix 0 to 25% v/v Potential Alcohol 0 to 80°C / 32 to 176°F	0 to 50% Brix 0 to 230°Oechsle 0 to 42 °KMW 0 to 80°C / 32 to 176°F
Resolution	0.1% Brix 0.1°C / 0.1 °F	0.1 °Baumé 0.1°C / 0.1 °F	0.1% Brix 0.1% v/v Potential Alcohol 0.1°C / 0.1°F	0.1% Brix 0.1 °Oechsle 0.1 °KMW 0.1°C / 0.1°F
Accuracy	±0.2% Brix ±0.3°C / ±0.5°F	±0.1 °Baumé ±0.3°C / ±0.5°F	±0.2% Brix ±0.2 v/v Potential Alcohol ±0.3°C / ±0.5°F	±0.2% Brix ±1°Oechsle ±0.2 °KMW ±0.3°C / ±0.5°F
Light Source	yellow LED	yellow LED	yellow LED	yellow LED
Measurement Time	approximately 1.5 seconds	approximately 1.5 seconds	approximately 1.5 seconds	approximately 1.5 seconds
Minimum Sample Volume	100 µL (cover prism totally)	100 µL (cover prism totally)	100 µL (cover prism totally)	100 µL (cover prism totally)
Sample Cell	SS ring and flint glass prism	SS ring and flint glass prism	SS ring and flint glass prism	SS ring and flint glass prism
Temperature Compensation	automatic between 10 and 40°C / 50 to 104°F	automatic between 10 and 40°C / 50 to 104°F	automatic between 10 and 40°C / 50 to 104°F	automatic between 10 and 40°C / 50 to 104°F
Case Material	ABS	ABS	ABS	ABS
Enclosure Rating	IP 65	IP 65	IP 65	IP 65
Battery Type	1 x 9V AA (included)	1 x 9V AA (included)	1 x 9V AA (included)	1 x 9V AA (included)
Battery Life	5000 reading	5000 reading	5000 reading	5000 reading
Auto-shut off	after 3 minutes of non-use	after 3 minutes of non-use	after 3 minutes of non-use	after 3 minutes of non-use
Dimensions	192 x 102 x 67 mm	192 x 102 x 67 mm	192 x 102 x 67 mm	192 x 102 x 67 mm
Weight	420 g	420 g	420 g	420 g

### Ordering Information

MA882, MA883, MA884 and MA885 are supplied complete with Mi0005 9V battery and instruction manual.

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# MA886

## Digital Refractometer for Sodium Chloride Measurements

The **MA886** is an optical instrument that employs the measurement of the refractive index to determine sodium chloride concentration in aqueous solutions used in food preparation.

It is not intended for sea water salinity measurements. The measurement of refractive index is simple and quick and provides the user an accepted method for NaCl analysis. Samples are measured after a simple user calibration with deionized or distilled water. Within seconds the instrument measures the refractive index of the solution.

The digital refractometer eliminates the uncertainty associated with mechanical refractometers and is easily portable for measurements where you need them.

The instrument utilizes internationally recognized references for unit conversion and temperature compensation. It can display the measurement of NaCl concentration 4 different ways: g/100 g, g/100 mL, Specific Gravity, and °Baumé. Temperature (in °C or °F) is displayed simultaneously with the measurement (on 3 of the ranges) on the large dual level display along with icons for Low Power and other helpful message codes.

**Key features include:**

- Dual-level LCD
- Automatic Temperature Compensation (ATC)
- Easy setup and storage
- Battery operation with Low Power indicator (BEPS)
- Automatically turns off after 3 minutes of non-use



Specifications	MA886
Range	0 to 28 g/100 g 0 to 34 g/100 ml 1.000 to 1.216 Specific Gravity 0 to 26 °Baumé 0 to 80°C / 32 to 176°F
Resolution	0.1 g/100 g 0.1 g/100 ml 0.001 Specific Gravity 0.1 °Baumé 0.1°C / 0.1°F
Accuracy	±0.2 g/100 g ±0.2 g/100 ml ±0.002 Specific Gravity ±0.2 °Baumé ±0.3°C / ±0.5°F
Light Source	yellow LED
Measurement Time	approximately 1.5 seconds
Minimum Sample Volume	100 µL (cover prism totally)
Sample Cell	SS ring and flint glass prism
Temperature Compensation	automatic between 10 and 40°C (50 to 104°F)
Case Material	ABS
Enclosure Rating	IP 65
Battery Type	1 x 9V AA (included)
Battery Life	5000 reading
Auto-shut off	after 3 minutes of non-use
Dimensions	192 x 102 x 67 mm
Weight	420 g

**Ordering Information**

MA886 is supplied complete with Mi0005 9V battery and instruction manual.



**Stainless Steel Sample Well and Prism**

Place a few drops of the sample in the well and press the READ key.

**Liquid Cristal Display (LCD)**

Dual Level LCD with Primary and Secondary Display.



# MA887

## Digital Refractometer for Seawater Measurements

The **MA887** is an optical instrument that employs the measurement of the refractive index to determine the salinity of natural and artificial seawater, ocean water or brackish intermediates.

The digital refractometer eliminates the uncertainty associated with mechanical refractometers and is easily portable for ship, shore or home use.

The **MA887** refractometer is an optical device that is simple and quick to use. Samples are measured after a simple user calibration with distilled or deionized water. Within seconds, the refractive index and temperature are measured and converted into one of three popular measurement units; Practical Salinity Units (PSU), Salinity in parts per thousand (ppt), or Specific Gravity (S.G. (20/20)).

All conversion algorithms are based upon respected scientific publications using the physical properties of seawater (not sodium chloride). The temperature (in °C or °F) is also displayed on the large dual level display along with helpful message codes.

Key features include:

- Dual-level LCD
- Automatic Temperature Compensation (ATC)
- Easy setup and storage
- Battery operation with Low Power indicator (BEPS)
- Automatically turns off after 3 minutes of non-use



Years warranty  
2

ATC

Dual Display

Self diagnostics

CE

Specifications	MA887
Range	0 to 50 PSU 0 to 150 ppt 1.000 to 1.114 S.G. (20/20) 0 to 80°C / 32 to 176°F
Resolution	1 PSU 1 ppt 0.001 S.G. (20/20) 0.1°C / 0.1°F
Accuracy	±2 PSU ±2 ppt ±0.002 S.G. (20/20) ±0.3°C / ±0.5°F
Light Source	yellow LED
Measurement Time	approximately 1.5 seconds
Minimum Sample Volume	100 µL (cover prism totally)
Sample Cell	SS ring and flint glass prism
Temperature Compensation	automatic between 10 and 40°C (50 to 104°F)
Case Material	ABS
Enclosure Rating	IP 65
Battery Type	1 x 9V AA (included)
Battery Life	5000 reading
Auto-shut off	after 3 minutes of non-use
Dimensions	192 x 102 x 67 mm
Weight	420 g

Ordering Information

MA887 is supplied complete with Mi0005 9V battery and instruction manual.



Stainless Steel Sample Well and Prism

Place a few drops of the sample in the well and press the READ key.

Liquid Cristal Display (LCD)

Dual Level LCD with Primary and Secondary Display.



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MA888

Digital Refractometer for Ethylene Glycol Measurements

The MA888 is an optical instrument that employs the measurement of the refractive index to determine the % volume and freezing point of ethylene glycol based coolants or antifreeze.

The digital refractometer eliminates the uncertainty associated with mechanical refractometers and is easily portable for use in the field to optimize your cooling system.

The MA888 refractometer is an optical device that is simple and quick to use. Samples are measured after a simple user calibration with distilled or deionized water. Within seconds, the refractive index and temperature are measured and converted into one of two measurement units; % Volume or Freezing Point.

The instrument utilizes internationally recognized references for unit conversion and temperature compensation for ethylene glycol solutions (e.g. CRC Handbook of Chemistry and Physics, 87<sup>th</sup> Edition).

The temperature (in °C or °F) is also displayed on the large dual level display along with helpful message codes.

Key features include:

- Dual-level LCD
- Automatic Temperature Compensation (ATC)
- Easy setup and storage
- Battery operation with Low Power indicator (BEPS)
- Automatically turns off after 3 minutes of non-use



Specifications	MA888
Range	0 to 100% Volume 0 to -50 °C / 32 to -58 °F Freezing Point 0 to 80°C / 32 to 176°F
Resolution	0.1% Volume 0.1°C / 0.1°F Freezing Point 0.1°C / 0.1°F
Accuracy	±0.2% Volume ±0.5°C / ±1.0°F Freezing Point ±0.3°C / ±0.5°F
Light Source	yellow LED
Measurement Time	approximately 1.5 seconds
Minimum Sample Volume	100 µL (cover prism totally)
Sample Cell	SS ring and flint glass prism
Temperature Compensation	automatic between 10 and 40°C (50 to 104°F)
Case Material	ABS
Enclosure Rating	IP 65
Battery Type	1 x 9V AA (included)
Battery Life	5000 reading
Auto-shut off	after 3 minutes of non-use
Dimensions	192 x 102 x 67 mm
Weight	420 g

Ordering Information

MA888 is supplied complete with Mi0005 9V battery and instruction manual.



Stainless Steel Sample  
Well and Prism

Place a few drops of the sample in the well and press the READ key.

Liquid Cristal Display  
(LCD)

Dual Level LCD with Primary and  
Secondary Display.

