

# Concentration

On the next pages you will find various Digital Hand Refractometers which are available as single and dual scale models for a broad application range. In addition, we have a Salt Meter for measuring the salt content for example in fluid and semi solid food in our range.



## Refractometer

### Description:

Digital handheld refractometers for measuring the concentration of different substances in liquid and semi-solid products. The devices feature an automatic temperature compensation and are easy to use.

### Applications:

Concentration measurement of:

- Sugar
- Salt
- Alcohol
- Urea



## Salt Meter

### Description:

The SSX 210 Salt Meter is used to measure the salt content in fluid and semi-solid food products, such as meat, cold cuts, cheese, salads etc. The measurement is performed by determination of the electrical conductivity, as it is dependent on the salt content.

### Applications:

Concentration measurement of:

- Salt



## Refractometer and Salt Meter Set



## DR Digital Hand Refractometers with internal light source



The digital refractometers determine the concentration of various matters, which are solved in fluid or semi-solid substances. They have two decisive advantages to the common, optical refractometers. Thanks to the internal light, they can be used independent from the ambient light. In addition, they calculate and show the measurement values automatically in the display - no reading or converting a scale is necessary any more!

ebro offers models for various applications, which are presented on the following pages.



### Technical Data

#### Measurement Performance

Automatic Temperature Compensation (ATC) ICUMSA (depending on model)

Working temperature range +5 °C ... +40 °C (+41 °F ... +104 °F)

Sample temperature range +5 °C ... +60 °C (+41 °F ... +140 °F)

Temperature sensor accuracy ±1 °C (+5 °C ... +40 °C)

Measurement time 2 sec.

Sample indicator High, Low or No sample

Protection class IP 65 (water resistant)

Battery 3V 2 x AAA (LR03)

Battery lifetime 10000 readings (minimum)

#### Construction

Prism material Optical glass

Prism seal Silicon rubber and Viton

Sample dish 316 stainless steel

Sample surface diameter 8 mm

Sample volume 0.3 ml

Case material ABS

- Wide application scope
- Single and duo scale models
- Zero-calibration with water

## DR Digital Brix Refractometers for the determination of the sugar concentration



The concentration of sugar, important quality characteristic for the production of wine or jam, can be determined very fast and reliable with the Brix-refractometers. This is the typical application of refractometers.

- Measurement of the sugar concentration in fluids and semi-solid substances
- For controls at the production, incoming goods or in stock
- Various measurement ranges available

**DR-10:** Basic refractometer for low sugar concentrations

**DR-12\*:** Basic refractometer for high sugar concentrations

**DR-13\*:** Refractometer for sugar with wide measurement range

**DR-14\*:** Refractometer for sugar with very wide measurement range

*\* Approximately available from Q2 2017*

Type	Scale	Range	Resolution	Accuracy	Part No.
DR-10	Sugar % (°Brix)	0 - 54	0.1	± 0.2	1340-5650
DR-12	Sugar % (°Brix)	40 - 95	0.1	± 0.2	1340-5677
DR-13	Sugar % (°Brix)	0 - 85	0.1	± 0.2	1340-5678
DR-14	Sugar % (°Brix)	0 - 95	0.1	± 0.2	1340-5679

## DR Digital Food and Beverages Refractometers for the F&B industry



The food and beverages refractometers have been created for various applications of the f&b industry. In addition to the brix refractometers, they address most applications.

- Various measurements for the food and beverages industry
- For controls at the production, incoming goods or in stock
- Versions with one or two channels available

**DR-810\*:** Refractometer for measuring the water and sugar in honey

**DR-50:** Refractometer for measuring starch

**DR-620:** Refractometer for producing canned food (sugar and salt)

**DR-710:** Refractometer for producing wine (mass fraction and Oechsle-D)

*\* Approximately available from Q2 2017*

Type	Channel	Scale	Range	Resolution	Accuracy	Part No.
DR-810	A	Sugar % (°Brix)	0-54	0.1	± 0.2	1340-5680
	B	Water in honey %	40-95	0.1	± 0.2	
DR-50	A	Starch %	0 - 30	0.1	± 0.2	1340-5653
DR-620	A	Sugar % (°Brix)	0 - 54	0.1	± 0.2	1340-5668
	B	Salt % (NaCl)	0 - 28	0.1	± 0.2	
DR-710	A	% Mass w/w	0 - 35	0.1	± 0.2	1340-5662
	B	Oechsle (German)	30 - 130	1	± 1	

## DR Digital Special Refractometers for various applications



Using refractometers, the sugar concentration is by far not the only thing that can be measured. Also, not only the f&b industry can use them. Our diverse refractometer models address the demands of customers e.g. in the chemical industry, of sports medicine and veterinaries.

- Diverse measurements
- For the chemical and automobile industries, sports medicine, animal health, etc.
- Additional refractometer types and measurements available upon request



- DR-660\*:** General purpose refractometer (°Brix and refractive index)
- DR-661\*:** General purpose refractometer with wide measurement range (°Brix and refractive index)
- DR-340:** Refractometer for the automotive industry (Adblue<sup>®</sup> and antifreeze)
- DR-440:** Refractometer for antifreezes (Ethylen- and Propylenglycol)
- DR-450\*:** Refractometer for plumbers (Ethylen glycol Vol. % and °C protection)
- DR-910\*:** Refractometer for the chemical industry (CaCl<sub>2</sub> and NaCl)
- DR-920\*:** Refractometer for the sports medicine (SG human and sugar)
- DR-930\*:** Refractometer for the animal health (SG small and large mammals)

*\* Approximately available from Q2 2017*

Type	Channel	Scale	Range	Resolution	Accuracy	Part No.
DR-660	A	Sugar % (°Brix)	0 - 54	0.1	± 0.2	1340-5682
	B	refractive index	1.33 - 1.54	0.0001	± 0.0003	
DR-661	A	Sugar % (°Brix)	0 - 95	0.1	± 0.2	1340-5683
	B	refractive index	1.33 - 1.54	0.0001	± 0.0003	
DR-340	A	DEF	0 - 85	0.1	± 0.2	1340-5672
	B	Ethylen glycol °C protection	-40 - +30	1	± 1	
DR-440	A	Ethylen glycol °C protection	-50 - 0	1	± 1	1340-5674
	B	Propylenglycol °C protection	0 - +50	1	± 1	
DR-450	A	Ethylen glycol Vol. %	0 - 60	0.1	± 0.2	1340-5687
	B	Ethylen glycol °C protection	0 - 60	0.1	± 0.2	
DR-910	A	CaCl <sub>2</sub> %	0 - 20	0.1	± 0.2	1340-5684
	B	Salt % (NaCl)	0 - 28	0.1	± 0.2	
DR-920	A	SG Urine (human)	1000 - 1050	0.0005	± 0.001	1340-5685
	B	Sugar % (°Brix)	0 - 30	0.1	± 0.2	
DR-930	A	SG Urine (mammal, small)	1000 - 1050	0.0005	± 0.001	1340-5686
	B	SG Urine (mammal, large)	1000 - 1050	0.0001	± 0.001	



## SSX 210 Salt Meter Set with gold-plated electrodes probe



- Automatic deactivation
- Approximately 5 years battery life time

### Technical Data

Measurement range	0 ... 100
Resolution	1 Digit
Accuracy (at +25 °C / 77 °F)	±1 Digit
Operating temperature	+10 °C ... +40 °C (50 °F ... 104 °F)
Measurement rate	1 s to 15 s, adjustable
Deactivation	Automatically after 5 min., deactivatable
Protection class	IP 54
Dimensions (L x W x H)	100 x 46 x 25 mm
Housing material	ABS
Probe	2-conductor-measurement probe with gold-plated electrodes
Probe cable	Silicone
Weight	Approximately 200 g
Battery	Lithium 3 V / 1 Ah, type CR2477
Battery lifetime	Up to 5 years, depending on use

Type	Description	Part No.
SSX 210-Set	Salt meter set (consisting of salt meter and case)	1340-5211

## Accessories for SSX 210



**AG 140** Protective cover for handheld devices, red



**AG 160** Stainless steel bracket



**AG 161** Stainless steel bracket for TFN devices with protective cover AG 140

Type	Description	Part No.
AG 140	Protective cover for handheld devices, red	1340-5005
AG 160	Stainless steel bracket	1340-0595
AG 161	Stainless steel bracket for TFN devices in protective cover AG 140 (AG 140 not included)	1340-0596