



LABMASTER-AW NEO

High Precision Water Activity Measurement

WATER ACTIVITY MEASUREMENT

QUICK FACTS

LABMASTER-AW NEO

Very talented allrounder

Second to none water activity meter with cutting-edge technology, perfect for daily routine determination of water activity in QC-labs in food and pharma. This meter is as well very suitable to support further investigation to find the source of product spoilage, texture failures or rancidity.

ADVANTAGES & BENEFIT

FAST & ACCUARTE

Outstanding meter for hassle-free water activity measurement and result documentation, including 21CFR11 compliant audit trail and user management, automatic verification or calibration, contactless salt standard identification by RFID and a quick mode which guarantees a completed measurement within 10 mins. Additional features like full temperature control in the range of 0-60°C, measurement range of 0.0300-1.0000aw and a much easier handling of chemical protection filters due to magnetic fixing completes the LabMaster-aw neo. Still compliant with all standards like AOAC, ISO, USP and others.

FEATURES

EASE OF USE	● ● ● ● ●
SIZE OF DISPLAY	● ● ● ● ●
DATA STORAGE	● ● ● ● ●
MEASUREMENT SPEED	● ● ● ● ●
MEASUREMENT ACCURACY	● ● ● ● ●
QUICK MODE	● ● ● ● ●
APPLICATION RANGE	● ● ● ● ●
CHEM. PROTECTION FILTER	● ● ● ● ●
THERMOSTATTED CHAMBER	● ● ● ● ●
PRICE	● ● ● ● ●
RE-USABLE STANDARDS	● ● ● ● ●
EASE OF MAINTENANCE	● ● ● ● ●
HUMIDITY EQUILIBRIUM DETECTION	● ● ● ● ●

novasina
The Art of Precision Measurement

SPECIFICATION SHEET



LabMaster-aw neo

Measurement Specifications

	<i>Parameter</i>	
	<i>Water Activity</i>	<i>Temperature</i>
Measurement Principle	Resistive Electrolytic	Surface Infra-red
Measurement Range	0.0300.....1.0000aw	0...60.00°C (32...140°F)
Calibration Range	0.0400.....1.0000aw	N/A
Resolution	0.0001aw	0.01°C
Accuracy	+/-0.0030aw within cal. range	+/-0.20°C
Precision	+/-0.0020aw within cal. range	+/-0.10°C
Repeatability (typically)	+/-0.0010aw within cal. range	N/A
Temperature Control	Programmable measurement temperature in the range of 0.....60.00°C (32.....140°F)	
Calibration Points (%rH)	4%, 6%, 11%, 33%, 53%, 58%, 75%, 84%, 90%, 97%, 100% Salt standards equipped with RFID tag for faultless identification by the LabMaster-aw neo	

Instrument-Specifications

	<i>LabMaster-aw neo</i>
Power Supply	• 100.....260 VAC • Power consumption: ○ Maximum: 65W ○ Normal Operation: <10W ○ Stand-By: <0.1W
Display	7" capacitive touch screen
Communication	• RS-232 and USB 2.0 for PC / • RS-232 for Epson printer TM-U220D • SD-Card
Housing	• Hybrid painted steel housing/PUR , • Weight: approx. 10kg • Dimensions (L x W x H)= 423 x 260x 186mm Height with opened cover : 462mm
Volume measurement chamber	12mL
Dimensions Sample Cup	Diameter 40mm x Height 13mm
Protection Class	IP21
21CFR 11	• 21CFR11 compliant Audit Trail • 21CFR11 compliant User Management

Water activity



LabTouch-aw

*Laboratory instrument for accurate
water activity (aw) measurement*



LabTouch

Quality

Product safety

Microbiological stability

novasina
The Art of Precision Measurement



www.novasina.com

„All life needs water!“ There is no life without water!

„**Water means life!**“ Thanks to water, life has developed and new life continues to develop.

„**Life needs water**“. Water is the „elixir of life“ for animals, humans and plants. But bacteria, fungi and viruses also need water to live. Water is stored in every product. Either in the form of a chemical compound with other molecules or as free water, which is stored between the compounds. What is the optimum amount of both types of water now? The amount of bound water is depending on the chemical reactivity of the substances used.

Free water can be affected by production processes as well as via storage and packing. Alongside the usage of water, too much free water can particularly damage the product. Microorganisms such as fungi or bacteria can optimally grow and thrive on this surface. Their metabolic products are deposited on the product and spoil the quality. Too high water activity means limited durability. Water activity values, which are too low can spoil the taste or appearance.

Only an extremely accurate and safe quality measurement of water activity („free water components“) guarantees quality products!

Meaning of „water activity“ (a_w)

Water (H_2O) is an important basic element in foods as well as in many pharmaceutical and cosmetic materials and products. For a long time the industry has known how important it is to check free water. The water activity (a_w) measurement forms the basis of this and provides important information about the quality of a product. Finally it provides information regarding the possibility of microbiological growth on the surface and then conclusions can be made about the stability and durability of a sample.

Water activity is defined as the degree of availability of free water in a sample. Only this component takes an active part in the exchange with the ambient humidity and can possibly form the ideal medium for microbiological growth on the surface. Above the sample, the humidity is measured immediately after reaching the humidity equilibrium.

The relative humidity is measured in % RH and converted in a_w electronically.

0...100% RH corresponds to 0.00...1.00 a_w

Free water in products is jointly responsible for the growth of undesirable organisms such as bacteria or fungi, which produce toxins or other harmful substances. But also chemical/ biochemical reactions (e.g. the *Maillard reaction*) increasingly take place and possibly change the product's

colour, taste, shape, texture and appearance.



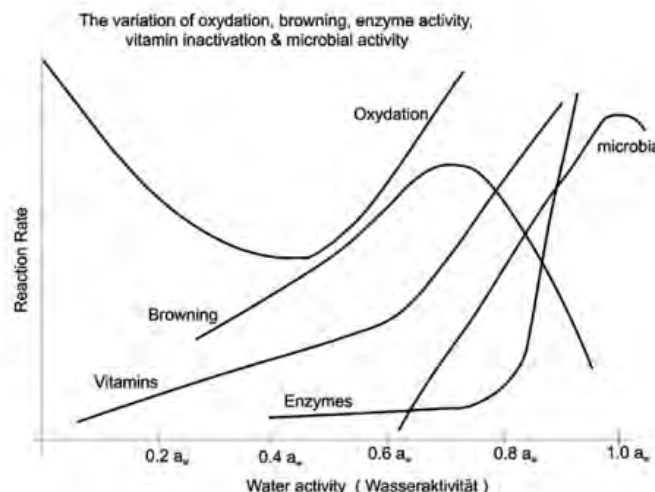
Introduction to a_w measuring

In the food, pharmaceutical and cosmetic industry, water activity (a_w value) is understood as the humidity balance (equilibrium) value of a product, which is ascertained through its partial vapour pressure of water vapour on the surface. This is depending on the following factors:

- Chemical compound
- Temperature
- Water content
- Storage environment (T / RH)
- Absolute pressure
- Packing

Above factors affect also the following properties:

- Microbiological stability (*growth*)
- Chemical stability (*see table*)
- Content of proteins and vitamins
- Colour, taste and nutritional value
- Stability of the compound & durability
- Storage and packing
- Solubility and texture



The optimisation and stabilisation of the product properties require an **upper** as well as **lower** a_w value limit. Therefore, constant supervision of this quality parameter is essential and necessary for efficient production.

There are binding regulations regarding to the a_w value to be met in foods. The measuring principle applied by Novasina was checked by the FDA, UNO, WTO, FAO, AOAC and FOS (EFSA) and found to be suitable.



Novasina, the market-leading provider of accurate water activity measuring instruments



LabTouch-aw

Enter the world of water activity! For over 50 years Novasina has been developing globally recognised and accurate water activity measuring instruments for quality and research laboratories. The unique measuring technology is based on an electrolytic aw value measurement as well as on simple operability and sample conditioning. These are the key factors for correct and repeatable measurements. Thanks to new functions, the effective measuring accuracy and reproducibility could be improved and the scope of applications extended. Most different types of foods, as well as many pharmaceutical, chemical and cosmetic products can be checked with the new *LabTouch-aw* system

The *LabTouch-aw* comes with a semi-temperature controlled measurement chamber. Its function premise is that the measurement temperature has to be always 2°C above room temperature.

The measurement of the water activity is based on a resistive electrolytic humidity measurement („Novalyte“ technology) which is one of Novasina's core strengths. The advantages are quite simple but essential:

No hysteresis, high accuracy and repeatability.

Various chemical filters are available to protect the sensor system from volatiles as alcohol, glycol, glycerine and many more. The use of filters guarantees an unaffected aw measurement and avoids a sensor contamination and thus extends its shelf-life.



LabTouch-aw with touch screen interface



Due to the use of filter systems to protect the measuring sensor, today even samples with non-aqueous additives such as alcohol, acids/bases or chlorine etc. can be measured efficiently and accurately. Such filter systems do not generally affect the measuring of the water activity. The *LabTouch-aw* system ideally uses the highest physically possible measuring speed. Thanks to modular expandability and pre-conditioning, a higher number of samples can also be measured quickly and accurately.

The new *LabTouch-aw* with its simple and clear operation by touchscreen sets a new standard for aw laboratory measuring devices. Thanks to modular construction, the system can be expanded by up to 2 additional measuring chambers. Its unique hardware and software architecture enables highly accurate, reproducible measuring results over a wide measuring range. As a result, all recommendations and regulations of authorities/control boards such as HACCP, AOAC, FDA etc. can be met. Each *LabTouch-aw* is equipped with a SD-card which can be used for data transfer to Windows-based PC systems. For data and sample visualisation, analysis and archiving, Novasina offers a tested PC software.

Your advantages:

- Easy accessible menus by **large touch-screen**
- Semi-temperature-stabilised measurement chamber
- **Re-usable SAL-T humidity standards** and long-life sensor for economy
- Fast and precise aw-measurement thanks to the unique „Novalyte“ measurement technology
- Specific chemical sensor **protection filters** available
- Calibration data are stored on the sensor (no calibration required after sensor replacement))
- Data logging function with SD card
- Factory calibration at 7 aW-value points
- Checking, testing and adjusting possibilities with reusable SAL-T humidity standards
- Visualisation and analysis software „Novalog MC“

www.novasina.com

The **LabTouch / Click-aw** product range



LabClick-aw No.1

LabTouch-aw

LabClick-aw No.2

With the **LabTouch-aw** measuring instrument you acquire a long-lasting laboratory device, which is upgradeable at all times thanks to its advanced technology. Extra **LabClick-aw**'s can simply and easily be attached to a **LabTouch-aw advanced** as additional measuring units. A **LabTouch-aw** manages and operates up to 2 **LabClick-aw** using just one cable per chamber. As a result, it is possible to measure up to 3 samples simultaneously. The intelligent network independently recognises a new chamber and correspondingly integrates it in the network.

An SD-card is used for long-term storage and management of all measuring data which can be read-out by using a standard PC and Novasina's Noalog MC software.

The software of each **LabTouch/Click-aw** can be updated using the SD-card on which you can put the downloaded update files. This way, the instrument can be kept up to date at any time.

If necessary, the sensing unit can be replaced quickly and easily by the user. Every factory-delivered sensor comes with a factory calibration at all points which are stored on a small memory on the sensor-board itself. This allows the user to mount the sensor and start measuring without performing a calibration.

Verification and calibration of the meter is done by re-useable Novasina humidity standards. These are easy to handle, offer great long-term stability and generate reproducible aw values. A set of 4 aw standards is included in each **LabTouch-aw** delivery. The SAL-T standards do not contain a due date as shelf-life mostly depends on their handling and storage. Field data have proven a shelf-life of 3-5 years

Specifications LabTouch / LabClick-aw system		
	LabTouch-aw	LabClick-aw
Measuring Principle aw	Resistive electrolytic air humidity measurement	
Measuring Principle temperature	Surface infrared measurement + NTC element	
Measuring Range aw (full)	0.03 1.00 aw	
Measuring Range temperature	5...45 °C (41.....113°F)	
Accuracy aw (Range)	+/- 0.005 aw (0.10 ... 0.97 aw)	+/- 0.010 aw (0.10 0.95 aw)
Accuracy temperature (Range)	+/- 0.15 °K (5 ... +45°C)	+/- 0.15 °K (5 ... +45°C)
Resolution aw / temperature	0.001 aw / 0.1°C	0.001 aw / 0.1°C
Accuracy of temperature control	+/- 0.05°C Semi-temperature control, programmed temperature must be always +2°C above environmental temperature!	No temperature control
Mains supply (instrument)	5 VDC +/- 6%, max. power requirement : 10 W	Power supplied by LabTouch-aw
Power supply (external)	90...264 VAC 50 / 60 Hz, output -> +5 VDC	Power supplied by LabTouch-aw
Display	4.3" resistive touch-screen (color LC display)	Reflective LC-display with adjustable contrast
Communication	SD card /type: SD / SD data system: FAT-16 / FAT-32	N/A
Housing	Two-part PC/ABS design housing measurement chamber aluminium anodised	
Weight	2.8 kgs	1.2 kgs
Protection Class / Dimensions	IP 22 / Dimensions approx. : 300 x 200 x 105 mm	IP 30 / Dimensions approx. 225 x 140 x 85 mm
Volume Measurement Head	21.1 mL, standardised sample dishes	
Dimension Measuring Chamber	40 x 12 mm	
Sealing Measurement Chamber	Spring loaded measurement head plus lip seal	

a_w value measurement method

The test sample is placed in a completely **sealed** and **temperature-stabilised measuring chamber**. After closing the chamber, the sample humidifies or dehumidifies the surrounding air volume inside the chamber by exchanging **free water** from the sample and humidity from the air. At a certain point, the mass flow of water in each direction is constant, means, equilibrium is reached. At this point, the air humidity is linked to water activity, thus an air humidity measurement can be used to determine the water activity of the sample. State-of-the-art instruments are monitoring the status of this equilibrium and are notifying the user once it is reached. The following factors play an important role in the measuring accuracy and speed:

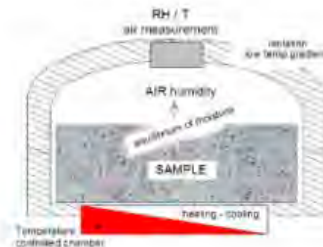
- Temperature of the sample and measuring chamber is measured
- Equilibrium detection mode
- Sealing of the measuring chamber
- Sample preparation
- Measurement accuracy of the air humidity sensor

The measuring speed largely depends on the sample properties and stability of environmental conditions, mainly temperature.

Intramolecular effects as van der Waals forces slow down the diffusion or inhibit the free water to move towards the surface and interact with the air in the chamber. As a consequence, special attention is given once high carbohydrate or protein content is available in the sample.

Fat is another story. Once a sample is covered with a fat layer, no free water can pass through, thus the displayed a_w value might be wrong. The solution here is the sample preparation by breaking through the fat layer (mainly cutting or mixing of sample)

To exclude external influences, mainly temperature, a temperature controlled chamber is a prerequisite, otherwise, nobody knows if the shift in a_w value comes from the sample or the temperature.



Food industry

Testing of products and raw materials to optimise durability, colour, taste, nutritional value and processing. Final inspection, quality assurance as well as packing optimisation regarding durability. Optimising process and energy costs during production.

Quality controls in accordance with HCCP, WHO, FDA, AOAC



Pharmaceutical industry

Tests of basic materials, semi-finished and finished products for process properties and possible reactivities. Checking further process abilities in the subsequent process levels. Checking product properties regarding the intake and release of free water into the environment.

Quality controls in accordance with HCCP, SOP, FDA, SOP



Cosmetic industry

Quality assurance of basic materials, semi-finished and finished products. Optimising durability, colour, fragrance as well as taste and processing. Optimising packing regarding durability and presentation.

Quality controls in accordance with HCCP, WHO, FDA, SOP

Typical measuring samples

- Meat, fish, poultry
- Fruit, berries, fruit additives,
- Bread, cakes and pastries, jam, biscuits
- Dried sausage, nuts
- Butter, yoghurt, quark, cheese
- Chocolate, cocoa, chocolate bars, sweets
- Pasta products, rice, cereals
- Spices, dried soups
- Stock cubes, yeast

Typical measuring samples

- Different powders
- Granules
- Tablets, coated tablets
- Gels, creams
- Various liquid materials
- Specific drugs

Typical measuring samples

- Powders
- Creams and gels
- Cosmetics
- Colours
- Conditioning creams

Some well known companies who associate quality with Novasina:



Novasina – Swiss quality, flexibility and competence

Since its establishment almost 50 years ago, the Novasina company has specialised in the **accurate measuring of air and material humidity**. The basis of this was the world's first, self-developed electronic measuring sensor for measuring humidity. This technology is based on the resistive electrolytic measurement principle. This was further developed and optimised over decades. This measuring principle is generally the most demanding and most accurate. Modern substances and materials allow continuous optimisation and expansion of the area of application of this measuring sensor. Today the highly accurate humidity measurement is among our core competences and forms an important pillar of our success. Intensive research and development further ensures a decisive advantage for us. **Novasina** sensors and measuring instruments are mainly applied to the area of air and material humidity. This is almost exclusively used in industrial applications as well as in research and development.

We fully develop and produce Novasina precision measuring instruments in which our Know-how of many years is always included. We are proud of the „**SWISS MADE**“ label, which guarantees the highest quality, innovation and longevity.

The diversity of our customers, business partners and applications as well as our international orientation makes Novasina the competent partner for demanding humidity measurements in the industrial sphere!

**Customer uses and innovation always
come first with Novasina!**



For further technical information, see the technical data sheets:

Consultation, sales and services:

Manufacturer :

Novasina AG

Neuheimstrasse 12
CH - 8853 Lachen SZ
Switzerland

Phone : +41/ (0)55-642-67-67

Fax : +41/ (0)55-642-67-70

E- Mail : info@novasina.ch

Internet : www.novasina.com



Subject to technical changes

An ISO 9001 : P 2008 certified company since 1996

novasina
The Art of Precision Measurement

Dok. Nr. 004321.00



LabSwift-aw

**Portable measurement instrument for accurate and fast
water activity (a_w) determination**



abSwift-aw

Leading by:

Innovation & Design

Speed & Accuracy

Price & Performance

novasina
The Art of Precision Measurement



www.novasina.com

„All life needs water!“

There is no life without water!

„Water“ is the main component of food and biological materials. The accurate determination of its form, nature and amount helps crucial to affect the structure respectively the physical and chemical properties of a product. Water has also a main influence on the mass transfer, on chemical reactions and the activity of microorganisms. Water is stored in every product, either in the bound form or as free water, which is stored between the compounds. What are the optimum amounts of both types of water? The amount of bound water depends on the chemical nature of the substances used.

Free water can be affected by production processes as well as by storage and packing. As well as the use of water, too much „free water“ can reduce the quality and shelf life of the product. Microorganisms such as fungi or bacteria can have optimum conditions to grow and replicate on this intermediate aqueous surface. Their metabolic products are deposited on the product and spoil the quality. Too high water activity means limited shelf life. Water activity values, which are too low can spoil the taste, texture or appearance.

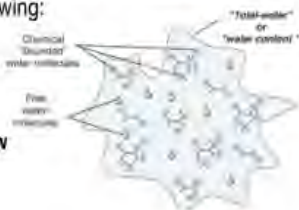
Only an extremely accurate and safe quality measurement of the water activity („free water components“) guarantees quality products!

Meaning of „water activity“ (a_w)

For a long time the industry has accepted how important it is to check free water. The water activity (a_w) measurement forms the basis of this and provides important information about the quality of a product. Finally it provides information regarding the potential of microbiological growth on the surface and then conclusions can be made about the stability, durability and shelf life of a sample. Water activity is defined as the availability of free water in a sample. Only this component takes an active part in the exchange with the ambient humidity and can possibly form the ideal medium for microbiological growth on the surface. Above the sample, the humidity is measured immediately after reaching equilibrium in humidity exchange with the sample (*difference in partial vapour of water vapour*). The equilibrium relative humidity (ERH) is measured in % RH and is related to the a_w value as following:

$$a_w = \frac{\text{ERH}}{100}$$

0...100% RH corresponds 0.00...1.00 a_w



Introduction to a_w measuring

The equilibrium relative humidity of a product is defined by its water vapour partial pressure on the surface and depends on the chemical composition, temperature, water content, storage environment, absolute pressure and packaging. Chemical and biochemical reactions (*e.g. Maillard reaction*) proceed more frequently and influence the following product properties:

- Microbiological- and chemical- stability (*growth, see table*)
- Content of proteins and vitamins
- Colour, taste and nutritional value
- Stability of the compound & durability, solubility and texture
- Storage and packing

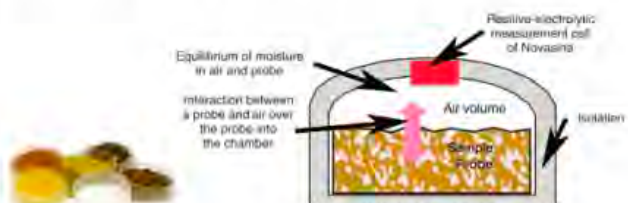
The optimisation and stabilisation of the product properties require an upper as well as a lower a_w limit. Therefore, constant supervision of this quality parameter is essential and necessary for efficient production.



The a_w value measuring method

The sample is put in the measurement chamber, which is air-tight. The free water of the sample humidifies or dehumidifies the air volume inside the chamber. Only the free water component can do this. This exchange takes place until the partial pressure of water vapour saturation = zero.

A highly accurate humidity and temperature measuring unit continuously determines the climate conditions of the air inside the chamber. If the parameters remain stable over a user-adjustable stability period, the instrument software determines the stable value and converts it to an a_w -value. Thereby the display continuously shows the current measurement.

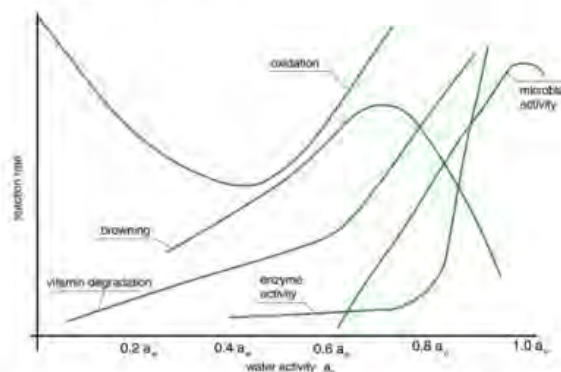


Important factors influencing measurement accuracy and speed :

- Sample and measurement chamber temperature
- System control capability
- Measurement chamber tightness
- Sample preparation
- RH measurement accuracy and measurement speed

The measurement speed depends largely on the sample properties. Therefore the ability of how fast the available „free“ water is released to the surrounding environment plays a decisive role. The measurement speed provided by the electronics of the instrument is often insignificant.

On some oily samples the phenomenon of the second sorption step is known. At first the sample „seems“ in an apparently stable condition but later (*possibly after hours*) the a_w -value increases by a few percent (*breakthrough of the oil barrier*).



There are binding regulations in different regions worldwide concerning the a_w -value to be reached in foods. The measuring principle applied by Novasina has been checked by the FDA, UNO, WTO, FAO, AOAC and FOS (EFSA) and approved.

The **LabSwift-aw** product line



Come into the world of water activity measurement!

Novasina has developed for more than 40 years water activity measurement instruments for laboratories in the field of Product Quality Assurance and R&D. Thanks to the unique measurement technology, Novasina devices are used and appreciated worldwide. The core element of each instrument is the electrolytic sensor, which has been continuously developed and improved over the years. Today this is making sure that each measurement fits the high requirements of the a_w measurement and therefore is performing accurately, quickly and with a high reproducibility.

Following products are suitable for an a_w -value determination :

- Various kinds of foodstuff
- Pharmaceutical products
- Chemical products
- Cosmetic products



With Novasina a_w measurement devices almost all kind of samples in almost all physical states can be measured. It does not matter if samples are powders, gel, liquids, pastes or solids. The availability of sensor protection filters enable more accurate and reproducible measurements on samples with critical additives as e.g. alcohol, acids, bases, chlorine etc..

With the new **LabSwift-aw** Novasina sets a standard in the field of mobile a_w -measurement. This device takes the lead in its class thanks to its easy handling, flexibility, speed and appealing design.

LabSwift-aw - unique in function and design

- Ergonomic design with large and clear LC-Display
- New developed, intuitive stable value setting
- Spring loaded sealed measurement chamber
- Resistive-electrolytic sensor with „Novalyte“ technology and calibration point memory
- Infrared sample temperature measurement
- Data logger function with SD card interface

The data stored on the SD card can be transferred to a PC. For visualisation, analysis and archiving Novasina offers as option a PC software.

LabSwift-aw - fast, practical, innovative

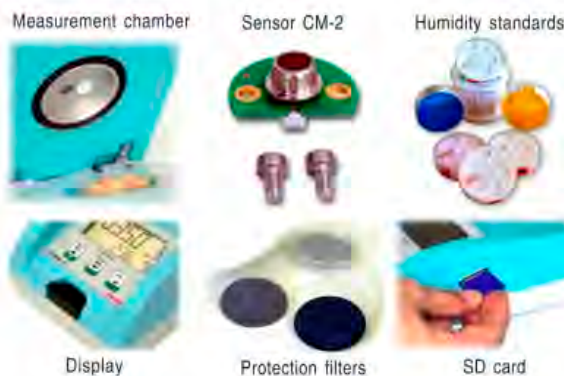
The **LabSwift-aw** unites newest technologies as e.g. the contact free infrared sample temperature measurement with the maintenance free a_w -sensor. This allows efficient and fast a_w -value determination, which is required especially at the production line. The intuitive operation and the clear display are additionally supports for the user.

Further features such as the easy handling of samples, the SD card for mobile measurement data storage as well as the simple possibility for checking and calibrating the device ease the product quality inspections considerably.

The mechanical construction of the **LabSwift-aw** makes it possible to easily replace the a_w -sensor if necessary. Due to the fact that the calibration values are stored inside the sensor, the instrument has not to be calibrated afterwards. Included in the delivery are also multiple use humidity standards (a_w -standards). Therefore on site checks, calibrations and adjustments can be performed at any time.

LabSwift-aw - versatile, flexible, mobile

Using the standard sample dishes all kinds of liquid or solid samples with a volume of approx. 12 cm³ can be measured. If needed, sensor protection filters can be fitted to allow a coverage of a wide range of possible samples. For portable use, a rechargeable, long life battery is available.



Your advantages :

- Accurate, reproducible, fast a_w -value determination
- Easy menu structure and clear display
- Mobile use thanks to a Lithium-Ion battery (optional)
- SD card for mobile data storage
- Test- & calibration functions with Novasina a_w -standards
- Sensor protection filters to avoid contamination & errors
- Handy carrying case incl. sample dishes & a_w -standards

www.novasina.com

Specifications LabSwift-aw :

	A_w-value	Sample temperature
Measuring principle :	Resistive - electrolytic	Surface Infrared-measurement + NTC
Measuring range :	0.03 1.00 a _w	5...45 °C (41.....113°F)
Accuracy:	+/- 0.010 a _w	+/- 0.15 °K
In the range of :	0.10..... 0.95 a _w (10 ...95% rh)	0..... +50°C
Resolution :	+/- 0.001 a _w	+/- 0.1°C
Accuracy of control :	No temperature control available	
Mains supply :	5 VDC +/- 6% max. power requirement : 4 W Lithium ion battery 1700 mAh with protection control & "auto load"	
Power supply :	90....264 VAC, 50 / 60 Hz, output -> 5 VDC	
Display :	Reflective, high contrast LCD - display, dimension: 35x69 mm	
Operating :	3 multi-function keys including On / Off	
Communication :	SD card interface type : SD / SD _{HC} data system: FAT-16 / FAT-32	
Housing :	Two-part PVC design housing, measurement chamber aluminium	
Weight:	1.2 kg / Dimension approx. : 225 x 140 x 85 mm	
Protection class :	IP 30	
Measuring chamber :	Volume 21.1 ml / standardised sample dishes Spring-loaded measurement head (diameter 40 x 12 mm)	
Special feature :	Intelligent „Novalyte“ measurement sensor CM-2 with calibration point memory	



Novasina – Swiss quality, flexibility and expertise

Since its inception more than 50 years ago, the Novasina company has specialised in the **accurate measurement of air and material humidity**. The basis of this was the world's first, self-developed electronic measuring sensor for measuring humidity. This technology is based on the resistive electrolytic measurement principle. This was further developed and improved over decades. This measuring principle is generally the most demanding and most accurate. Modern substances and materials allow continuous improvement and expansion of the area of application of this measuring sensor. Today the highly accurate humidity measurement is among our core competences and forms an important pillar of our success. Intensive research and development further ensures a decisive advantage for us. Novasina sensors and measuring instruments are mainly applied to the area of air and material humidity. This is almost exclusively used in industrial applications as well as in research and development.

We continue to develop and produce Novasina precision measuring instruments thanks to many years of experience. We are proud of the „**SWISS MADE**“ label, which guarantees the highest quality, innovation and durability.

The diversity of our customers, business partners and applications as well as our international orientation makes Novasina the competent partner for demanding humidity measurements in the industrial sphere!

Customer applications and innovation always come first with Novasina!



Manufacturer :

Novasina AG

Neuheimstrasse 12,
CH - 8853 Lachen SZ
Switzerland

Phone : +41/ (0)55-642-67-67 Internet : www.novasina.com
Fax : +41/ (0)55-642-67-70 E- Mail : info@novasina.ch

Subject to technical changes



For further technical information, see the technical data sheets:

Consultation, sales and services:



003502.00

novasina
The Art of Precision Measurement



LabStart-aw

Portable low cost precision instrument for water activity measurement (a_w) in foodstuff and powder products



This compact low cost water activity measurement device is intended for a mobile measurement directly at-line and has been developed for standard applications and for users, who want to start with the water activity measurement.

Its accuracy can be checked at any time using re-usable saturated salt calibration standards.

The **LabStart-aw** is delivered including all necessary accessories:

Operation/adjusting range	: 0.13 ... 0.80 a_w
Measurement range a_w	: 0.03 ... 1.00 a_w
Measurement range temp.	: 15 ... 30 °C (Sample ± 5 °C over ambient)
Sensor	: with resistive-electrolytic measurement cell CM-4
Instrument accuracy	: $\pm 0.03 a_w$ $\pm 0.3K$



LabStart-aw

Mobile, accurate, reliable and low cost

A good start is essential for every project and undertaking. That is why the LabStart-aw has been developed to introduce quality managers, production personnel and laboratory technicians to water activity measurement. This instrument is simple-to-operate, providing basic measurement functions, yet still having built-in automatic equilibrium detection and the well-proven resistive-electrolytic sensor technology as employed in all Novasina water activity meters. As standard, the LabStart-aw is supplied with one re-useable humidity calibration standard which provides a very economical solution to precision water activity measurements in one simple kit. Furthermore, the calibration standard is an easy method for verification of the instrument's high performance.

Optional chemical protection filters assist with high solvent – content samples, as well as accurate water activity detection with high repeatability.

Although the LabStart-aw is a starter instrument, it offers great value, is simple and easy-to-use.

Are you ready to begin your water activity measurements?

Typical samples:

- Pastries, bread and similar
- Cereals
- Spices
- Powders, dried samples
- Dried foodstuff in general

Measurement device

LabStart-aw:

Dimensions	: 85x140x225 mm (HxWxL)
Weight	: 1.2 kg
Power supply	: External supply

Operation ranges:

Temperature	: 15 ... 30 °C
a_w	: 0.20 ... 0.80 a_w

Measurement range

Temperature	: 0 ... 30 °C
a_w	: 0.03 ... 1.00 a_w

Humidity sensor:

Electrolyte measurement cell

Type	: CM-4 incl. stored calibration values (33, 75%RH)
------	---

Temperature measurement:

Precision NTC temperature sensor

Humidity standards

Salt tablets SAL-T:

Various re-usable salt solutions are available for instrument verification and calibration. For more information please consult the chapter accessories.



LabStart-aw set



LabStart-aw set

The new LabStart-aw is a precise and handy instrument for the aw-value measurement of foodstuff, powder products. It is delivered including all accessories.

The device can be checked and adjusted at any time with the included SAL-T humidity standard.

LabStart-aw set consisting of :

- Measurement device LabStart-aw
- External universal power supply
- 1 SAL-T: 75% RH
- 25 sample dishes ePW
- Spare pre-filters white (5 pcs)
- Tension ring
- Factory certificate of 2-point calibration 33% and 75% RH

Weight : 1.500 kgs

LabStart-aw set

260 0992 incl. power supply

Accessories



External power supply

260 0505 with universal plugs

External power supply with universal plug insert for all socket standards

Power supply and battery charger

Attention: Please use only the external power supply delivered by Novasina.

Power supply:

90-264 VAC / 50-60Hz

Output : +5 VDC / 10W

Plug : Stereo plug
(instrument side)
Diameter 4 mm

Weight : 130 g



111 0601 ePW sample dishes

Sample dishes ePW

Box with 100 sample cups.

These cups are for all Novasina aw instruments. They are disposable, intended for a single use.

A box contains:

100 sample cups ePW

Material : Polypropylene

Dimensions : 40mm diameter
x 12mm depth

Weight : 440 g



111 0930 -> SAL-T 11% RH

260 0960 -> SAL-T 23% RH

111 0932 -> SAL-T 33% RH

260 0961 -> SAL-T 43% RH

111 0934 -> SAL-T 53% RH

111 0936 -> SAL-T 75% RH

111 9886 -> SAL-T 84% RH

111 0938 -> SAL-T 90% RH

SAL-T salt tablets

Standards based on saturated salt solutions in plastic tablets with humidity-permeable membranes. Each salt is delivered in an airtight can. SAL-T are available with following humidity values (at 25 °C):

11.3 %	52.9 %
23.4 %	75.3 %
32.8 %	84.3 %
43.2 %	90.1 %

Important: please consult the operation manual of your instrument to see which **points can be calibrated**.

Other SAL-T can be used only for verification.

Humidity values in the temperature range 15° 30 °C:

11.3	.....	11.3% rh
23.4	.....	21.6% rh
33.3	.....	32.4% rh
43.2	.....	43.2% rh
55.9	.....	51.4% rh
75.6	.....	75.1% rh
85.9	.....	83.6% rh
90.9	.....	89.9% rh

The precision corresponds to eg. the Greenspan Report 1977 typically +/- 0.3 % rh

Weight : 50 g each



- [111 1056](#) -> SAL-T/C 11% RH
[111 1057](#) -> SAL-T/C 33% RH
[111 0060](#) -> SAL-T/C 53% RH
[111 1063](#) -> SAL-T/C 75% RH
[260 0276](#) -> SAL-T/C 84% RH
[111 1065](#) -> SAL-T/C 90% RH

Salt tablets SAL-T/C certified with European certificate

Humidity standards based on saturated salt solutions in plastic tablets with humidity-permeable membranes. Each salt is delivered in an airtight can. SAL-T are available with the following humidity values (at 25°C):

11.3 %	75.3 %
32.8 %	84.3 %
52.9 %	90.1 %

Important: please consult the operation manual of your instrument to see which points can be calibrated. Other SAL-T can be used for verification.

Internationally accredited laboratory:



All Novasina humidity standards are also available with an internationally recognised certificate from an accredited European laboratory (UKAS England)

Weight : 50g each



- [111 1001](#) -> eVC-21
[111 1003](#) -> eVC-26
[111 0995](#) -> eVALC

Cell protection filters

A number of filters are available to protect the measurement cell from abrasion or corrosive volatiles.

-> Please consult the Novasina filter data sheet for more details about the sample substances and the correct selection of the most suitable filter for your application.

Cell protection filters:

- [111 1001](#) -> eVC-21 (10 pcs)
[111 1003](#) -> eVC-26 (10 pcs)
[111 0995](#) -> eVALC (2 pcs)

Dimensions : 36 x 3mm

Weight : 30 g each filter



- [111 7212](#) -> Redox

Cell protection filter REDOX

Special protection filter against volatiles such as aromatic substances, ethanol, glycol etc. which can be present in a sample.

Important: this filter is subject to saturation, therefore it must be checked and replaced regularly.

-> Please consult the Novasina filter data sheet for more details about the sample substances and the correct selection of the most suitable filter for your application.

Cell protection filters:

- [111 7212](#) -> Redox (1 pc)

Dimension : 36 x 3mm

Weight : 60 g

Spare parts



- [260 0211](#) Gasket : 1
[260 0183](#) Pre-filter white : 2
[260 0210](#) Tension ring : 3

Spare parts to measurement head LabStart-aw :

- 1 Gasket to LabStart-aw
Recommendation: Seal ring should be replaced and lubricated regularly.
 2 Pre-filter white, 5 pcs
 3 Tension ring for filter fixation

Remark: these spare parts are the same as used for LabSwift-aw and LabTouch-aw

Spare parts to LabSwift-aw:

- Gasket
- Pre-filter white
- Tension ring

Weight : 1 : 10 g
 2 : 10 g
 3 : 5 g



- [260 0995](#) CM-4 measurement cell

CM-4 measurement cell

(for LabStart-aw instruments only)

Replaceable, calibrated measurement system with calibration point memory on the basis of the unique Novasina „Novalyte“ technology. The inbuilt active heating element avoids condensation on the humidity sensing element.

Attention: do not touch the top of the measurement cell. Neither by hand nor with any other object!

Measurement system CM-4:

Meas. range : 0.03...1.00a_w
 Storage temp. : 0...50°C
 Storage humidity : 10...80% RH

Calibrated at the following points:
33% and 75% RH

Weight : approx. 2 g



Clim Mate-set aw

Portable water activity instrument for aW measurement in bulk goods with big sample box

This low cost water activity measurement device is intended to be used directly at-line or in the field. It is battery powered and with its large sample box sensor suitable for an indicative water activity measurement in bulk goods.

Its accuracy can be checked at any time using re-usable saturated salt calibration standards SAL-SC.

The **ClimMate-set aw** is delivered including all required accessories.

Operation/adjusting range : 0.11 ... 0.90 a_w

Measurement range a_w : 0.03 ... 1.00a_w

Measurement range temp. : 15 ...30°C (recommended)

Sensor : resistive-electrolytic
Probe nSens-HT-ENS

Sensor accuracy : typical +/- 0.005 ... +/- 0.025 a_w
typical +/- 0.1 ... +/- 0.2K
(depending on measurement range)



ClimMate-set aw

Mobile, versatile and reliable for bulk goods

The ClimMate is a versatile handheld device for detection and storage of various parameters such as water activity, relative humidity, temperature, absolute pressure and other calculated parameters.

The user gets a complete solution, which is based on the unique high precision Novasina sensing technology. State-of-the-art operation and display unit excels as big, colour LCD touch screen, easy and intuitive menu structure and data logging capability with up to 2 million data point storage. The ClimMate can be connected to a PC for data download, visualisation or export using the included SmartGraph III software. The device is powered by 4 pcs standard AA LR6 alkaline batteries.

The ClimMate-set aw has been designed for on site water activity measurement for all samples without volatiles. These can be bulk goods for example in bags, or large samples measured inside the sample cup. The instrument is simple to operate and is supplied in a complete set including re-useable humidity calibration standards for verification and calibration.

Important information

Since this device does not have any aw equilibrium observation, it is recommended only for applications where approximate values of water activity are sufficient.

Typical samples:

- Cereals
- Granulates
- Powders
- Dried samples

Measurement device :

ClimMate-set aw:

Case dimensions : 510x430x150mm
Weight : 3.5 kg
Power supply : 4 AA LR6 alkaline batteries

Measurement ranges:

a_w : 0.0 ... 1.00 a_w (non-condensing)

Adjusting range :

water activity : 0.11 ... 0.90 a_w
Temperature : 15 ... 30 °C (recommend)

Humidity sensor:

Electrolytic intelligent measurement probe with calibration data storage :

Type : nSens-HT-ENS incl. stored calibration values
(11, 33, 53, 75, 90% RH)

Temperature measurement:

Precision NTC temperature sensor in nSens-HT implemented.

Humidity standards

Salt SC :

Various re-usable salt solutions are available for instrument verification and calibration. For more information please consult the chapter accessories



ClimMate-set aw

Set ClimMate-aw with nSens-HT probe



260 1288 ClimMate-set aw

Set in carrying case contains :

- Multifunction **handheld instrument** ClimMate
- **nSens-HT-ENS** probe incl. nLink-UMB adapter
- Sample box for bulk goods
- **USB** cable, length 1.8m
- **nSens extension cable**, length 2m
- 4 alkaline batteries LR6 AA, 1.5V
- **Humidity references** SAL-SC 33% & 75%RH
- Adapter SAL-SC for nSens probes
- Factory calibration certificates
- Short instruction manual
- **SmartGraph III** software on CD

- Dimensions: Carrying case
510x430x150mm
- Total weight : 3'500 gr
- Instrument :
- Dimensions : 170 x 62 x 34mm (ClimMate)
 - Weight: 205 gr (ClimMate)
 - nSens-HT incl. nLink-UMB
Length 170mm x Ø 13mm
 - Absolute pressure sensor integrated
Measurement range 800.....1'100 mbar

Accessories



260 1094 nSoft-CAL Software

nSoft-CAL calibration kit

Windows based software for the verification and calibration of nSens probes with the PC. Runs on Windows 98/2000/XP/Vista/Windows 7 and 8.

Incl. nLink-USB connection cable with 1,8m cable length

- Contains:
- nSoft-CAL Software on CD
 - PDF Operating Manual on CD
 - nLink-USB connection cable for nSens probes with cable length of 1,8m



- 111 0885** -> SAL-SC 11
111 0855 -> SAL-SC 33
111 0857 -> SAL-SC 53
260 0219 -> SAL-SC 58
111 0859 -> SAL-SC 75
251 8965 -> SAL-SC 84
111 0896 -> SAL-SC 90

Sensor-Checks SAL-SC (rh standards)

Reusable humidity standards based on saturated salt solutions in plastic cylinders with moisture permeable membranes. Each salt is delivered in a well-sealed box. Sensor Checks SC are obtainable for the following values (at 25°C) :

11.3 % rh	75.3 % rh
32.8 % rh	84.3 % rh
52.9 % rh	90.1 % rh
57.6 % rh	

Important:

please consult the operation manual of your instrument to see which points can be calibrated. Other SAL-SC can be used for verification.

Humidity values in the temperature range 15°... 30°C:

6.9	.....	6.2% rh	/ 15...30°C
11.3	.....	11.3% rh	/ 15...30°C
33.3	.....	32.4% rh	/ 15...30°C
55.9	.....	51.4% rh	/ 15...30°C
60.7	.....	56.0% rh	/ 15...30°C
75.6	.....	75.1% rh	/ 15...30°C
85.9	.....	83.6% rh	/ 15...30°C
90.9	.....	89.9% rh	/ 15...30°C
97.9	.....	97.0% rh	/ 15...30°C

The precision corresponds to the Greenspan Report 1977 typically +/- 0.3 % rh

Weight : 90 g



- 111 1044** -> SAL-SC 11 C
111 1037 -> SAL-SC 33 C
111 1040 -> SAL-SC 53 C
111 1035 -> SAL-SC 75 C
260 1272 -> SAL-SC 84 C
111 1032 -> SAL-SC 90 C

Sensor-Checks SAL-SC with European certificate

Reusable humidity standards based on saturated salt solutions in plastic cylinders with moisture permeable membranes. Each salt is delivered in a well-sealed box. Sensor Checks SAL-SC are obtainable for the following values (at 25°C) :

11.3 % rh	"UKAS certified"
32.8 % rh	"UKAS certified"
52.9 % rh	"UKAS certified"
75.3 % rh	"UKAS certified"
84.3 % rh	"UKAS certified"
90.1 % rh	"UKAS certified"
97.3 % rh	"UKAS certified"

Internationally accredited laboratory



All Novasina humidity standards can also be supplied with an internationally recognised certificate from an accredited European laboratory (UKAS England).

Weight : 90 g


260 0872 USB power supply

USB power supply

Power supply with USB socket for ClimMate. If powered by this power supply, the internal AA batteries are only for backup in case of a power failure.

2m USB cable already included in ClimMate set

Remark: internal alkaline batteries cannot be charged

Dimensions: 55x25x80 mm

Weight: 50 g

Input power : 100...260V AC 50/60 Hz

Output power : +5V DC USB
1200mA / 6W

Housing/protection: plastic ABS / IP40

Spare part


260 1143 Adapter SAL-SC / nSens

Adapter SAL-SC

- for nSens probes

Plastic adapter for humidity standards. Used for diameter reduction and radial sealing around the nSens probe with diameter 13mm.

With integrated green rubber sealing ring.

Dimension : Out diam.30/In.diam 13 mm (nSens)

Weight : 5 g

Material : Thermoplastic resin


260 1147 nCap-PS Filter

nCap-PS filter protection cap

With silver oxide coated filter insert.

For optimal mechanical sensor protection as well as protection against dust.

Additional basic chemical sensor protection.

For particle sizes of <10 µm.

Dimension: Ø12,6mm x L36,1mm

Housing material: PVDF black

Filter insert: Polyethylene/silver oxide


260 1171 nSens-HT-ENS

nSens-HT-ENS probe

Digital nSens-HT **humidity & temperature** probe with resistive-electrolytic humidity and NTC temperature sensor. With nCap-PS filter protection cap.

The calibration points are saved directly on the probe. The verification and calibration is done by the separately available nSoft-CAL calibration software. The plug-in probe can be replaced very easily.

Spare part sensor complete !

Dimension: L101mm x Ø 13mm
Detailed information can be found in the technical data sheet.

Communication: digital by Bus-system

Fact. calibration: at 5 humidity points at 1 temp. incl. certificate

Verification & calibration: with nSoft-CAL software


260 1254 Sample cup large

Sample cup large

For bulk samples such as grain, granulates, powders etc.

Including lid with screw joint for nSens-HT-ENS fixation and

Cup dimensions: Ø 80 mm, height 95mm

Material: Polypropylene