



ms 1 Set aw



A hand-held precision instrument for the measurement of aw values (water activity) in foodstuffs, pharmaceutical, chemical products as well as cosmetics.

A handy, easy-to-use, self-powered water activity measurement instrument set. Functions and accuracy can be checked at all times with saturated salt solution standards. The instrument is supplied in a practical plastic case, together with all required accessories.

aw range	:	0.06 ... 0.98aw , (non condensing)
Temperature	:	-20...+80°C
Sensor	:	enBSK-3 with a resistive electrolyte measurement cell
Precision	:	+/- 0.01aw , +/- 0.3°C
Communication	:	RS-232 interface (optional)



ms 1 Set aw

Precise, fast, flexible

A practical, 1'000-times proven precision hand-held measurement instrument for aw / relative humidity and temperature measurements. Thanks to the Novasina electrolyte sensor it is well-suited for precise aw measurements in many types of products. The instrument and its sensor are very robust, have excellent long-term stability and are practically hysteresis-free.

The large and clear LC display is very easy to read. The instrument is powered by a 9 V battery, but an additional mains power adapter is supplied to support long-term measurements. The sealed measurement probe cell is **not** temperature-controlled. The measuring chamber temperature is displayed at any time on the large LCD display. The instrument has a value stability trend display function. An optional RS-232 interface and supporting PC software (Novalog 32) is available for connecting a printer resp. a PC.

The instrument is delivered in a sturdy plastic carrying case with space for various additional accessories. Measurements can be made with the instrument in its case.

Typical samples:

- Pastries, bread and similar
- Cereals
- Milk powder, spices
- Powders, dried samples
- Dried foodstuff

Instrument ms 1:

Dimensions	: 54x43x265mm
Weight	: 280 g
Power	: 9V Battery

Humidity sensor:

Electrolyte-Measurement cell	
Range	: 0.06...0.98aw
Repeatability	: +/- 0.003aw
Precision	: +/- 0.01aw
(0.10...0.95aw, 25°C, with 5 point calibration)	

Temperature sensor:

Precise NTC-Resistance	
Range	: -20...80°C
Repeatability	: +/- 0.1° C
Precision	: +/- 0.3° C

Humidity standards

Salt tablets SAL-T:

Saturated pure salt solutions, based on national standards are recommended:

!! see catalogue accessories !!



ms 1 Set M



A hand-held precision instrument for the measurement of relative humidity of materials / the aw value (water activity of food-stuffs) and temperature.

For measurements of somewhat larger material samples, such as granulates, textiles, wood chips, sawdust, tobacco, tealeaves, herbs, potato crisps, biscuits, confectioneries, cereals, coffee beans etc. Relative humidity measurements can also be performed if the sensor is open. The sintered filter provides excellent dust protection.

Measurement range	: 0.06 ... 0.98aw (non condensing)
Temperature	: -20...+80°C
Box sensor	: HSM-3 with resistive electrolyte measurement cell CK-3
Precision	: +/- 0.01aw, +/- 0.3°C
Communication	: RS-232 interface (optional)



ms 1 Set M

Precise, fast, flexible

A practical, 1'000 times proven precision, hand-held instrument for humidity and temperature measurements. Thanks to its Novasina electrolyte sensor, the ms1 is particularly well suited to high precision humidity measurements in a broad range of materials and also in air. The instrument and sensor are extremely robust, have excellent long-term stability and are essentially hysteresis-free.

The integrated computer supplements relative humidity measurements with a number of parameters of the Mollier hx-Diagram. The large and clear LCD display is easy to read. The instrument is battery powered, but an additional mains power supply is available to support long-term measurements. An optional RS-232 interface and supporting PC software (Novalog 32) is available for connecting a printer resp. a PC.

The instrument is delivered in a sturdy plastic carrying case with space for various additional accessories.

Typical samples:

- Dried foodstuff
- Tobacco, tea
- Potato chips, creals
- Coffee beans
- Wood pellet, saw dust

Instrument ms 1:

Dimensions	: 54x43x265mm
Weight	: 280 g
Power	: 9V Battery

Humidity sensor:

Electrolyte-Measurement cell	
Range	: 0.06...0.98aw
Repeatability	: +/- 0.003aw
Precision	: +/- 0.01aw (0.10...0.95aw, 25°C, with 5 point calibration)

Temperature sensor:

Precise NTC-Resistance	
Range	: -20...80°C
Repeatability	: +/- 0.1° C
Precision	: +/- 0.3° C

Humidity standards

Salt tablets SAL-T:

Saturated pure salt solutions, based on national standards are recommended:

!! see catalogue accessories !!



ms 1 Set aw



[111 0137](#) ms1 Set AW 230V

[111 0150](#) ms1 Set AW 115V

ms 1 Set aw

The Set aw is a simple and precise entry-level set for important aw value measurements in the food sector. It consists of an ms1 hand-held instrument with a sealed measurement chamber, and a range of accessories all housed in a robust plastic case. The latter also has space for the optional RS232 interface for attachment to a PC or printer. SAL-T humidity standards are included for testing and recalibrating the measurement cell as required.

Carrying case with:

- Measurement instrument **ms 1 aw**
 - Sensor enBSK-3/PP, with 0.5m cable
 - 9V Battery
 - 3 SAL-T: 11, 33, 75% rh
 - 40 disposable sample dishes ePW
 - Tweezers
 - User manual
 - Factory certificate of the 5-point calibration at 11-33-53-75-90%
- Weight: 2.900 kgs

ms 1 Set M



[111 0511](#) ms1 Set M

ms 1 Set M

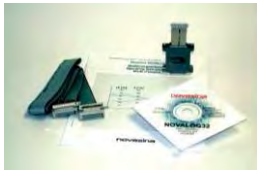
The Set M is a simple and precise entry-level set for important aw value measurements in the food sector, particularly when larger volumes of samples are involved (%RH). It consists of an ms1 hand-held instrument with a large, special-purpose measurement sensor, and a range of accessories all housed in a robust plastic case. Space is available for further options, such as a power supply or interface/cable. The Set can be tested and recalibrated as required using individual Sensor Check humidity-standards.

Carrying case with:

- Measuring instrument **ms 1 E**
 - Sensor HSM-3, 1m cable with 9-pin plug
 - 9V Battery
 - Plastic rack for the ms1
 - Sensor Check SC 75% rh
 - Adapter CH to HSM and SAL-SC
 - Styrofoam box for calibration
 - User manual
 - Factory certificate of the 5-point calibration at 11-33-53-75-90%
- Weight: 2.300 kgs



Accessories for ms 1 sets



111 0826 Interface PC

Interface RS-232

RS232 interface, 1m / 1,8m long cable, CD with software **Novalog 32** for Win 9x/2000/NT/XP.

Interface Set comprising:

- 1m cable with D-Sub 25/25-pin
 - 1,8m cable with D-Sub 9F/25M pin
 - RS-232 Interface
 - CD with NOVALOG32 software for Windows systems
 - User manual
- Weight: 450g



111 0562 Interface Seiko

RS-232 interface for Seiko printer

RS-232 interface, 1m long cable to connect a Seiko **DPU 411** thermal printer. This makes it possible to control the printer using the printer parameters defined in the **ms 1** menu.

-> *The printer must be obtained locally*

Printer-Interface-Set Seiko:

- Printer cable : Flat cable
- 1m long printer cable with D-Sub 25/25-pin
 - RS-232 interface
 - Seiko adapter box
- Weight : 300g



111 6256 Adapter 25F/9M

D-Sub adapter 25F/9M

Additional adapter for the RS-232 Interface for Seiko printer (111 0562), permitting connection to the more recent Seiko **DPU 414** printer.

Adapter Interface:

- Dimensions : 60 x 40 x 20 mm
- Adapter D-Sub 25F/9M
- 25-pin female con.
 - 9 - pin male con.
- Weight: 50g



- - - Example - Seiko Printer

Printer

A printer must be purchased locally.

> *Novasina does not supply printers.* <

Printers:

Portable printer for an easy direct connection to an ms1 hand-held instrument via a serial interface. A range of different printers can be supported by the ms1.



111 8426 Seiko Thermal paper

Thermal paper replacement rolls

for **Seiko DPU 411, 414** printers.

Attention: This paper must be stored in a dark and dry place. This is thermal transfer paper only intended for Seiko printers.

Printer type: **Seiko DPU 411, 414**

Note: Set of 5 rolls, each 25m long

Thermal paper replacement:

Set of 5 rolls, each 25 m long.
Thermal paper for Seiko printer
Models DPU 411 and 414

Paper width 11cm
Weight: 850g each Set
Set of 5 rolls, each 25m long



111 0601 ePW sample dishes

ePW sample dishes

For an enBSK measurement chamber

Packet of 100 sample dishes for the sample sensor enBSK-3.

These are disposal, intended for a single use with any Novasina aw instrument

A package consists of:

- 100 sample dishes ePW
- Material : Polypropylene
- Dimensions : 40mm diameter x 12mm deep
- Weight : 440 g

for set aw



111 0790 SI Set BS

SI, sorption isotherm set

for the BSK Sensor

This accessory, together with the Novasina humidity standards SAL-T, makes it possible to easily determine points of a sorption isotherm. (A precision balance and an oven are also required.)

Prerequisite: the laboratory room temperature must be kept absolutely constant.

SI – Set BS complete with:

- 1 SI-ring BS
- 1 substance basket
- 1 weighing glass
- 1 pair of tongs

For precise determination of a sorption isotherm, the AW SPRINT or AW CENTER with temperature control should be used.

Weight: 280 g **for set aw**



111 1218 Tweezers for CK cells

Special tweezers

To simplify the exchange of a CK measuring cell in an enBSK measuring head.

Special-tweezer:

Material : stainless steel
For changing the humidity cell in an enBSK head

Weight: 20 g

for set aw



- 111 0930** -> SAL-T 11% rh
- 111 0932** -> SAL-T 33% rh
- 111 0934** -> SAL-T 53% rh
- 111 0936** -> SAL-T 75% rh
- 111 0938** -> SAL-T 90% rh

SAL-T salt tablets

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 %	colour	white	
32.8 %	colour	blue	
52.9 %	colour	green	(DG see general terms of sales)
75.3 %	colour	purple	
90.1 %	colour	white	(DG see general terms of sales)

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

- 11.3 11.3% rh
- 33.3 32.4% rh
- 55.9 51.4% rh
- 75.6 75.1% rh
- 90.9 89.9% rh

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

Weight: 50 g a piece

for set aw



- 111 1056** -> SAL-T/C 11% rh
- 111 1057** -> SAL-T/C 33% rh
- 111 1060** -> SAL-T/C 53% rh
- 111 1063** -> SAL-T/C 75% rh
- 111 1065** -> SAL-T/C 90% rh

SAL-T/C salt tablets EU

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 %	colour	white	
32.8 %	colour	blue	
52.9 %	colour	green	(DG see general terms of sales)
75.3 %	colour	purple	
90.1 %	colour	white	(DG see general terms of sales)

Internationally accredited laboratory



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

Weight: 50 g a piece

for set aw



111 0695 Case with 5 SAL-T

Set of 5 SAL-T salt tablets

Humidity standards based on saturated salt solutions in plastic tablets with humidity-permeable membranes. Each salt is delivered in an airtight can. The set consists of a case containing one each of the following values (at 25°C):

11,3 %	colour	white	
32.8 %	colour	blue	
52.9 %	colour	green	(DG see general terms of sales)
75.3 %	colour	violet	
90.1 %	colour	white	(DG see general terms of sales)

Case with 5 salt tablets:

SAL-T for 11 ... 90%rh

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

11.3	.....	11.3% rh
33.3	.....	32.4% rh
55.9	.....	51.4% rh
75.6	.....	75.1% rh
90.9	.....	89.9% rh

The precision corresponds to the Greenspan Report 1977 typically +/- 0.3 % rh Weight: 670 g for set aw



Prices see on the pricelist

Certification of an aw instrument in an accredited European laboratory

A UKAS-laboratory will certify the instrument at two or more humidity values and at several different temperatures if required.

Internationally accredited laboratory



Certified instruments can be also supplied



- 111 1001** -> eVC-21
- 111 1003** -> eVC-26
- 111 7212** -> Redox
- 111 0995** -> eVALC
- 111 0997** -> eVMT-2
- 111 0999** -> eVMS-2

Cell protection filters

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

-> Please consult the appropriate datasheets

Filters for enBSK head:

- 111 1001** -> eVC-21 (10 pieces)
- 111 1003** -> eVC-26 (10 pieces)
- 111 7212** -> Redox (1 piece)
- 111 0995** -> eVALC (2 pieces)
- 111 0997** -> eVMT-2 (5 pieces)
- 111 0999** -> eVMS-2 (5 pieces)

Weight : 30 g

for set aw

Spare parts for ms 1 sets



111 1083 9V battery

9V-battery

Alkali-manganese battery (not rechargeable)

This battery permits up to 25 hours of continuous operation.

If a rechargeable battery is used, an external charger is required. -> The ms1 cannot perform this function.

9V Battery for the ms1:

Alkali cell battery :

Battery 9V DC, 180mAh
A standard battery, available in most electronic shops
Max. storage time : 2 years
Weight : 50 g

for all ms 1 sets



111 1564 230V power supply
111 1406 115V power supply

230V or 115V power supply

The power supply is recommended when the ms1 is used for a long period in one place, or to preserve battery power when the RS 232 interface is extensively used.

The ms1 does not recharge batteries. If rechargeable batteries are used, an external charger is needed.

Power supply:

230V AC +/- 10% / 50-60Hz
115V AC +/- 5% / 50-60Hz

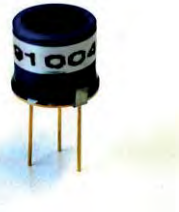
Output : +9 V DC / 16 mA

Power requirement: 0.4 VA

Plug : 4 mm diameter coax

Weight : 250 g

for all ms 1 sets



111 1013 CK-3 cell

CK-3 measurement cell

For the HSM-3, enSARK-3, enCSK-3, enBSK-3 Humidity measurement cell with neither temperature measurement nor integrated saturation protection. The aluminium (SARK) or sinter (CSK) filter should be removed and the measurement cell replaced by hand. In no circumstances should, the filter surface on the top of the cell be touched by hand or a hard object.

-> Humidity measurement cell. The ms1 requires recalibration after cell replacement.

Humidity-Measurement cell CK-3:

Humidity measurement
Range : 6.....95 % rh
Attention : No saturation protection!
Repeatability: 0.3 % rh
Precision : +/- 1.0 % rh
(when calibrated on instrument on all 5-Points from 11 to 90%rh)
Weight: 1 g

for all ms 1 sets



110 6821 enBSK-3

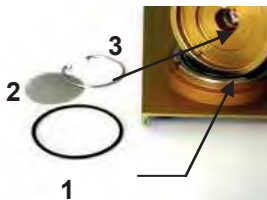
enBSK-3 sample sensor

Ideal for small sample volumes. For use with the measuring plate PP and the disposable sample dishes ePW. The sensor consists of the head BSK, a humidity measurement cell CK-3, the NTC-temperature sensor and a metal mesh protection filter.

Sample sensor enBSK-3:

Material : Aluminum anodised
Weight : 240g
Connector : 9 pins

for set aw



111 1373 O-Ring : 1
112 0175 Braided filter : 2
111 0111 Tension ring : 3

Replacement parts for "head BSK"

- 1 O-ring seal for the measurement chamber.
Recommendation: The O-ring should be periodically exchanged and lubricated with silicon grease.
- 2 Metal mesh filter for protection from particles.
- 3 Tension ring for clamping the filter(s).

Spare parts to enBSK:

- O-ring seal
- Mesh filter
- Tension ring

Weight: **1** : 1 g
2 : 30 g
3 : 10 g

for set aw



111 0770 Measurement plate

Sample measuring plate PP

for enBSK-3

The product sample is placed in a sample dish ePW (111 0601), which is inserted in the sample measurement plate.

Measurement plate PP: for enBSK sensor head

Dimensionens : 15 x 9 mm
Material : Anodised aluminium
Weight : 200 g

for set aw



110 6515 Tweezers for ePW

Tweezers

for ePW

To ease the removal of the sample dish ePW from the sample measurement plate PP.

Tweezers:

Material : stainless steel
Weight: 20 g

for set aw

Options for ms 1 set M



110 7345 Adapter CH

SAL-SC Sensor check adapter CH

for sensors with diameter 13 mm

This adapter is needed for calibration of a system with sensor diameter 13 mm. It ensures an airtight fixation of a SAL-SC check to the sensor top (measurement cell area). It reduces the diameter of 20 mm to 13 mm and ensures an airtight seal.

-> The adapter should be first mounted on the sensor top and then putted the SAL-SC check on it. Both seals should be carefully checked, leaks will bias the calibration.

CH adapter to SAL-SC salts for sensors with diameter 13 mm:

Dimensions : 30 x 13 mm
Material : Polycarbonate, rubber
Weight : 5 g

for set M



with CK-3 measurement cell
252 4708 HSM-3 – 1m cable

HSM-3 sensor incl. sample box

Complete with the sample box large

Modern and light polycarbonate plastic sensor with a shaft diameter of 13mm. Inclusive exchangeable resistive electrolyte measuring cell CK-3. Aluminium protective cap with a shaft diameter of 13mm and braided filter of rust-resistant steel. With a 350 ml one way plastic box for bigger sample volumes.

Accessories: 1 sample box

-> For SAL-SC calibration kit please use the Sensor Check adapter Nr. 1107345 (tightness)

HSM-3 Sensor incl. Box:

Dimensions Sensor: 160 x 13 mm
Dimensions Box 112 x 76 mm
Weight : approx. 200g
Measurement : AW and Temp
Connector : 9 –pin plug for the ms1
Power : passive
Outputs : Novasina specific
Protection : braided filter without membrane **for set M**



252 5413 HSM-113–9-pin,1m cable

HSM-113 sensor

A small, and light water activity sensor in a polycarbonate plastic housing with 100mm tube length for large sample box. Shaft diameter of 13 mm. Without measurement cell and filter. Only for ms1 set M available.

-> Please use the Sensor Check Adapter Nr. 1107345 for SAL-SC calibration to ensure the correct sealing.

HSM Sensor including plug:

Dimensions : 160 x 13 mm
Shaft length : 100 mm
Weight : 100 g
Measurement : AW and Temp
Connector : 9 –pin plug for the aw-Lab Set F
Power : passive
Outputs : Novasina specific **for set M**



111 5343 Box Mounting Kit

Box mounting kit

Box mounting flange for HSM sensors. For easy, sealed mounting through probe boxes. The flange can be fixed by 3 screws The sensor can be removed at any time for recalibration.

-> Clamping range: 10 14 mm

Duct mounting kit for HS:

Flange dimensions : 60 x 20 mm
Weight : 30 g
Clamping range : 10...14 mm
Available for larger sample box installation. **for set M**



111 6330 Active charcoal filter

Filter protective cap with active charcoal for the HSM sensor

Aluminium filter protective cap for the HSM sensor. Incorporates a stainless steel metal web and an active charcoal insert. Provides optimal protection of the measurement cell from corrosive gases and industrial pollutants.

-> The filter has a 12 um mesh size

Active charcoal filter for HSM:

Filter dimensions : 28 x 13 mm
Weight : 15 g
Effect : mechanical protection
chemical protection
Nitrous oxide, oil-smoke, fine dust
amine, ethylene Particle size over : 12 um **for set M**



111 6329 Metal webfilter

Metal-web filter for the HSM sensor

The standard filter protective cap for the HSM sensor. Made of aluminium woven material for highly demand-ing industrial applications, Provides good protection against dirt such as dust or larger particles in an industrial environment, but no protection against water spray.

-> The HSM is delivered with this filter

Metal web filter for the HSM:

Filter dimensions: 25 x 13 mm
Weight : 10g
Effectiveness : Mech. protection
no chemical protection
Particle size above: 25 um
Supplied with the HSM sensor **for set M**



252 4710 sample box large

Sample box large HSM-3/7

New large sample box for **HSM-3 box sensor**. (without screw connection)

These are disposals, intended for a single use with Novasina aw-Lab or ms-1 instrument with HSM sensor.

A large sample box contains:

1 new sample box
Material : Polypropylene
Dimensions: 112 x diam. 76 mm
Weight : 50 g **for set M**



- [111 0885](#) -> SAL-SC 11
- [111 0855](#) -> SAL-SC 33
- [111 0857](#) -> SAL-SC 53
- [111 0859](#) -> SAL-SC 75
- [111 0896](#) -> SAL-SC 90

Sensor-Checks SAL-SC (rh standards)

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) :

for HSM and enCK-x sSensors on ms 1 !

- 11.3 % rh colour white
- 32.8 % rh colour blue
- 52.9 % rh colour green (DG see general terms of sales)
- 75.3 % rh colour purple
- 90.1 % rh colour white (DG see general terms of sales)

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

- 11.3 11.3% rh
- 33.3 32.4% rh
- 55.9 51.4% rh
- 75.6 75.1% rh
- 90.9 89.9% rh

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

Weight : 90 g
for set M



- [111 1044](#) -> SAL-SC 11 C
- [111 1037](#) -> SAL-SC 33 C
- [111 1040](#) -> SAL-SC 53 C
- [111 1035](#) -> SAL-SC 75 C
- [111 1032](#) -> SAL-SC 90 C

Sensor-Checks SAL-SC EU with European certificate

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

for HSM and enCK-x sSensors on ms 1 !

- 11.3 % rh colour white
- 32.8 % rh colour blue
- 52.9 % rh colour green (DG see general terms of sales)
- 75.3 % rh colour purple
- 90.1 % rh colour white (DG see general terms of sales)

Internationally accredited laboratory



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

Weight : 90 g



[111 7847](#) Sensor-check set

Set with 5 Sensor-Checks SAL-SC

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

- 11.3 % rh colour white
- 32.8 % rh colour blue
- 52.9 % rh colour green (DG see general terms of sales)
- 75.3 % rh colour purple
- 90.1 % rh colour white (DG see general terms of sales)

Case with all 5 Sensor Checks from 11 to 90%rh:

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

- 11.3 11.3% rh
- 33.3 32.4% rh
- 55.9 51.4% rh
- 75.6 75.1% rh
- 90.9 89.9% rh

The precision corresponds to the Greenspan Report 1977 typically +/- 0.3 % rh Weight : 900 g
for set M