novasina
The Art of Precision Measurement

Catalogue

2006

Measurement instruments for:

Air humidity- and temperature in

rooms / processes / materials

Manufacturer :
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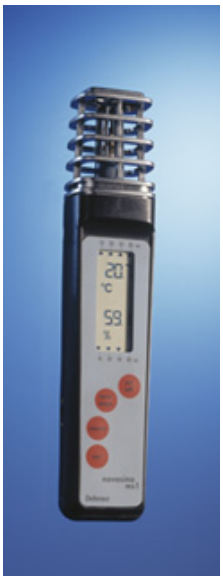
ms1



Mobile precision instrument for relative air humidity and temperature measurement in rooms, air ducts and materials.
Robust housing for applications in the service and maintenance sector.
Adjustable at any time with the Novasina humidity standards Sensor-Checks (included in the scope of delivery).

Relative humidity	:	**6....98% rh**	(non-condensing)
Temperature	:	-10...50°C	
		-20...80°C	with remote sensor
Precision	:	**+/- 1% rh**	10...90% rh at 25°C and calibration at all 5 reference points
		+/- 0.3°C	NTC technology *(not adjustable)*
Communication	:	optional RS-232 interface for an external printer (controlled by the ms1) or for a visualisation software running on a PC (available from Novasina).	
Further parameters	:	the ms1 displays the relative air humidity and the air temperature (dry bulb temperature) . The internal processor makes it possible to display also the following Mollier diagram parameters	

- Dewpoint
- Mixing ratio
- Wet bulb temperature
- Specific enthalpy
- Vapour pressure

The ms1 humidity & temperature measurement system

Precise, fast, versatile

A practical, 1'000-times proven precision handheld instrument for relative humidity and temperature measurements. Thanks to its resistive electrolytic measurement principle, the ms1 is particularly well suited to high precision humidity measurements in air and other gases. Other special advantages are its robustness and long-term stability, as well as simple checking and recalibration functions using the Novasina Sensor Checks.
The sensor has an outstanding repeatability. Hysteresis is essentially not measurable. The integrated processor makes it possible to display a number of Mollier h,x Diagram parameters of particular importance to all climate and ventilation professionals.
The large, clear, multifunction LC display has an excellent contrast. The instrument incorporates a shut down function to conserve battery power. Other options include a power supply and an RS-232 interface to transmit data to a printer or PC (visualisation software available at Novasina).

Typical **ms-1** applications:

- Heating, ventilation and air conditioning
- Room climate measurements in research and development laboratories
- Local climate control (e.g. for electronic, pharmaceutical, chemical, biotechnoloy, food industries etc.)
- Material humidity measurements in concrete, wood, paper, drugs, chemical products etc.

Measurement instrument ms1:
Dimensions : 54x43x265mm
Weight : 280 g
Power : battery 9V DC

Humidity measurement:
Resistive electrolytic measurement cell
Range : 6....98% rh
Repeatability : +/- 0.3% rh
Precision : +/- 1.0% rh
(in temp. range from 10...50°C and 10...90% rh)

Temperature measurement:
Very precise NTC resistance
Range : -20....80°C
Repeatability : +/- 0.1°C
Precision : +/- 0.3°C

Note: Application and measurement range with sensor mounted directly on the ms1: -10...50°C.
With remote sensor connected by extension cable or tube: -20...80°C.

Sensor Checks SAL-SC:
Humidity standards based on saturated salt solutions in plastic cylinders with a moisture permeable membrane.
Values: 11%, 33%, 53%, 75%, 90%rh.

Measurement instrument ms-1

111 0534 **ms1 basic set**

Basic set ms1

The portable ms1 measurement instrument is supplied in an impact-resistant carrying case with two humidity standards.
The case also has space for further options, including a power supply, RS232 interface, surface temperature sensor etc. (not included in basic set)

Carrying case with:

Measurement instrument ms1
9V battery
Measurement cell enCK-3
Plastic rack for the ms1
Sensor Check SC 33% rh
Sensor Check SC 75% rh
Polystyrene box for calibration
User manual
Manufacturers procedure for the 5-point calibration 11-33-53-75-90%
Weight (instrument): 220 g

ms1 accessories

111 1564 Power supply **230V**
111 1406 Power supply **115V**

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

111 3542 **Extension cable**

Extension cable for ms-1

1.5m long cable with 9-pin plugs for remote measurements with the ms1. Use of the extension cable does not require recalibration of the instrument.

-> Recalibration is not necessary if an extension cable is used.

Extension cable for ms1:

Extension cable 1.5m
9-pin special connectors for plugging in the ms1 instrument and enCK-4/5 cell
Weight : 120 g

111 0826 PC interface

PC communication via RS232

RS232 interface, 1m long cable, software CD Including NOVALOG 32 visualisation software for Win 9x/2000/NT.

Interface Set comprising:

- 1m cable with D-Sub 25/25-pin
- RS-232 Interface
- Software CD with NOVALOG 32 for Windows systems
- User manual

Weight : 440 g

- - - Example Seiko printer

ms1 local printer system

Attention: Any printer must be obtained locally

! Novasina does not supply printers !

ms1 printer system:

Portable smart printer system to connect the ms1 handheld instrument via an interface box directly with a standalone battery powered thermal transfer printer

Other printers may be used

111 0562 **Seiko interface**

RS232 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 ms1 menu.

Attention: The printer must be obtained locally.
(Problems may arise with local language support)

Seiko printer Interface set:

Weight : 280 g
- 1m long printer cable
- D-Sub 25/25-pin
- RS 232 interface box ms1
- Seiko adapter box

111 6256 Adapter **25F/9M**

D-Sub adapter 25F/9M

Adapter for the RS232 Interface to Seiko printer, PN 111 0562, permitting connection to the more recent Seiko **DPU 414** printer.

Adapter Interface:

Dimensions : 60 x 40 x 20 mm
Weight : 50 g

Adapter D-Sub 25F/9M
25-pin female connector
9-pin male connector

111 0661 **Epson interface**

RS232 interface for Epson printer

RS-232 interface, 1m long cable to connect an Epson or other compatible 9-pin needle printer. This makes it possible to control the printer using the printer parameters defined in the ms1 menu.

Attention: The printer must be obtained locally.
(Problems may arise with local language support)

Epson printer Interface set:

Printer flat cable:

- Length 1 m
- D-Sub 25/25-pin connector
- ms1 RS 232 interface
- Epson adapter

Weight : 300 g

111 8426 Seiko **Thermal paper**

Thermal paper replacement rolls

Printer type: Seiko DPU 411, 414

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

Note: *set of 5 rolls, each 25m long*

Thermal paper replacement:

Set of 5 rolls, each 25 m long.
Weight : 850 g *(Set)*

Thermal paper for Seiko printer models DPU 411 and 414

Paper width 11cm

111 0885 -> **SAL-SC 11% rh**
111 0855 -> **SAL-SC 33% rh**
111 0857 -> **SAL-SC 53% rh**
111 0859 -> **SAL-SC 75% rh**
111 0896 -> **SAL-SC 90% rh**

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 SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

111 1044 -> **SAL-SC 11% rh EU**
111 1037 -> **SAL-SC 33% rh EU**
111 1040 -> **SAL-SC 53% rh EU**
111 1035 -> **SAL-SC 75% rh EU**
111 1032 -> **SAL-SC 90% rh EU**

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. Sensor Checks SAL-SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

Internationally accredited laboratory

UKAS CALIBRATION

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

Weight : 90 g

Prices on pricelist for air products

ms1 certification

by an accredited European laboratory (UKAS)

A UKAS-laboratory certifies the instrument at two or more humidity and several temperature values if required.

Internationally accredited laboratory

Certified instruments can be supplied.

111 7847 Check set *(complete)*
111 7841 Empty casing

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. Sensor Checks SAL-SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

Spare parts to ms1

111 0978 enCK-3

Sensor enCK-3

Standard humidity and temperature sensor for the ms1.

This sensor is mounted directly on the ms1, but can also be used with an extension cable.

Information: recalibration of the ms1 at a minimum of two points is required when a sensor is replaced. High precision requires a 5-point recalibration.

Sensor enCK-3:

Dimensions : 58 x 22mm
Weight : 10 g

Humidity measurement:
Range : 6.....95 % rh
Attention : No saturation protection
Repeatability : < 0.3 % rh
Precision : +/- 2.0 % rh
Calibration : at 5-points and 25°C with SAL-SC salts

Temperature Measurement:
Range temp. : -20...80°C
Repeatability : +/- 0.1° C
Precision : +/- 0.3° C

1110985 Metal web **eVMT-83**
1112569 Sintered **eVM-83I**

Cell protection filters to enCK-3 sensors

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

-> Please consult the appropriate data sheets

Metal web filter eVMT-83 to enCK-3:

Dimensions : 68 x 30 mm
Effectiveness : mech. protection against particles larger than 0.3 um
Weight : 40 g

Sinter filter eVM-83I to enCK-3:

Dimensions : 55 x 30 mm
Effectiveness : mech. protection against particles larger than 0.1 um
Weight : 90 g

ms1 instrument optionals

111 6716 **enSARK**

Sensor enSARK-3

with 2m connection cable and 9 pin plug

Sensor rod with 13 mm diameter and duroplast tip, CK-3 humidity measurement cell and NTC temperature sensor. Designed for measurements in granulate material inside sacks, tanks and silos.

See also Set AM/Set and AMS:

Example: humidity measurements of granulates, sawdust, or tobacco in a sack

Weight : 210g

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

111 6497 **enSARK tip**

Replacement tip for Sensor enSARK-3

Hard plastic tip to ease the insertion of SARK sensors into materials

-> Not usable with older SARK sensors

Tip to sensor SARK:

Material : POM black
Weight : 5 g

111 1013 **CK-3** measurement cell

Replacement measurement cell CK-3

for enSARK-3, enCSK-3 sensors

Humidity measurement without temperature sensor and without saturation protection.

Can be exchanged by hand after removal of the filter. The filter surface on the top of the cell should not be touched! (danger of damage)

Information: recalibration of the ms1 at a minimum of two points is required when a sensor is replaced. High precision requires a 5-point calibration.

Humidity measurement cell CK-3:

Measurement range : 6.....95 % rh (98% non-condensing)
Attention : No saturation protection
Repeatability : < 0.3 % rh
Precision : +/- 2.0 % rh
Calibration : at 5-points and 25°C with SAL-SC salts
Weight : 1 g

110 6562 Polycarbonate tubes

Set of 10 external tubes

Set of 10 precision, reusable tubes with closing caps for humidity measurements in concrete floors or walls using the enSARK-3 sensor. The tubes are inserted in boreholes in floors or walls. The humidity is measured with a SARK sensor once a stable value has been reached.

Set of 10 Precision tubes:
including cover plate for material measurements

Weight : 220g a set

Application :
- Make an opening in the wall/floor
- Insert the tube
- Wait for the humidity to stabilise
- Measure the humidity using an ms1 and a SARK sensor (see also ms1 set AM)

111 0852 **Conical sensor**

Conical sensor enCSK-3

Conical sensor for measurement in vats, or directly in materials. Incorporates a sintered filter to protect the measurement cell. against fine dust and damage. Delivered with a 1m cable and 9-pin plug.

Conical sensor to ms1:

Dimensions : 100 x 14 mm
Cable length : 1m
Connector : 9-pin plug for the ms1 instrument
Humidity cell : CK-3 incl. NTC element for temp. measurement
Range : 6..95%rh/-20..+80°C

(see also ms1 set M)

111 0526 **Box sensor enMBRK-3**

Box sensor enMBRK-3

A special sensor for humidity and water content measurements of large quantities of foodstuff, e.g. potato chips, tea leaves, granulates etc..

-> Includes the conical sensor enCSK-3 (PN 111 0852)

Box sensor enMBRK-3:
(incl. conical sensor enCSK-3)
Cable length: 1m
Connector : 9-pin plug for the ms1
Weight : 275 g

see also Set M

111 1467 **Sintered filter** to conical sensor

Sintered filter

For the conical sensor enCSK-3 (111 0852) and box sensor (111 0526).

Attention: carefully unscrew the conical sensor when changing the filter

Sintered filter for conical sensor:

Dimensions: 25 x 16 mm

Material : Sintered brass

Weight : 30 g

111 1023 adapter **CS** to conical sensor

Adapter CS

for enCSK-3 sensor to SAL-SC check

This adapter is needed for calibration of the enCSK sensor with the SAL-SC checks.It ensures an airtight connection of a SAL-SC to the conical sensor.

-> Adapter CS only for the conical sensor
-> Fix the adapter to the conical sensor first and then to the SAL-SC check. Make sure that it is well-sealed.

Adapter CS to conical sensor:

Dimensions : 30 x 13 mm
Material : PE plastic
Weight : 5 g

The adapter has no gasket on the sensor side The cone itself provides an airtight seal.

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:

Dimension : 48 x 25 x 17mm
Weight : 50 g

Alkali cell battery
Battery 9V DC, 180mAh
Standard battery, available in most electronic shops
Max. storage time : 2 years

111 1302 **Styrofoam box**

Thermal insulation styrofoam box

For the SAL-SC sensor checks

A styrofoam box providing optimal insulation and temperature stabilisation of a SAL-SC check during the calibration proceedure. Consisting of two half-covers for simple temporary mounting.

-> Can be used together with the SAL-SC calibration kit for optimal thermal protection during calibration

Styrofoam box for the SC check:

Dimensions : 100 x 65 x 50 mm
Weight : 10 g

Material : thermal insulating styrofoam PPE

HygroMate

Quality at an affordable price

A cost-optimized, precise hand-held instrument for measuring the relative humidity and temperature in rooms and ventilation systems. The large, backlit liquid crystal display permits optimal readout of the measurements at all times.

The optimal handheld instrument for the service technician, for those installing climate control systems and for process control. It is also well-suited to quality control applications in the foodstuff, pharmaceutical chemical, engineering and electronic industries.

Relative humidity	:	**0....95% rh** *(non-condensing)*
Temperature	:	-20...50°C *Sensor & measurement range* 0...50°C *Electronics, power & display*
Precision	:	**+/- 2% rh** *5...90% rh* **+/- 0.3°C** *0...40°C, otherwise +/-0.5°C*
Measurement hysteresis:		approx. 1....1.5%rh *(capacitive measurement cell)*
Resolution	:	0.1..0.2°C / 0.1…0.2 % rh
Communication	:	Large area LC display with LED back-lighting No digital/analog interfaces
Display functions	:	**Min** / **Max** value storage, average computation **Hold** measurement value storage **Time** and **Date**, **AutoOff** function Temperature display, **°C or °F** Humidity display with **Mollier diagram** computation functions : • *Relative humidity in **% rh*** • *Dewpoint temperature in **°C or °F*** • *Mixing proportion in **g/m3***

Mobile measurement of air temperature and humidity

Economical, fast, flexible, robust

Who does not instantly want to know how hot, cold and humid it is? The new *Hygro*Mate measurement instrument satisfies these wishes in almost any place in the simplest way. It is a professional instrument for daily use, incorporating well-proven capacitive humidity measurement technology. The *Hygro*Mate is a perfect addition to Novasina's palette of hand-held instruments. A real alternative where extremely high precisions are not necessarily required (for most standard environmental applications).
The innovative **Thumbwheel** sets new standards of user-friendliness. This complements the ergonomic, robust, anti-slip dual-colour case design and the additional sensor-protecting filter system. The instrument can be checked at any time and, if necessary, calibrated at one or two values using the well-known **Novasina SAL-SC check** salt standards.
The new low-power processor technology with integrated climate computer and **Auto OFF** functions guarantees a long battery life. The display is switchable from **International** to **US units.** Further functions, **Dewpoint** and **Water Content** in g/m3 help the expert to make the correct on-the-spot decisions.

*Typical **HygroMate** applications*:

- Heating, ventilation and air conditioning: monitoring and service
- Space checks in warehouses, libraries, food storage areas
- Air measurements in buildings (offices, auditoria, lecture halls)
- Pharmaceutical production, chemical, biological and foodstuff processing

Measurement instrument *Hygro*Mate:
Dimensions : 145x85x37mm
Weight : ca. 400 g
Power : 4 x 1.5V alkaline batteries

Humidity measurement:
Capacitive humidity measurement cell
Range : 0...95% rh *non condensing*
Precision : +/- 2.0%rh 5...90% rh
Measurement hysteresis : ~ 1...1.5% rh
Speed : T90 < 10 sec.

Temperature measurement:
Precise NTC resistance
Range : -20....50°C
Precision : +/- 0.3°C (0...40°C) otherwise +/- 0.5°C

Attention: The electronics, power and display should only be used in the temperature range 0...50°C .

Sensor Checks SAL-SC:
Humidity standards based on saturated salt solutions in plastic cylinders with a moisture permeable membrane.

Values: 11%, 33%, 53%, 75%, 90% rh

A "CH" adapter (reduction ring) is required for use of the SAL-SC checks.

*Hygro*Mate measurement instrument

[111 8903](#) ***Hygro*Mate**

*Hygro*Mate hand measurement instrument

The *Hygro*Mate hand-held measurement instrument is delivered with a set of alkaline batteries, a metal web protection filter and a English/German user manual in a protective cardboard package. A certificate documenting a factory 2-point calibration is included.

-> The instrument is thus ready to use.

The instrument consists of:

Integrated electronics in an ergonomically formed plastic casing on which is mounted a capacitative sensor system.
- Chrome plated sensor protection system with a fine mesh metal filter.
- 4 pcs 1.5V LR 6 AA alkaline batteries
- User manual (English/German)
- Factory certificate with 2 humidity calibration values.
- Protective cardboard package

Weight : 400 g

*Hygro*Mate accessories

[111 8929](#) **Holder**

Table or wall holder

An ideal support when wall-mounting of the *Hygro*Mate is required. Can be used as a table support by simply bending out a metal flap.

Table or wall holder:

Dimensions : 80 x 102mm
Weight : 85 g
Material : Stainless steel type *X5CrNi1810*

[111 8957](#) **Soft bag**

Protective bag for the *Hygro*Mate

We recommend that the *Hygro*Mate measurement instrument be stored, used and transported in this durable, practical, protective bag. It provides protection for the instrument and includes space for accessories such as SAL-SC checks etc.. It can be carried on the shoulder or attached to a belt using the loops provided.
Velcro strips are provided to prevent objects falling out of the bag.

The protective bag comprises:

Dimensions : 250 x 200 x 40mm
Weight : 185 g *(empty)*
Material : 2 Padded textile side pockets for 2 SAL-SC checks and their containers

[111 8958](#) **Carrying case**

Protective case for the *Hygro*Mate

The *Hygro*Mate can also be stored and transported in a strong plastic case. This provides more protection than the above bag, but needs more space. Space for the appropriate accessories is also provided.

The protective case comprises:

Dimensions : 320 x 350 x 60mm
Weight : 240 g *(empty)*
Material : Polycarbonate

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

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 SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

111 7847 **Check set** *(complete)*
111 7841 **Empty casing**

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. Sensor Checks SAL-SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

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

111 8959 **Sintered filter**

Sintered filter for the *Hygro*Mate

For higher protection against particles, dust and mechanical stress

A robust metallic filter made of sintered stainless steel. Provides active protection for the sensor system against particles larger than 10um.

-> Other filter systems are available on request

Sintered filter system:

Dimensions : 34 x 13 mm
Material : Sintered stainless steel
Response time : T50 ca. 30 sec

Weight : 30 g

Spare parts for *Hygro*Mate

111 8960 **Metal web filter**

Metal web filter for the *Hygro*Mate

Replacement metal web filter

A robust metal web filter made of stainless steel. Prevents particles larger than 100 um from reaching the sensor system and provides active protection. The instrument is delivered with this filter installed.

Metal web filter system :

Dimensions : 34 x 12.5 mm
Material : Stainless steel, plastic
Response time : T50 ca. 10 sec.

Weight : 20 g

111 8961 **C-measurement cell**

Capacitive measurement cell

*Replacement measurement cell for the Hygro*Mate

A replacement capacitive humidity measurement cell only for the HygroMate instrument. It is important that a new 2 point calibration is performed with the SAL-SC checks 11% and 75% rh when the cell is replaced.

Attention: In no circumstances should the cell be touched with the bare hands.

Replacement should only be done by a skilled person.

Capacitive humidity measurement cell:

Dimensions : 4 x 15 mm
Weight : 2g
Measurement : capacitive
Streufeld : +/-20% rh !!

A new 2 point calibration must be performed when this cell is replaced!

The cell should only be replaced by a Novasina agent!!

HygroGuard

for a permanent Climate Control!

The ***Hygro*Guard 10 or 20** is a new generation of cost optimised, precise air humidity and temperature data logging instruments. They can be used in all applications, where a continuous monitoring of the climate for a very long period of time is required. Thanks to extremely long working autonomy of typically 2 years with the built-in battery, up to **120'000 data points** can be stored.
The evaluation and configuration is done by the SmartGraph 2 software tool, that is included with the instrument. This can be installed in a Windows based PC or Laptop.

Thanks to an excellent cost efficiency, the application range is extended from pure industrial data logging to the heating, ventilation and airconditioning segment, as well as the private use.

The standard SmartGraph 2 software can be extended, in order to permit the use in the pharmaceutical and chemical industry with more strict regulations and requirements (e.g. CFR 21 part 11 compliance).
The HygroGuard is the ideal climate data recording system for HVAC-installations, process controls in quality assurance, or in the food, machinery, electronics, drug industry as well as in storages, transportation etc.

Relative air humidity	:	10....95% rh *(not condensing)*
Temperature	:	-20...50°C
Accuracy	:	+/- 3.0% rh *10...90% rh without chem.contamination* +/- 0.3°C *0...40°C otherwise +/-0.5°C*
Measuring hysteresis	:	approx. 1....1.5% rh (capacitive measuring cell)
Resolution	:	0.1…0.2°C / 0.1…0.2% rh
Display *(only **HygroGuard 20**)*	:	large LC-Display with date / time rel. air humidity / temperature, logger status, 2 visual alarms
Communication	:	RS 232 interface for on-line data evaluation or data transfer of recorded climate data.

Humidity and Temperature Data Recording Instrument *Hygro*Guard 10 / 20

This instrument, designed on the basis of a capacitive relative humidity measuring cell system, offers multiple applications. The very long battery autonomy, together with the innumerous configuration possibilities of the instrument, allow universal applications. The appealing rounded two-colour housing design makes it possible to use in public sectors, offices as well as in private homes. The large, well readable LC-Display shows the actual relative air humidity and temperature. Further information as the momentary status, set alarms (up to two alarms), the date and time can be seen. Manifold possibilities to configure and adjust for the measurement and data recording are available in the software tool.

The measuring instrument is supplied as a complete set including a data transfer cable and a CD with standard analysis and configuration software (SmartGraph 2) for Win2000/NT/XP systems.
Useful accessories, such as a theft protection, or a wall mounting support, ideally complement the measuring instrument.

For a periodical check of the accuracy and functionality of the instruments and / or the sensors, they can be sent to Novasina or one of the local agents for testing and recalibration.

*Typical Applications for the **Hygro*Guard 10 or 20**:*

- Long-term monitoring and servicing in HVAC systems
- Quality control in industrial processes in all industrial applications
- Climate control in museums, archives, libraries, storage rooms
- Online monitoring with long-term recording via digital interface
- Building air measurements (offices, lecture halls, production)
- Pharmaceutics, chemistry, biology, food processing.

Data logger HygroGuard 10:
Dimensions : 110x54x25mm
Weight : 100 g
Power supply : 1 x 3.6V Lithium primary Battery

Data logger HygroGuard 20:
Dimensions : 110x115x25mm
Weight : 220 g
Power supply : 1 x 3.6V Lithium primary Battery

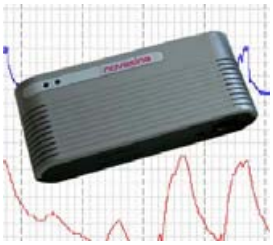
Humidity measurement:
Capacitive humidity measuring cell
Measuring range : 10...95% rF *not condensing*
Accuracy : +/- 3.0%rh 10...90%rh
Measuring hysteresis: ca. 1...1.5% rh
Speed : T90 < 10 sec.

Temperature measurement:
Accurate NTC resistance
Measuring range : -20....50°C
Accuracy : +/- 0.3°C (0...40°C)
otherwise : +/- 0.5°C

Remark: Sensor system is based on a capacitive humidity measuring cell. Additional protection filters are not available.

The use of the instruments therefore is limited to the measurement of standardised air, harmless for humans.
Problems may occur with higher concentrations of eg. acids, bases, ammonia, alcohols!

*Hygro*Guard 10 / 20 data logger



111 9357 ***Hygro*Guard 10**

*Hygro*Guard 10 Data logger system

The humidity and temperature measuring instrument has no display. All data can be transferred via software SmartGraph 2 to the PC/Laptop and then be visualised. The status of the ***Hygro*Guard 10** is shown by 2 LED green / red.

Beside the ***Hygro*Guard 10** the delivery includes
- 2m data transfer cable
- the standard version of the software „SmartGraph 2“ on a CD for configuration and data analysis
- on a CD the operating instructions for *Hygro*Guard and Software (pdf – files).

***Hygro*Guard 10:**

Humidity and temperature data recording system without LC-Display unit.
- Two-colour housing with integrated LED green and red.
- One 3.6V LR 6 AA Lithium Battery (prod. Saft)
- RS-232 Interface cable 2m
- SmartGraph 2 Software CD
- Factory certificate with 2 humidiy calibration values
- Operating instructions E/G on CD

Weight: 100g

111 9358 ***Hygro*Guard 20**

*Hygro*Guard 20 Data logger system

The humidity and temperature measuring instrument has an additional large, well readable LC-Display unit. All data can as well be transferred via software SmartGraph 2 to the PC/Laptop and then be visualised. The data logger consists of the upper display unit and the lower sensor module RHT.

Beside the ***Hygro*Guard 20** the delivery includes
- 2m data transfer cable
- the standard version of the software „SmartGraph 2“ on a CD for configuration and data analysis
- on a CD the operating instructions for *Hygro*Guard and Software (pdf – files).

***Hygro*Guard 20:**

Humidity and temperature data recording system with LC-Display unit.
- Two-colour housing in 2 parts Display unit and sensor module
- one 3.6V LR 6 AA Lithium Battery (prod. Saft)
- RS-232 Interface cable 2m
- SmartGraph 2 Software CD
- Factory certificate with 2 humidiy calibration values
- Operating instructions E/G on CD

Weight: 220g

*Hygro*Guard 20 accessories

111 9410 Wall holder / **Theft protection**

Theft protection for *Hygro*Guard 20

In public buildings or other freely accessible areas it unfortunately happens more and more often, that tools and measuring instruments are stolen. With a theft protection and a padlock this can be avoided.
The security key owner still has the possibility to remove the instrument and carry it to his workplace for a data transfer, or maintenance.

An ideal wall support system for the ***Hygro*Guard 20**.

Attention: this is no protection against vandalism!

Wall supprot and theft protection:

Dimensions : 60 x 120 x 25mm

Weight : 340 g

Material :Steel, surface treated.

Consisting of :
- 2 mounting plates, for the wall and for the instrument side
- 4 mounting screws
- 2 wall dowels
- Fixing finger nut
- Padlock with 2 keys

111 9411 Sensor module **RHT**

Replacement Sensor Module RHT *to the Hygro*Guard 20

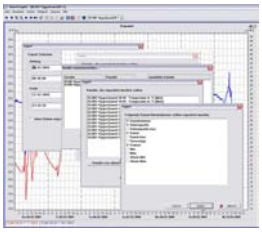
Favourably priced replacement module for ***Hygro*Guard 20** Systems. This allows to continue the data recording with a ***Hygro*Guard 20** even when the original sensor module RHT is sent back to the factory for checking and recalibration.

Sensor module RHT:

Dimensions : 110 x 45 x 25 mm

Weight : 60 g

Measuring sensors :
- NTC temperature sensor
- Capacitive humidity sensor
- Specifications: cf. *Hygro*Guard 20



111 9412 SmartGraph 2
Professional **license 1**

SmartGraph 2 License enlargement "1"

Professional license for HygroGuard 10 / 20

License enlargement for the **SmartGraph 2** standard software for **one** measuring data logger ***Hygro*Guard 10/20**.
- Enlarges the software for data transfer into a program as eg. Access, Excel etc.
- Free composition of different graphs to simplify a comparison.

The license will be granted by a special user code, given by the factory. For that, we need a fully filled-in form by eMail or fax. This form can be started from the software.

Professional license for „SmartGraph 2" software :

***Professional license for: one Hygro*Guard 10 *or* 20**

The user code is personal and not transferable. It is valid for one installed software only, and for one measuring instrument HygroGuard 10 or 20.

111 9413 SmartGraph 2
Professional **license 10**

SmartGraph 2 License enlargement "10"

Professional license for HygroGuard 10 / 20

License enlargement for the **SmartGraph 2** standard software for **ten** measuring data loggers ***Hygro*Guard 10/20**.

The license will be granted by a special user code, given by the factory. For that, we need a fully filled-in form by eMail or fax. This form can be started from the software.

Professional license for „SmartGraph 2" software :

***Professional license for: 10 Hygro*Guard 10 *or* 20**

The user code is personal and not transferable. It is valid for one installed software only, but for 10 measuring instruments HygroGuard 10 or 20.

111 9414 SmartGraph 2
Professional **license 100**

SmartGraph 2 License enlargement "100"

Professional license for HygroGuard 10 / 20

License enlargement for the **SmartGraph 2** standard software for **100** measuring data loggers ***Hygro*Guard 10** or **20**.

The license will be granted by a special user code, given by the factory. For that, we need a fully filled-in form by eMail or fax. This form can be started from the software.

Professional license for „SmartGraph 2" software :

***Professional license for: 100 Hygro*Guard 10 *or* 20**

The user code is personal and not transferable. It is valid for one installed software only, but for 100 measuring instruments HygroGuard 10 or 20.

111 9934 SmartArchive
Professional **license 1**

SmartArchive License enlargement "1"

*Pharmaceutical **CFR 21Par 11** license for HygroGuard 10 / 20*

License enlargement for the **SmartGraph 2** standard software for **1** measuring data logger ***Hygro*Guard 10** or **20** with the **SmartArchive** pharma compliant functions.
- Enlarges the software for **filing** the data in a CFR compliant structure "xml-code".
- Handles the digital signature and alarm over Outlook mail account if there is any fault or incompatibility.

The license will be granted by a special user code, given by the factory. For that, we need a fully filled-in form by eMail or fax. This form can be started from the software.

Professional license for „SmartArchive" software :

***Professional license for: one Hygro*Guard 10 *or* 20**

The user code is personal and not transferable. It is valid for one installed software only, and for one measuring instrument HygroGuard 10 or 20.

111 9935 SmartArchive
Professional **license 10**

SmartArchive License enlargement "10"

*Pharmaceutical **CFR 21Par 11** license for HygroGuard 10 / 20*

License enlargement for the **SmartGraph 2** standard software for **10** measuring data loggers ***Hygro*Guard 10** or **20** with the **SmartArchive** pharma compliant functions.

The license will be granted by a special user code, given by the factory. For that, we need a fully filled-in form by eMail or fax. This form can be started from the software.

Professional license for „SmartArchive" software :

***Professional license for: 10 Hygro*Guard 10 *or* 20**

The user code is personal and not transferable. It is valid for one installed software only, but for 10 measuring instruments HygroGuard 10 or 20.

111 9936 SmartArchive
Professional **license 100**

SmartArchive License enlargement "100"

*Pharmaceutical **CFR 21Par 11** license for HygroGuard 10 / 20*

License enlargement for the **SmartGraph 2** standard software for **100** measuring data loggers ***Hygro*Guard 10** or **20** with the **SmartArchive** pharma compliant functions.

The license will be granted by a special user code, given by the factory. For that, we need a fully filled-in form by eMail or fax. This form can be started from the software.

Professional license for „SmartArchive" software :

***Professional license for: 100 Hygro*Guard 10 *or* 20**

The user code is personal and not transferable. It is valid for one installed software only, but for 100 measuring instruments HygroGuard 10 or 20.

111 9415 **USB-RS232**

PC/Laptop Converter USB - RS232

for PC/Laptop COM – ports !

Today most new PCs / Laptops are no more supplied with a D-Sub RS232 connector, but with USB.
With this converter cable it is possible to connect the RS-232 of a ***Hygro*Guard 10/20** with the USB port of a computer with Win98/ME/2000/NT/XP system, in order to make use of the „**SmartGraph-2**“ – software.

Such converter cables should as well be available at local computer shops.

USB to RS-232 converter for HygroGuard:

Length : 100 cm
Weight : 100 g
RS 232 : D Sub-9pole
PC COM port: USB

The converter cable is supplied with a CD with installation software for Windows systems.

Spare parts for *Hygro*Guard 10/20

111 9392 **Lithium Batt.**

Lithium Battery to *Hygro*Guard 10 / 20

High capacity Lithium battery with large temperature operating range. Product : Saft 3.6 VDC Lithium primary battery element.
At normal operating conditions, a ***Hygro*Guard 10** or **20** runs for ca. 2 years (depends on the frequency of data transfers to a computer).

Lithium Battery:

Autonomous power supply for HygroGuard 10 or 20

Dimensions : 50 x 14.2mm
Voltage : 3,6 VDC
Capacity : 2100 mAh
Weight : 20 g

Attention: risk of *explosion!*
A short circuit between the poles must absolutely be avoided!

111 9416 **RS-232** cable for data transfer

Data transfer cable RS-232

*to Hygro*Guard 10/20 and PC/Labtop

Extension / spare cable 2m for the data transfer between a ***Hygro*Guard 10/20** and a PC/Laptop.

One cable is already part of the standard delivery.

RS-232 Cable to HygroGuard:

Length : 2 m
Weight : 150g
Connectors : 8-pole, round, and 9pol D-Sub

TR 102

Simple 2-wire transmitter for relative humidity measurement in rooms.
For easy control of HVAC systems.

Relative humidity	: 6....96% rh	*(with saturation protection)*
Temperature	: -10...50°C	*(No temperature measurement)*
Precision	: +/- 2% rh	10...80% rh at 25°C
Power / output	: Two wire system: The power and transmitter output signal (only 4....20mA possible) share the same pair of wires.	
Technology	: The TR 102 transmitter is intended for humidity measurements. It uses the same resistive electrolytic measurement technology as the Industrial transmitters HygroDat 05/10/20/100. Its analog interface is designed for minimal power consumption. The TR 102 draws its power from an active measurement signal. The Calibration at 75% rh using Novasina humidity standards can be easily performed by hand using a screwdriver.	

No analog output for temperature avalible!
The output signal for humidity is an active 4…20 mA signal only!

2-wire humidity-transmitter for HVAC applications

Simple, precise, robust, flexible

A simple and practical 2-wire humidity transmitter without temperature measurement function that has been proven over many years. For easy air humidity measurements in non-condensing environments. The transmitter incorporates the Novasina CK-4 measurement cell used in considerably more expensive industrial units. The humidity measurement is based on a resistive electrolytic technology. Each transmitter is factory-calibrated at 75% rh. All Novasina humidity standards in the range 11...90% can be used to test the sensor. Its excellent repeatability and essentially undetectable hysteresis make the transmitter particularly well-suited for control and regulation applications in the HVAC field. Two versions are available for room and duct mounting.

Typical applications for the **TR 102 S/R**:

- Control and regulation of ventilation and air conditioning systems
- Room climate measurement and recording in conjunction with process control systems
- Climate monitoring in warehouses and archives
- Vapor humidifying system controls

Measurement instrument TR 102 S/R:

Transmitter housing :

Dimensions	: 120 x 80 x 55mm
Weight	: 280 g
Power	: 2 wire 15...30V DC
Output signal	: 4....20 mA

Humidity measurement:
Resistive electrolytic measurement cell

Measurement range	: 6....96% rh
Repeatability	: +/- 0.3% rh
Precision	: +/- 2.0% rh

(in the range of temperature -10...50°C and 10...80% rh (with one point calibration)

The measurement cell is protected against saturation. Humidity measurements are possible only up to 96% due to the 20mA limit on the protection current.

Temperature measurement:
Not available

Sensor Checks SAL-SC:
Humidity standards based on saturated salt solutions in plastic cylinders with a moisture permeable membrane.
Values: 11%, 33%, 53%, 75%, 90%rh.

HVAC industrial transmitter system

TR 102 S/R Transmitter

111 0717 **TR 102 S** Transmitter

2-wire room transmitter TR 102 S

A simple measurement instrument for continuous relative humidity measurements in HLK applications. A robust plastic design for measurements in offices, warehouses, archives, conference rooms etc.

Two wire system: power und output signals (only 4....20mA possible) share the same pair of wires.

Transmitter TR 102 S:

Dimensions : 120 x 80 x 55mm
Weight : 280 g
Power : 2 wire
15...30V DC
Output signal : 4....20 mA
Sensor length : 90 mm
Humidity measurement:
Resistive electrolytic measurement cell
Measurement range : 6....96% rh
Precision : +/- 2.0% rh

111 0709 **TR 102 R** Transmitter

2-wire duct transmitter TR 102 R

A simple measurement instrument for continuous relative humidity in HLK applications. A robust plastic design for measurements in ducts in air conditioning and ventilation systems.

Two wire system: power und output signals (only 4....20mA possible) share the same pair of wires.

Transmitter TR 102 R:

Dimensions : 120 x 80 x 55mm
Weight : 280 g
Power : 2 wire
15...30V DC
Output signal : 4....20 mA
Sensor length : 90 mm
Humidity measurement:
Resistive electrolytic measurement cell
Measurement range : 6....96% rh
Precision : +/- 2.0% rh

TR 102 S/R accessories

111 6330 **Active charcoal filter**

Filter protective cap with active charcoal

Aluminium filter protective cap for the TR 102 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 TR102:

Filter dimensions : 28 x 13 mm
Effect : mechanical protection
chemical protection
nitrous oxide, oil-smoke, fine dust
amine, ethylene Particle
size up to : 12 um
Weight : 5 g

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

111 0885 -> **SAL-SC 11% rh**
111 0855 -> **SAL-SC 33% rh**
111 0857 -> **SAL-SC 53% rh**
111 0859 -> **SAL-SC 75% rh**
111 0896 -> **SAL-SC 90% rh**

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 SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

111 7847 **Check set** *(complete)*
111 7841 **Empty casing**

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. Sensor Checks SAL-SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

Spare parts to TR 102 S/R

111 6329 **Braided filter**

Filter protective cap with metal web material

Aluminium sensor protective cap with an integrated fine dust metal web filter. This filter gives good protection against airborne particles, but not against corrosive gases or vapours.

-> The filter has a mesh size of 25 um.

-> The TR 102 is delivered with this filter.

Braided filter for the TR 102:

Dimensions : 28 x 13 mm
Effectiveness :mechanical protection

No chemical protection

Particle size up to: 25 um

Weight : 10 g

111 1015 **CK-4** cell

Replacement measurement cell CK-4

for the TR 102 sensor

Replacement humidity measurement cell CK-4 for the TR 102 S/R sensors. Incorporates saturation protection but no temperature measurement. After removing the aluminium filter, the cell can be replaced by hand.

-> The top of the humidity measurement cell should not be touched with the hand or any hard object
-> The TR 102 should be recalibrated with the SC checks after cell replacement.

Humidity measurement cell CK-4:

Humidity measurement:
Range : 6.....100 % rh
With TR 102 : 6.....96 % rh

Internal heating element:
Repeatability: +/- 0.3 % rh
Precision : +/- 2.0 % rh

Weight : 1 g

TR 102 S/R transmitter optionals

There are no options for the TR 102 S/R

HygroDat 05-10-20

A proven humidity and temperature measurement instrument for the most demanding applications in the control and regulation of industrial HVAC systems, as well as in their monitoring and data recording.

Relative humidity	:	6....100% rh *(electronic saturation protection)*
Temperature	:	-20...80°C *(Sensor environment)*
Precision	:	+/- 1.0% rh 11...95% rh at 25°C Basis - 5-point calibration with SAL-SC-Set +/- 0.5°K 0....50°C (32....122°F)
Communication	:	2 x analog outputs U/I U :0....10V : 2...10V / I : 0...20mA : 4...20mA for temperature and relative humidity measurement. Hard programmed output characteristics.
Calibration	:	Can be recalibrated at any time with the Novasina Humidity Standards SAL-SC checks at up to 5 points.
Measurement principle	:	Resistive electrolytic humidity measurement principle,
Advantages	:	- High precision over a wide humidity range - No measurable hysteresis - Measurements close to the dewpoint are possible - Year-long stability without drift - A range of filter protective caps

HygroDat 05-10-20

for HVAC applications for control and regulation

An ideal temperature and humidity transmitter for HVAC and process control and monitoring incorporating a resistive electrolytic measurement technique.

A temperature and humidity transmitter that has proven itself thousands of times over with many years of use. It has an ergonomic design including an unsurpassable resistive electrolytic humidity measurement cell. Also available as an OEM version for installation in Industrial humidifier systems. The transmitter can be delivered in different designs for installation, wall or duct mounting, and also with a remote sensor and a variety of power supplies. This simplifies all phases of application for the customer, installation, operation, service and calibration. The impact-resistant small plastic housing has an IP 65 protection class and can be delivered with an optional display. Each transmitter can be recalibrated in the field with the proven Novasina SAL-SC humidity standards using a one key operation.

Typical applications for the **HygroDat 05-20 instruments**:

- HVAC production process control and monitoring in the chemical and pharmaceutical industries.
- Paper and textile production and processing
- Laboratory test and measurement rooms control and monitoring
- Control of industrial combustion processes
- Storage and archive monitoring in museums and libraries
- Storage systems for fresh products, refrigerated rooms, etc. in the food industry

Messinstrument Familie 05-10-20:
Transmitter housing

Dimensions H-05 : 140 x 180 x 71mm
Power : 24 V DC

Dimensions H-10/20: 140 x 180 x 71mm
Power : 24 V DC
90...230V AC 50/60Hz

Humidity measurement:
Resistive electrolytic measurement cell
Measurement range : 6....100 % rh
Repeatability : +/- 0.3 % rh
Precision : +/- 1.0 % rh
(Based on 5-point calibration with SC at 25°C)

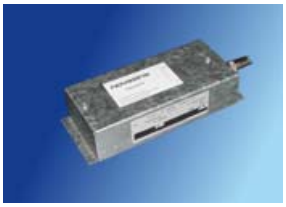
Temperature measurement:
High precision NTC resistive element
Measurement range : -20....80°C
Repeatability : +/- 0.1 K
Precision : +/- 0.5 K
(-20°...+80°C)

Sensor Checks SAL-SC:
Humidity standards based on saturated salt solutions in plastic cylinders with a moisture permeable membrane.

Values: 11%, 33%, 53%, 75%, 90%rh.

HVAC- industrial-transmitter system

Transmitter systems HygroDat 05/10/20



111 4996 Hygrodat 05 VDC

HygroDat 05

Transmitter for installation (OEM version)

A transmitter in a low-cost metal housing without IP protection function. Intended for installation in... a jack for a remote HS sensor is incorporated. Other features- 24 VDC power supply, 2 U/I analog outputs for temperature and relative humidity. The transmitter can be installed in the equipment using two screws. A 5-point factory calibration is performed prior to delivery.

Attention: This transmitter requires an external HS sensor.

-> Please specify the HS sensor required when ordering.
(see page 13)

Transmitter HygroDat 05:

Dimensions	: 180 x 72 x 40mm
Weight	: 300 g
Input power	: 9...35 VDC
Power used	: DC max. 3.5 W
Outputs	: 2 x U/I analog 0...10V / 2...10V 0...20mA / 4..20mA
Ranges	: 6...100% / -20°...+80°C
Units	: Not displayed
Ext.sensor	: Familie HS / CC-1
Connectors	: Binder 712 series

111 5310 HygroDat 10S VDC
111 5313 HygroDat 10S VAC

HygroDat 10 S

Room transmitter

Room transmitter with IP 65 protection function. The transmitter and sensor are incorporated in a single unit that can be supplied with either AC or DC power. The unit includes 2 integrated U/I analog outputs for temperature and relative humidity. The transmitter can be directly fixed to the wall. A 5 point factory calibration is performed prior to delivery. A CC-1 temperature and humidity measurement cell with a membrane filter protection system is included. This transmitter requires no external sensor.

Transmitter HygroDat 10 S:

Dimensions	: 160 x 80 x 60mm
Weight	: 400 / 550 g
Input power	: 9...35 VDC
or	: 90...260 VAC 50-60Hz
Power used	: DC max. 3.5 W
Outputs	: 2 x U/I analog 0...10V / 2...10V 0...20mA / 4..20mA
Ranges	: 6.....100% -20°…+80°C
Units	: Not displayed

111 5311 HygroDat 10R VDC
111 5314 HygroDat 10R VAC

HygroDat 10 R

Duct transmitter with 200 mm stainless steel sensor tube

Duct transmitter with IP 65 protection function. The transmitter and sensor are incorporated in a single unit using either AC or DC power.
The unit includes 2 integrated U/I analog outputs for temperature and relative humidity. The transmitter can be directly mounted through a duct or room wall. A 5 point factory calibration is performed prior to delivery. A CC-1 temperature and humidity measurement cell with a membrane filter protection system is included. This transmitter requires no external sensor.

Transmitter HygroDat 10 R:

Dimensions	: 160 x 80 x 60mm
Weight	: 400 / 550 g
Input power	: 9...35 VDC
or	: 90...260 VAC 50-60Hz
Power used	: DC max. 3.5 W
Outputs	: 2 x U/I analog 0...10V / 2...10V 0...20mA / 4..20mA
Ranges	: 6.....100% -20°…..+80°C
Units	: Not displayed

111 5312 HygroDat 10M VDC
111 5315 HygroDat 10M VAC

HygroDat 10 M

Transmitter with remote sensor

Remote sensor transmitter with connectors for HS sensors in a housing with IP 65 protection functions and either DC or AC power inputs. The unit includes 2 integrated U/I analog outputs for temperature and relative humidity. The transmitter can be directly fixed to the wall. A 5-point factory calibration is performed prior to delivery

Attention: This transmitter requires an external HS sensor.

-> Please specify the HS sensor required when ordering.
(see page 21)

Transmitter HygroDat 10 M:

Dimensions	: 160 x 80 x 60mm
Weight	: 350 / 500 g
Input power	: 9...35 VDC
or	: 90...260 VAC 50-60Hz
Power used	: DC max. 3.5 W
Outputs	: 2 x U/I analog 0...10V / 2...10V 0...20mA / 4..20mA
Ranges	: 6...100% / -20..+80°C
Units	: Temp. °C Humidity % rh
Ext.sensor	: HS / CC-1 family
Connectors	: Binder 712 series
User manual	

111 5316 HygroDat 20S VDC
111 5319 HygroDat 20S VAC

HygroDat 20 S

Room transmitter with display

Room transmitter with a 2 line LC display in a housing with IP 65 protection functions. The transmitter and sensor are incorporated in a single unit that can be supplied with either AC or DC power. The unit includes 2 integrated U/I analog outputs for temperature and relative humidity. The transmitter can be directly fixed to the wall. A 5-point factory calibration is performed prior to delivery. A CC-1 temperature and humidity measurement cell with a membrane filter protection system is included. This transmitter needs no external HS sensor.

Transmitter HygroDat 20 S:

Dimensions	: 160 x 80 x 60mm
Weight	: 350 / 500 g
Input power	: 9...35 VDC
or	: 90...260 VAC 50-60Hz
Power used	: DC max. 3.5 W
Outputs	: 2 x U/I analog 0...10V / 2...10V 0...20mA / 4..20mA
Range	: 6.....100% -20°.....+80°C
Units	: Temperature °C Humidity % rh
User manual	

111 5317 HygroDat 20R VDC
111 5320 HygroDat 20R VAC

HygroDat 20 R

Duct transmitter with display and 200 mm steel sensor tube

Duct transmitter with a 2 line LC display in a housing with IP 65 protection functions. The transmitter and sensor are incorporated in a single unit that can be supplied with either AC or DC power. The unit includes 2 integrated U/I analog outputs for temperature and relative humidity. The transmitter can be directly mounted through a duct or room wall. A 5-point factory calibration is performed prior to delivery. A CC-1 temperature and humidity measurement cell with a membrane filter protection system is included. This transmitter needs no external HS sensor.

Transmitter HygroDat 20 R:

Dimensions	: 160 x 80 x 60mm
Weight	: 350 / 500 g
Input power	: 9...35 VDC
or	90...260 VAC 50-60Hz
Power used	:DC max. 3.5 W
Outputs	:2 x U/I analog 0...10V / 2...10V 0...20mA / 4..20mA
Ranges	: 6...100% / -20..+80°C
Units	: Temp. °C Humidity % rh
User manual	

111 5318 HygroDat 20M VDC
111 5321 HygroDat 20M VAC

HygroDat 20 M

Transmitter with display and remote sensor

Remote sensor transmitter with a 2 line LC Display and connectors for HS sensors in a housing with IP 65 protection functions and either DC or AC power inputs. The unit includes 2 integrated U/I analog outputs for temperature and relative humidity. The transmitter can be directly fixed to the wall. A 5-point factory calibration is performed prior to delivery.

Attention: This transmitter requires an external HS sensor.

-> Please specify the HS sensor required when ordering.
(see page 21)

Transmitter HygroDat 20 M:

Dimensions	: 160 x 80 x 60mm
Weight	: 300 / 450 g
Input power	: 9...35 VDC
or	: 90...260 VAC 50-60Hz
Power used	: DC max. 3.5 W
Outputs	: 2 x U/I analog 0...10V / 2...10V 0...20mA / 4..20mA
Ranges	: 6...100% / -20..+80°C
Units	: Temp. °C Humidity % rh
Ext.sensor	: HS / CC-1 family
Connectors	: Binder 712 serie

Duct mounting

Wall mounting

Sensor length 50mm:
111 4878 HS-01: 1m Cable
111 4879 HS-03: 3m Cable
Sensor length 100mm:
111 3739 HS-11: 1m Cable
111 3740 HS-13: 3m Cable
Sensor length 200mm:
111 3741 HS-21: 1m Cable
111 3742 HS-23: 3m Cable

HS Sensor armature

for HygroDat 05/10/20 M

A small and light humidity sensor in a plastic housing with IP 65 protection class and a shaft diameter of 13 mm. This sensor can only be used with the HygroDat 05/10/20 instruments since only passive elements (no electronics) are integrated in the sensor itself. The integrated, exchangeable resistive electrolytic CC-1 measurement cell is mounted under a plastic membrane protective cap (CF-1). A fixed-length cable with an integrated 5-pin mini-plug can be simply attached to a HygroDat transmitter.

Accessories: 1 flange for duct mounting
1 flange for wall mounting

HS Sensor armature:

Dimensions HS-01, 03: 165x18 mm
Weight : 170g
Dimensions HS-11, 13: 215x18 mm
Weight: 190g
Dimensions HS-21, 23: 315x18 mm
Weight : 250g

Measurement: rh -> resistive
Temperature -> NTC
Humidity cell: measurement cell CC-1
Connection : 5-pin cable with Binder 5 pol connector
Protection : plastic membrane filter (IP 65)
Plug system : Binder 712 series
Range CC-1: 6.....100% rh

Electronic saturation protection: -20°.....+80 °C

HygroDat 05/10/20 accessories

Extension cable
111 0572 **EC-5** / 5m
111 0438 **EC-10** / 10m
111 9920 **EC-xx** / 15-60m

Extension cable for HS sensors

Shielded with connectors

Up to 60m long extension cable for HS sensors. The connectors with a maximum diameter of 10.5 mm permit mounting through 13mm diameter or larger cable channels. The connecting system has an IP 65 protection class and can be used in industrial environments. Multiple cables can be connected in series up to a maximum length of 60m.

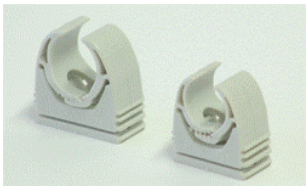
-> When ordering custom lengths, please give precise dimensions.

Extension cable for HS:

Material: Shielded cable with integrated 5 pin plug and socket matching the sensor and transmitter

Weight: 250 / 450 g

Connector system: Binder 712 series



111 7360 **Wall mounting kit**

Wall mounting kit

A pair of wall mounting clips for easy attachment of HS sensors to walls with M4 wood, plastic or metal screws. The clips can be reused.

-> Clamping range : 12....16 mm

Wall mounting clip HS:

Material : Polycarbonate

Quantity : 2 units.
Weight : 15 g

Clamping range : 12...16 mm

111 5343 **Duct mounting kit**

Duct mounting kit

Duct mounting flange (1 unit) and O-ring seals for HS sensors. For easy, sealed mounting in ducts or through walls or ceilings. The flange is fixed by 3 screws and the 13 mm pass-through will stand an over-pressure of 3 bar before the seal leaks. The sensor can be removed at any time for recalibration.

-> Clamping range: 10 .... 14 mm

Duct mounting kit for the HS:

Flange dimensions : 60 x 20 mm
Clamping range : 9…14 mm

Weight : 30 g

111 7330 **SF-1** filter/diam. 13mm

Sensor protection system SF-1

Stainless steel, sintered filter protective cap for demanding industrial applications of the HS sensors. Intended primarily for use in environments where protection is needed from high air speeds and/or high levels of pollution. Provides optimal mechanical protection of the sensor.

-> The *filter has a mesh size of 1.0 um*

Sensor filter SF-1 for HS:

Filter dimensions : 45 x 13 mm
Effectiveness: Mechanical protection against particles larger than 1.0 um

Weight: 15 g

111 3675 **AF-1** filter/diam. 13mm

Sensor protection system AF-1

Stainless steel metal web filter protective cap for the HS sensors, incorporating an active charcoal insert. Provides optimal protection of the measurement cell from corrosive gases and pollution in an industrial environment.

-> The *filter has a mesh size of 12 um*

Sensor filter AF-1 for the HS:

Filter dimensions : 45 x 13 mm
Effectiveness : Mechanical protection against particles larger than 12 um
Chemical protection : Nitrous oxide, oil fog, fine dust, amine, ethylene.
Weight : 10 g

111 1018 **MF-1** filter/diam. 13mm

Sensor protection system MF-1

Stainless steel metal web filter protective cap for the HS sensors, incorporating a membrane insert. Provides optimal protection of the measurement cell from fine dust and dirt in an industrial environment.

-> The *filter has a mesh size of 0.2 um*

Sensor filter MF-1 for the HS:

Filter dimensions: 45 x 13 mm
Weight: 10 g
Effectiveness: Mechanical protection from particles larger than 0.2um

111 4745 **CP-1** cap/diam. 13mm

Sensor protection system CP-1

A plastic protective cap for the HS sensor, without any filter element. For rapid measurements in clean air, it includes a protective grid without any filter function but providing basic mechanical protection.

Recommendation: for use when measurement speed is important and filtering is not necessary.

Sensorkappe CP-1 zu HS:

Cap dimensions : 45 x 13 mm
Weight : 20 g

Effectiveness : limited - Mechanical protection

111 7505 **STCF-1** filter/ Ø 13mm

Sensor protection system STCF-1

A stainless steel protective cap incorporating a Cellgard membrane filter. For rapid HS sensor measurements in air. A robust model offering protection from larger objects in the air, but only limited mechanical protection against dust.

Recommendation: for use when measurement speed is important and filtering is not necessary.

-> The *filter has a mesh size of 0.2 um*

Sensor filter STCF-1 for the HS:

Filter dimensions: 45 x 13 mm
Weight : 20 g

Effectiveness: Cellgard mechanical protection from particles larger than 0.2 um

111 6812 **Weather shield**

Weather shield for outdoor applications

An effective protection against wind, rain, snow and direct sunlight for the HS sensor. Ideal for meteorological measurements in the range –20° ....+80°C.

The shield can be quickly and easily attached to a 25.. 50 mm diameter post.

The shield is delivered with all of the necessary mounting materials.

Weather shield for the HS:

Dimensions : 270 x 220 x 120 mm
Weight : 650 g

Material : UV stabilised, thermoplastic slats, painted steel construction

111 6813 **Mounting flange**

Special flange for weather shield

Mounting flange for the installing the HS sensor in a weather protection shield using a clamping mechanism. Enables the easy removal of the HS sensor at any time for test and recalibration.

-> *Suitable for HS sensors with 100 + 200mm long shafts.*

Mounting flange for the HS:

Dimensions : 85 x 35 mm
Weight : 80 g

Material : UV stabilisd, thermoplastic material with UNF threads

111 0885 -> **SAL-SC 11% rh**
111 0855 -> **SAL-SC 33% rh**
111 0857 -> **SAL-SC 53% rh**
111 0859 -> **SAL-SC 75% rh**
111 0896 -> **SAL-SC 90% rh**

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 SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

111 1044 -> **SAL-SC 11% rh EU**
111 1037 -> **SAL-SC 33% rh EU**
111 1040 -> **SAL-SC 53% rh EU**
111 1035 -> **SAL-SC 75% rh EU**
111 1032 -> **SAL-SC 90% rh EU**

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. Sensor Checks SAL-SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

Prices on pricelist for air products

HygroDat 05/10/20 certification

by an accredited European laboratory (UKAS)

A UKAS-laboratory certifies the instrument at two or more humidity and several temperature values if required.

Internationally accredited laboratory

Certified instruments can be supplied.

111 7847 **Check set** *(standard)*
111 7841 **Empty case** for 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. Sensor Checks SAL-SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

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

111 1302 **Styrofoam box for SC**

Thermal insulation styrofoam box

For the SAL-SC sensor checks

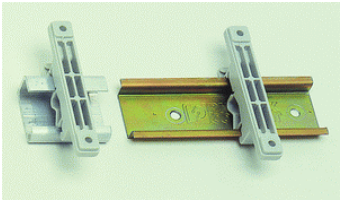
A styrofoam box providing optimal insulation and temperature stabilisation of a SAL-SC check during the calibration proceedure. Consisting of two half-covers for simple temporary mounting.

-> Can be used together with the SAL-SC calibration kit for optimal thermal protection during calibration

Styrofoam box for the SC check:

Dimensions : 100 x 65 x 50 mm
Weight : 10 g

Material : thermal insulating styrofoam PPE



110 7350 **DIN rail kit**

DIN rail kit

DIN rail mounting set for the HygroDat M

Mounting set for installing a remote HygroDat type M on a DIN rail installation commonly used in switch closets.

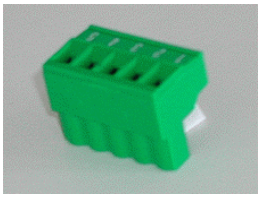
Attention: The DIN rail kit is only usable with **DIN H35** systems.

DIN mounting kit for the HygroDat M:

Mounting set for the M type transmitter type M for snap-on connection to the DIN H35 mounting system

Weight: 20g

Spare parts to HygroDat 05/10/20



111 8936 **Replacement plug**

Replacement plug for HygroDat 24VDC

Replacement plug for the HygroDat 05/10/20 printed circuit board. The analog outputs and the 24 V DC power are connected via the same plug.

***Attention*:** Only use a 9...35 V DC power supply.

Replacement plug for HygroDat:

Stecker : 5 -pin. 5.08 mm for power supply & analog output

Weight : 5 g

110 7355 **CF-1** filter

Standard filter CF-1

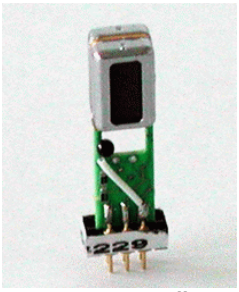
A plastic protective cap with a membrane filter element, for normal HVAC applications of the HS sensor. Limited mechanical protection and filtering.

Recommendation: *A protective cap for general protection in relatively clean environments and wind speeds of less than 5 m/s.*
-> This filter is included with the HS sensor.
Mesh diameter 0.2um

Sensor filter CF-1 for the HS:

Filter dimensions: 48 x 20 mm
Effectiveness : Mech. protection, small particles, water drops

Weight : 10 g



measurement cell
111 3828 **CC-1** normal
111 6260 **CC-1 silicon free**

CC-1 measurement cell

Resistive electrolytic humidity and temperature measurement

A high precision humidity and temperature measurement cell for the range 6 ....100 % rh. It has integrated saturation protection and a special NTC temperature measurement element for the range –20°....+80°C. The measurement cell has a 2 x 3 pin plug and a special filter system to protect the humidity element.

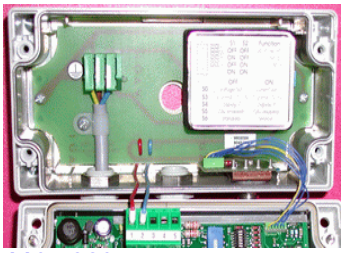
Attention: In no circumstances should the cell be dropped or the grey/blue filter surface be touched.

CC-1 measurement cell:

Dimensions : 35 x 7 x 6 mm
Type : Resistive electrolytic measurement principle
Ranges : 6.....100%
Electronic saturation protection
-20°…..+80°C

Weight : 2 g

HygroDat 10/20 optionals



110 7389 **Power supply pcb**

Power supply PCB for HygroDat 10-20 S/R/M

A supplementary pcb for 90...260 V AC (50-60Hz), including a screw clamp connector for 230VAC and a 24V DC plug for the main pcb. The necessary materials for adding it to an HygroDat 10/20 are included.

Attention: Caution during handling with mains voltage. Mounting and handling only by a professional electrician. Disconnect the unit from the mains voltage before manipulating it.

Transmitter power supply:

Screw clamp : 3 pin for mains including earth.

Plug : 5 pin, 5.08 mm
for power supply & measurement output

Weight : 120 g

Quantity : 1 unit.
Including mounting materials

HygroDat 100

Precise and robust humidity and temperature measurement instrument for control and regulation of industrial processes, as well as monitoring and data recording in the process control field. For the first time, a humidity and temperature transmitter system is available with two very different measuring principles. Depending on the application, it is possible to either use the **resistive electrolyte** or the **digital capacitive** measuring system. The electrolyte measurement system is highly accurate, but limited in the temperature range. The newest technology of digital **capacitive** measurement is very robust, quick and works in a bigger temperature range, but it is slightly less accurate than the electrolytic one.
You can chose from 5 different sensor types to be connected to a transmitter. With its multiple communication possibilities and the freely configurable analog outputs, this extremely versatile system is ideal for all industrial applications with or without process control units.

Relative humidity : **6....100% rh** *(electronic saturation protection)*

Temperature : **-20...80°C** *(E-sensor)* ***(-40.....+120°C** C-sensor)*

Precision : **+/- 0.5% rh** 11...95% rh bei 25°C *(E-sensor)*
+/- 2.0% rh 11...95% rh bei 25°C *(C-sensor)*
Basis - 5-point calibration with SAL-SC-Set
+/- 0.2°K 0....50°C (32....122°F)

Communication : 2 freely scalable analog outputs
U :0....10V : 2...10V / I : 0...20mA : 4...20mA
for temperature and relative humidity, Tp, enthalpy, water content.

CAN digital bus system with the CANopen protocol supporting up to 127 H-100 instruments

An RS 232 interface for peer to peer communication
(NovaLog 32 visualisation software or WinDLL as option)

Climate computer : The instrument can be switched to all ISO and US units,

- Air temperature °C -> °F
- Dewpoint temperature °C -> °F
- Relative humidity % rh
- Specific enthalpy J/kg -> btu/lb
- Mixing ratio g/Kg -> grn/lb

HygroDat 100 *The new standard for humidity and temperature measurement in industry with unsurpassed precision*

The new multi-talented system, combining the latest electronics with highly reliable software architecture. Depending on the application, you decide which measurement technology you prefer. The unsurpassed resistive electrolytic humidity measurement cell, or the digital capacitive cell, both running on the same transmitter system. This simplifies considerably the evaluation of the right instrument and simplifies the installation, operation, service and calibration. The appropriate industrial design and the various combinations of transmitters and sensors make it possible to provide the ideal solution for every specific application. The sensor can be installed up to 30m (C-sensor) or 100m (E-sensor) from the transmitter unit. There is no inaccuracy due to the cable lengths and it can be shortened and extended as required without any lack of precision.

A variety of hard- and software functions complete the instrument. These include free scalability of the analog outputs, easy recalibration using Novasina's humidiy standards SAL-SC as well as an integrated climate computer (Hx-diagram), variability of units, calibration alarm and password protection.

Typical applications for the **HygroDat 100 System**:

- Monitoring and control of pharmaceutical production processes
- Paper and textile production and processing
- Laboratory test and measurement rooms monitoring
- Chemical process control and monitoring
- Control of industrial combustion processes (turbine exhausts)
- Storage and archive monitoring

Measurement instrument HygroDat 100
Polycarbonate Transmitter:
Dimensions : 140 x 180 x 71mm
Power : 24 V AC / DC
90...230V AC
50/60Hz

***Aluminium** Transmitter :*
Dimensions : 130 x 180 x 66.5mm
Power : 24 V AC / DC
90...230V AC
50/60Hz

Humidity measurement: (E-sensor)
Resistive electrolytic measurement cell
Measurement range: 6....100 % rh
Repeatability : +/- 0.3 % rh
Precision : +/- 0.5 % rh
(Based on 5-point calibration with SC at 25°C)

Temperature measurement: (E-sensor)
High precision NTC resistance element
Measurement range : -20....80°C
Repeatability : +/- 0.1 K
Precision : +/- 0.2 K
(-20°...+80°C)

Sensor Checks SAL-SC:
Humidity standards based on saturated salt solutions in plastic cylinders with a moisture permeable membrane.

Values: 11%, 33%, 53%, 75%, 90%rh.

Precision industrial transmitter-System

HygroDat 100

Thanks to its modularity, the most modern humidity and temperature transmitter system HygroDat 100 can be configured optimally, what helps to find the best solution for almost all specific industrial applications. A real innovation is the fact that you can chose from 5 different sensor-armatures to be connected to the transmitter unit. Furthermore there is the possibility to communicate by a RS-232 interface and run a visalisation and recording software on a PC (peer to peer connection).

HygroDat 100

Polycarbonate housing

111 6930 HygroDat 10024V AC/DC
111 6931 HygroDat 10090...230V

Polycarbonate HygroDat 100

Industrial transmitter with 24V AC/DC or 90…260V AC power supply. Blue/grey plastic housing with IP65 protection class.

Designed for connecting HIA, HIS, HIC, HICS and HICH electronic sensors via a 5 wire cable up to a length of 30m (C-sensors) or 100m (E-sensors).

The transmitter is supplied in a single package with an electronic sensor. The complete system has been 5-point adjusted prior to delivery (factory calibration)

-> The sensor should always be used as a unit with the transmitter.

HygroDat 100 polycarbonate:

Dimensions	: 130 x180x 66.5mm
Weight	: 530 g
Power supplies	: 15...40 VDC 16...30 VAC 90...260 VAC up to 60 Hz
Power used	: AC max. 3.5 W DC max. 3.0 W
Outputs	: 2 x Analog U/I 0...10V / 2...10V 0...20mA / 4..20mA or CAN bus or RS-232
Ranges	: 6.....100% -20°.....+80°C
Units	: ISO / US switchable °C, °F, % rh, KJ/kg g/kg, btu/lb

Aluminium housing

111 6932 HygroDat 10024V AC/DC
111 6933 HygroDat 10090...230V

Aluminium HygroDat 100

Industrial transmitter with 24V AC/DC or 90…260V AC power supply. Blue/grey aluminium housing with IP65 protection class.

Designed for connecting HIA, HIS, HIC, HICS and HICH electronic sensors via a 5 wire cable up to a length of 30m (C-sensors) or 100m (E-sensors).

The transmitter is supplied in a single package with an electronic sensor. The complete system has been 5-point adjusted prior to delivery (factory calibration)

-> The sensor should always be used as a unit with the transmitter.

HygroDat 100 aluminium :

Dimensions	: 130 x180x 66.5mm
Weight	: 700 g
Power supplies	: 15...40 VDC 16...30 VAC 90...260 VAC up to 60 Hz
Power used	: AC max. 3.5 W DC max. 3.0 W
Outputs	: 2 x Analog U/I 0...10V / 2...10V 0...20mA/ 4..20mA or CAN bus or RS-232
Ranges	: 6.....100% -20°.....+80°C
Units	: ISO / US switchable °C, °F, % rh, KJ/kg g/kg, btu/lb

111 6855 NovaLog 32

PC-Software NOVALOG 32

For PC/Laptop and WIN Operating systems to HygroDat 100

Visualisation software for Windows based PC-Systems on a CD incl. operating instructions for HygroDat 100-E and -C. With it, long term data recordings (logging mode), trend graphs, but also climatic parameter calculations can be made. This software requires a Windows 9x/2000/NT/XP operating system. Data formats of Novasina instruments like ms1 and HygroDat 100 can be processed.

RS-232 to HygroDat 100:

CD :	- NOVALOG 32 sw - Operating instructions - DLL driver to HD 100
PC/Laptop	: Windows op. system
RS-232	: COM 1...12 interface at PC / Laptop

111 9415 USB-RS232

PC/Laptop converter USB-RS232

to PC/Labtop for COM applications

Since today many Laptops have no COM (RS-232) interface any more, it is possible with this converter cable to create such a COM port for Windows 98/ME/2000/NT/XP, MAC OS 8/9 or Linux systems. This is needed for connecting the **HygroDat 100** with the „**NovaLog 32“** software. Such a converter cable can as well be purchased locally.

USB to RS-232 converter for HygroGuard:

Length	: 100 cm
Weight	: 50 g
Connector	: D Sub-9 (COM Port)
Socket	: USB connector

Cable is supplied together with corresponding CD driver for Win-, MAC OS and Linux systems.

E-sensors to HygroDat 100

resistive electrolytic humidity measurement system

E-sensors are humidity and temperature measuring elements, which include a measuring cell on the basis of a liquid elecrolyte. Novasina is the worldwide leader in the sector of electrolyte humidity measurement and develops continuously this special technique.

Advantages:

- Highest accuracy of the relative humidity measurement
- Very small measuring hysteresis over a large range
- High reaction speed of the measurement till about 1%rh from the final value.
- Good chemical stability and mechanical robustness
- Great advantage of stability at relative air humidity values above 90%rh
- Saturation protection by active cell heating system

Operation limits:

- Measuring range humidity : 6.....100% rh
- Basic accuracy of the CC-1 : +/- 2.0% rh
- Air velocity : 0....15m/sec. (depending on protection filter type)
- Temp. oper. range short term : -20....+80°C
- System accuracy at 25°C : +/- 0.5% rh when fully calibrated with 5 Sensor-Checks SAL-SC
- Temp. oper. range long term : -20....+70°C

Please note that the E-Sensors must be operated within their specified limits. The risk of a defect increases at high humidity levels with simultaneous vibrations or mechanical shocks. In such circumstances the electrolyte fluid becomes very aqueous and parts of it might be separated from the liquid holder due to strong shocks. This may cause wrong humidity values.

Shaft length 100mm

111 7245 HIA-11: 1.5m cable
111 7247 HIA-12: 10m cable
111 6934 HIA-13: 20m cable
111 6935 HIA-1x: up to 100m cable

HIA Electronic sensor (electrolytic)

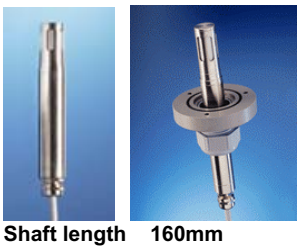
A modern, small and light electronic sensor in a plastic housing in IP65 protection class. Includes integrated ASIC technology for optimal signal processing (temp. & rh), an exchangeable CC-1 resistive electrolytic measurement cell, a plastic membrane protective cap and a 13mm polycarbonate shaft system that can be extended during installation if required.

Accessories: 1 flange for duct mounting
1 wall mounting clip

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

HIA electronic sensor armature:

Dimensions : 160 x 13 mm
Weight : 100…800 g
Measurement : rh -> resistive
temperature -> NTC
Connection : 5-wire cable
(5x 0.5mm2 LiYY)
Power : Special
ASIC interface
Outputs : 2 x Analog (U)
Protection : Plastic membrane
Filter (IP 65)
-20°…..+80°C
Ranges : 6.....100% (Electronic saturation protection)
-20°…..+80°C



Shaft length 160mm

111 7532 HIS-11: 1.5m Cable
111 7533 HIS-12: 10m Cable
111 7534 HIS-13: 20m Cable
111 7535 HIS-1x : up to 100m
Shaft length 310mm
111 7751 HIS-23: 20m Cable
111 7752 HIS-2x: up to 100m Cable

HIS Electronic sensor (electrolytic)

A modern, robust electronic sensor in a stainless steel housing in IP65 protection class. Includes integrated ASIC technology for optimal signal processing (Temp. & rh), an exchangeable CC-1 resistive electrolytic measurement cell, a stainless steel protective cap with protective membrane. The diameter 20mm sensor shaft is available in two different lengths.

Accessories: 1 flange for wall mounting
2 wall mounting clips

HIS electronic sensor armature:

Dimensions HIS-11, 12, 13: 160x20 mm
Dimensions HIS-23: 310x20 mm
Weight : 200….1000 g
Measurement : rh in %, resistive
temperatur NTC
Connection : Standard 5-wire
installation cable
(5x 0.5mm2 LiYY)
Power : Special.
ASIC Interface
Outputs : 2 x Analog (U)
ASIC Interface
Protection : Plastic membrane
filter (IP 65)
-20°…..+80°C
Ranges : 6.....100% (Electronic saturation protection)
-20°…..+80°C

Optional to HygroDat 100 with E-sensors

(for sensors HIC/HICS and HICH as a standard)

111 9621 RS-232 for HygroDat100

Serial Data Interface RS-232

Optional part to HygroDat 100 Transmitters equipped with E-sensors

Optional RS-232 interface for HygroDat 100 transmitter with E-sensor (HIA, HIS). This interface permits a serial data transfer to DDC, PLC or SPS controls etc..
It can be also used for the connection of the instrument to a PC running the Novasina **NovaLog 32** visualisation software.

Note: This component is already built in as a standard in HygroDat 100 transmitters with C-sensors (HIC, HICS, HICH).

RS-232 to HygroDat 100:

Dimensions : 70 x 50 x 20mm
Weight : ca. 50 g
Power supply: intern. from cover
electronics HD 100
RS-232 : standard level
Inputs : 1 x E-Sensor
(1 x C-Sensor)
Max. cable length for serial
Interface : 15 m
Data protocol : ASCII string

C-sensors to HygroDat 100

(digital capacitve measurement system)

C-sensors are measuring probes, with integrated humidity and temperature measuring cell, based on a new digitalised capacitive measuring technology. The key element is a miniaturized polymer sensor which is much higher integrated than all other available capacitive sensors. The signals of the measured values are compensated, transformed and digitalized directly inside the sensor. The data transfer to the transmitter is in a mixed digital form.

Advantages:

- Maximum measuring range of the relative humidity: 0.....100% rh.
- Extended temperature measuring range: -40.....+120°C
- Very fast reaction time to big humidity changes
- Excellent mechanical robustness.
- Protection functions against saturation (filters and heating)
- Minimized hysteresis

Operational ILimits:

- Accuracy at 25°C : +/- 2.0 %
  when fully calibrated with 5 Sensor-Checks SAL-SC
- Air velocity : 0....40m/sec. (depending on type of filter)
- Basic accuracy of the DCC-1 : +/- 3.5% rh.
- Long term operation : 0.....90% rh.
- Measuring-hysteresis for control loops: ca. 1.0 % rh.

Please note that the C-sensors must be operated within their specified limits. C-sensors are a little bit sensitive to chemical influences from the environment. Consequently a considerably higher drift of the humidity measurement may be the result. Therefore we recommend an additional chemical cell protection filter.

Shaft length 100mm
111 9578 HIC-1x : (incl. 1.5m) 1,5 to 30m cable
(please order the right cable length)

HIC Electronic sensor (capacitive)

Most modern digital temperature and humidity measuring sensor. Thanks the newest technology of capacitive measuring technique, this sensor reacts fast to humidity changes. Protection grade: IP65. The data transfer is digital, therefore the cable length can be chosen up to 30m. Measuring cell: DCC-1. A 13mm diameter protection cap with membrane filter is screwed onto the polycarbonate shaft .

Accessories: 1 wall mounting clip, 1 duct mounting flange.

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

HIC electronic sensor armature:

Dimension : 160 x 13 mm incl. 1.5m cable
Weight : 100....800 g
Measuremt. : rh: capacitive DCC-1
temperature: NTC
Connection : 5-pole cable and screen
Power : special
Output : digital BIT interface
Protection : plastic membrane filter (IP 65)
Oper. limits : 0.....100%
-20°.....+80°C

Shaft length 160mm (incl. 1.5m)
111 9575 HICS-1x : 1,5 to 30m
Shaft length 310mm (incl. 1.5m)
111 9558 HICS-2x:1.5 to 30m cable *(pls order the right cable length)*

HICS Electronic sensor (capacitive)

Most modern, digital temperature and humidity measuring sensor. Thanks to state of the art capacitive measuring technique, this sensor reacts fast to humidity changes. Protection grade: IP65. The data transfer is digital, therefore the cable length can be chosen up to 30m. Measuring cell: DCC-1. The diameter 20mm sensor shaft and filter system are made of stainless steel. Including the protection cap with protection membrane (TS-1).

Accessory: 2 wall mounting clips *(111 7588)*
Option: 1 duct mounting flange *(111 7538)*

HICS electronic sensor armature:

Dimension : 310x20 mm incl. 1.5m cable
Weight : 200.....1000 g
Measuremt. : rh: capacitive DCC-1
temperature: NTC
Connection : 5-pole cable and screen
Power : special
Output : digital BIT interface
Protection : plastic membrane filter (IP 65)
Oper. limits : 0.....100%
-20°.....+80°C

Shaft length 160mm
111 9580 HICH-11 : incl. 2m silicon cable and instalation box

HICH Electronic sensor (capacitive)

Most modern, digital temperature and humidity measuring sensor. Special sensor armature made for extended temperature range to –40...+120°C. Thanks to a 2m silicone cable, the complete sensor can be operated over the full temperature range. Measuring cell: DCC-1. The diameter 20mm sensor shaft and SS-2 sintered filter system are made of stainless steel. Including cable and installation box. Pore size: 0.1µm

Accessory: 1 Wall mount – jam flange *(111 7992)*
1 Installation box for sensor wiring

HICH electronic sensor armature:

Dimension : 310x20 mm
Weight : 200.....1000 g
Measuremt.: rh: capacitive DCC-1
temperature: NTC
Connection : 5-pole cable and screen
Power : special
Output : digital BIT interface
Protection : rustproof sintered steel filter w/o membrane
Oper. limits : 0.....100%
-40°.....+120°C

included in the delivery of a HICH-Sensor!

111 9586 Installation box HICH

Installation box to HICH sensor

Part of delivery with HICH-sensor to HygroDat 100

Installation box for professional wiring of a HICH silicone sensor cable (for extended temp. range) to a screened 5 pole standard installation cable to the transmitter. This box has to be installed in a temp. area of 0...+60°C. It is standard part of the HICH sensor and is delivered together with it.

HICH cable installation box:

Dimensions : 88 x 88 x 52 mm
Weight : ca. 150 g
Connectors : 2 x 6 clamps
Protection grade: IP55 / IP65

Max. cable length 28 m between box and transmitter

111 9585 Cable extension
to C-sensors

Extension cable to C-sensor

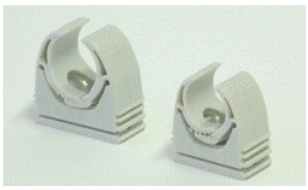
This cable shall be used as connection between the installation box and the transmitter. It has 5 wires and an additional screen. The cables are available on order, from 1m up to 28m.

Cable type: Li YYS 5 x 0.25 mm^2, with screen.

C-sensor standard cable for HIC, HICS and HICH:

Cable type : LI YYS 5 x 0.25
Conductors : 5 wires plus protection screen
Lengths : 1m up to.28 m
Colour : black
Temp. range : -20....+80°C

HIA and HIC sensor accessories



110 7360 Wall mounting **clips**

Wall mounting kit

A pair of wall mounting clips for an easy mounting of HIA/HIC sensors to walls with M4 wood, plastic or metal screws. The clips can be reused.

-> Clamping range: 12....16 mm

Wall mounting clip for HIA & HIC:

Material : Polycarbonate
Weight : 15 g *(each)*

Quantity : 2 units

Clamping range: 12...16 mm

111 5343 **Duct mounting kit**

Duct mounting kit

Duct mounting flange (1 unit) including O-ring seal for HIA/HIC sensors. For an easy mounting in ducts or through walls or ceilings. The flange is fixed by 3 screws and the 13 mm pass-through will stand an over-pressure of 3 bar before the seal leaks. The sensor can be removed at any time for recalibration.

-> Clamping range: 10 .... 14 mm

Duct mounting kit for HIA & HIC:

Flange dimensions : 60 x 20 mm
Weight : 30 g

Clamping range : 10…14 mm

110 7330 **SF-1** filter diam. 13mm

Sensor protection system SF-1

Stainless steel, sintered filter protective cap for demanding industrial requirements to a HIA/HIC sensor. Intended primarily for use in environments where protection is needed from high air speeds and/or high levels of pollution. Provides optimal mechanical protection of the sensor.

-> The *filter has a mesh size of 0.2um*

Sensor filter SF-1 for HIA & HIC:

Filter dimensions : 45 x 13 mm
Weight : 15 g

Effectiveness: Mechanical protection against particles larger than 0.2um "cellgard"

111 3675 **AF-1** filter diam. 13mm

Sensor protection system AF-1

Stainless steel metal web filter protective cap for the HIA/HIC sensors, incorporating an active charcoal insert. Provides optimal protection of the measurement cell from corrosive gases and pollution in industrial environments.

-> The *filter has a mesh size of 25 um*

Sensor filter AF-1 for HIA & HIC:

Filter dimensions : 45 x 13 mm
Weight : 10 g

Effectiveness :Mechanical protection against particles larger than 25 um

Chemical protection : Nitrous oxide, oil fog, fine dust, amine, ethylene.

111 1018 **MF-1** filter diam. 13mm

Sensor protection system MF-1

Stainless steel metal web filter protective cap for the HIA/HIC sensors, incorporating a membrane insert. Provides optimal protection of the measurement cell from fine dust and dirt in industrial environments.

-> The *filter has a mesh size of 0.2um*

Sensor filter MF-1 for HIA & HIC:

Filter dimensions : 45 x 13 mm
Weight : 10 g

Effectiveness : Mechanical protection against particles larger than 0.2um

111 4745 **CP-1** Cap diam.13mm

Sensor protection system CP-1

Plastic protective cap for the HIA/HIC sensor, without any filter element. For rapid measurements in clean air. It includes a protective grid without any filter function but providing basic mechanical protection.

Recommendation: for use when measurement speed is important and filtering is not necessary.

Sensor cap CP-1 to HIA & HIC:

Cap dimensions : 45 x 13 mm
Weight : 20 g

Effectiveness : limited mechanical protection

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111 7505 **STCF-1** filter Ø13mm

Sensor protection system STCF-1

Stainless steel protective cap incorporating a cellgard membrane filter. For quick HIA/HIC sensor measurements in air. A robust model offering protection from larger objects in the air, but only limited mechanical protection against dust.

Recommendation: for use when measurement speed is important and filtering is not necessary.

->The filter has a 0.2 um mesh size

Sensor filter STCF-1 f. HIA& HIC:

Filter dimensions: 45 x 13 mm
Weight : 20 g

Effectiveness : Cellgard mechanical protection from particles larger than 0.2 um

111 6812 **Weather shield**

Weather shield for outdoor applications

An effective protection from wind, rain, snow and direct sunlight for the HIA/HIC sensor. Ideal for meteorological measurements in the range of -20°....+80°C.

The shield can be quickly and easily attached to a 25.. 50 mm diameter post.

The shield is delivered with all of the necessary mounting materials.

Weather shield for HIA & HIC:

Dimensions : 270 x 220 x 120 mm
Weight : 650 g

Material : UV stabilised, thermoplastic slats, painted steel construction

111 6813 **Mounting flange**

Special flange for weather shield

Mounting flange for the installing the HIA/HIC sensor in a weather protected shield using a clamping mechanism. Enables the easy removal of the sensors at any time for test and recalibration.

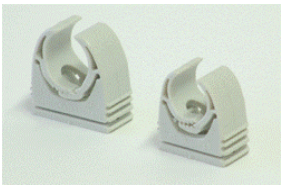
-> Suitable for HIA/HIC sensors with 100 + 200mm long shafts.

Mounting flange for HIA & HIC:

Dimensions : 85 x 35 mm
Weight : 440 g

Material : UV stabilisd, thermoplastic material with UNF threads

HIS/HICS/HICH sensor accessories



111 7588 Wall mounting **clips**

Wall mounting kit

A pair of wall mounting clips for easy mounting of HIS/HICS sensors to walls with M4 wood, plastic or metal screws. The clips can be reused.

-> Clamping range : 18.5.....22.5 mm

Wall mounting clips for HIS & HICS:

Material : Polycarbonate
Weight : 15 g *(each)*
Quantity : 2 units.
Clamping range: 18.5...22.5 mm

111 7992 **Clamping flange**

Wall mounting kit 2

Wall mounting clamping flange for a very stable clamping of a HIS/HICS/HICH sensor to a wall or inside surface of a duct. The flange may be screwed or welded to the attaching surface. Suitable for extended temperature range –40…+120°C.

-> Clamping range 19....26 mm

Clamping flange for HIS, HICS & HICH:

Material : Polyamid /steel up to +120°C
Dimensions : 80x30x47 mm
Weight : 150 g
Clamping range : 19...26 mm

111 7538 **Duct mounting flange**

Duct mounting kit

Duct mounting flange for easy, sealed mounting in ducts or through walls or ceilings. The flange is fixed by 3 screws and O-rings are provided. The 20 mm pass-through will stand an over-pressure of 5 bar before the seal leaks. The sensor can be removed at any time for recalibration or testing.

-> Clamping range: 19 .... 24 mm

Duct mounting kit for HIS, HICS & HICH:

Material : Polycarbonate/rubber
Flange dimensions : 60 x 20 mm
Weight : 100 g
Clamping range : 19…24 mm

111 7183 **SS-1** filter diam. 20mm

Sensor protection system SS-1

Stainless steel, sintered filter protective cap for demanding industrial requirements to the HIS/HICS sensors. Intended primarily for use in environments where protection is needed against high air speeds and/or high levels of pollution. Provides optimal mechanical protection of the sensor.

-> The filter has a mesh size of 0.2 um

Sensor filter SS-1 for HIS, HICS :

Dimensions Filter : 50 x 20 mm
Weight : 35 g

Effectiveness: Mechanical protection against particles larger than 0.2 um

For HICH sensors!

111 9600 **SS-2** filter diam. 20mm

Sensor protection system SS-2

Filter protection cap for HICH sensors. Made of stainless, sintered steel. Intended primarily for use in environments where protection is needed against high air speeds and/or high levels of pollution. Provides optimal mechanical protection of the sensor. No splash water protection!

-> The sinter filter has a mesh size of 10 um

Sensor filter SS-2 for HICH:

Dimension: 50 x 20 mm
Weight : 30 g
Effectiveness : Mech. protection down to particle size 10 um

Extended temperature range –40 ... +120°C !

111 7524 **TS-1** filter diam. 20mm

Sensor protection system TS-1

Metal web filter with Cellgard

Stainless steel metal web filter protective cap for the HIS/HICS sensors, incorporating a membrane insert. Provides optimal protection of the measurement cell against corrosive gases and pollution in an industrial environments.

-> The filter has a mesh size of 0.2 um

Sensor filter TS-1 for HIS & HICS:

Filter dimensions : 50 x 20 mm
Weight : 30 g

Effectiveness: Mechanical protection against particles larger than 0.2 um

111 9597 **TS-2** filter diam. 20mm

Sensor protection system TS-2

Mesh filter without membrane, for extended temp.range

Stainless steel metal mesh filter protection cap without membrane for HICH sensors. Good protection of the measuring cells against mechanical pollution in industrial environments.

-> The filter has a mesh size of 25um

Sensor filter TS-2 for HICH :

Dimension : 50 x 20 mm

Weight : 30g

Effectiveness: Mech. protection down to particle size 25 um

Extended temperature range :
–40 ... +120°C !

111 7525 **AS-1** filter diam. 20mm

Sensor protection system AS-1

Metal web filter

Stainless steel metal web filter protective cap for HIS/HICS sensors, incorporating an active charcoal insert. Provides optimal protection of the measurement cell from corrosive gases and pollution in an industrial environment.

-> The filter has a mesh size of 10um

Sensor filter AS-1 for HIS&HICS:

Filter dimensions : 50 x 20 mm
Weight : 30g

Effectiveness: Mechanical protection against particles larger than 10um

Chemical protection : Nitrous oxide, oil fog, fine dust, amine, ethylene

111 8965 **AR-1** "Redox" filter

Sensor protection system AR-1 Redox

Stainless steel, metal web filter protective cap for HIS/HICS sensors. The built-in Redox granulate filter provides optimal protection from corrosive gases in the pharmaceutical industry.

-> The filter has a mesh size of 12um

Sensor filter AR-1 "Redox" for HIS & HICS :

Filter dimensions : 50 x 20 mm

Weight : 35g

Effectiveness: Mechanical protection against particles larger than 12um

111 6812 **Weather shield**

Weather shield for outdoor applications

An effective protection against wind, rain, snow and direct sunlight for the HIS/HICS sensors. Ideal for meteorological measurements in the range of –20°....+80°C.

The shield can be quickly and easily mounted to a 25.. 50 mm diameter post.

->The shield is delivered with all of the necessary mounting materials.

Weather shield for HIS & HICS :

Dimensions : 270 x 220 x 120 mm

Weight : 650 g

Material : UV stabilized, thermoplastic slats, painted steel construction

111 8963 **mounting flange 20mm**

111 7556 cable screw connection

Special flange for weather shield

For the HIS/HICS sensor

Mounting flange for installing the HIS/HICS sensor in a weather protection shield using a clamping mechanism. Enables the easy removal of the sensor at any time for test and recalibration.

Attention: A cable screw connection M32x1,5 should also be ordered.

-> Suitable for HIS/HICS sensors with 160….310 mm long shafts

Mounting flange for HIS & HICH :

Dimensions : 100 x 35 mm

Weight : 480 g

Material : UV stabilisd, thermoplastic material with UNF threads

included in the delivery of a HICH sensor

111 9586 Installation box HICH

Installation box to HICH sensor

Part of delivery with HICH-sensor to HygroDat 100

Installation box for professional wiring of a HICH silicone sensor cable (for extended temp. range) to a screened 5 pole standard installation cable to the transmitter. This box has to be installed in a temp. area of 0...+60°C. It is standard part of the HICH sensor and is delivered together with it.

HICH cable installation box:
Dimensions : 88 x 88 x 52 mm
Weight : ca. 150 g
Connectors : 2 x 6 clamps
Protection grade: IP55 / IP65

Max. cable length 28 m between box and transmitter

111 0885 -> **SAL-SC 11% rh**
111 0855 -> **SAL-SC 33% rh**
111 0857 -> **SAL-SC 53% rh**
111 0859 -> **SAL-SC 75% rh**
111 0896 -> **SAL-SC 90% rh**

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 SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

111 1044 -> **SAL-SC 11% rh EU**
111 1037 -> **SAL-SC 33% rh EU**
111 1040 -> **SAL-SC 53% rh EU**
111 1035 -> **SAL-SC 75% rh EU**
111 1032 -> **SAL-SC 90% rh EU**

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. Sensor Checks SAL-SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

Prices on pricelist for air products

HygroDat 100 certification

by an accredited European laboratory (UKAS)

A UKAS-laboratory certifies the instrument at two or more humidity and several temperature values if required.

Internationally accredited laboratory

Certified instruments can be supplied.

111 7847 Check set *(standard)*
111 7841 Empty case for 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. Sensor Checks SAL-SC are obtainable for the following values (at 25°C) :

SAL-SC	11.3 % rh	colour	white
SAL-SC	32.8 % rh	colour	blue
SAL-SC	52.9 % rh	colour	green
SAL-SC	75.3 % rh	colour	purple
SAL-SC	90.1 % rh	colour	white

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

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

111 1302 **Styrofoam** box for SC

Thermal insulation styrofoam box

For the SAL-SC sensor checks

A styrofoam box providing optimal insulation and temperature stabilisation of a SAL-SC check during the calibration proceedure. Consisting of two half-covers for simple temporary mounting.

-> Can be used together with the SAL-SC calibration kit for optimal thermal protection during calibration

Styrofoam box for the SC check:

Dimensions : 100 x 65 x 50 mm
Weight : 10 g

Material : thermal insulating styrofoam PPE

Spare parts to HygroDat 100 system

111 8973 **plug set** E-Sensor

Set of plugs

for the HygroDat 100 24V

A set of three different replacement plugs for the HygroDat 100 transmitter.

Consists of:
- sensor plug 5 pin screw system
- 5 pin screw system
- power plug 2 pin screw system

Transmitter plug set:

Sensor plug : 5-Pol. 3.72 mm
AO-plug : 5-Pol. 5.08 mm
Power plug : 3-Pol. 5.08 mm

Weight : 15 g

Quantity : Set of 3 plugs

110 7355 **CF-1** HIA, HIC filter

Standard filter CF-1

Plastic protective cap with a membrane filter element for the use of HIA/HIC sensors in standard HVAC applications. Limited mechanical protection and filtering.

Recommendation: A protective cap for general protection in relatively clean environments and air speeds of less than 5 m/s.
-> This filter is included with the HIA/HIC sensor. The filter has a mesh size of 0.2 um

Sensor filter CF-1 for HIA & HIC :

Filter dimensions : 45 x 13 mm
Weight : 15 g

Effectiveness : Mech. protection, small particles, water drops

111 7523 **CS-1** HIS,HICS filter

Sensor protection system CS-1

Filter protective cap for the HIS/HICS sensor, incorporating a membrane filter protecting against water drops and small particles. Intended for fast measurements in normal air.

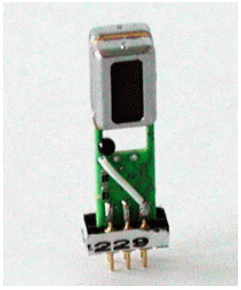
Provides only limited mechanical protection.

-> The filter has a mesh size of 0.2 um

Sensor filter CS-1 for HIS & HICS:

Dimensions Filter : 50 x 20 mm
Weight : 30 g

Effectiveness : Mech. protection



111 3828 **CC-1** normal
111 6260 **CC-1 silicon free**

CC-1 measurement cell

Resistive electrolytic humidity and temperature measurement cell

High precision humidity and temp. measurement cell for the range 6 ...100 % rh with integrated saturation protection and special NTC temp. measurement element for the range –20°....+80°C.
The measurement cell has a 2 x 3 pin plug and a special filter system to protect the sensing element.

Attention: In no circumstances should the cell be dropped or the grey/blue filter surface be touched.

CC-1 measurement cell:

Dimensions : 35 x 7 x 6 mm
Weight : 2 g

Type : Resistive electrolytic measurement principle
Ranges : 6.....100%
Electronic saturation protection
-20°.....+80°C

111 9590 **DCC-1 digital capacitive cell- silcone based**

DCC-1 measurement cell

Digital capacitive humidity and temperature measurement cell

Very robust humidity and temperature cell for the range of 0...100 % rh with integrated NTC element for temperature measurement in the range -40°...+120°C. The DCC-1 cell has an 5 Pin female connector system.

Attention: Never touch the front part of the sensor with your finger or any other hard object.

DCC-1 measurement cell:

Dimensions : 35 x 7 x 6 mm
Weight : 2 g
Hum. Measurement prinziple : : digital capacitive humidity cell silicone chip based
Ranges : 0.....100%
-40°.....+120°C

111 9621 **RS-232** for HygroDat100

Serial Data Interface RS-232

Optional part to HygroDat 100 Transmitters equipped with E-sensors

Optional RS-232 interface for HygroDat 100 transmitter with E-sensor (HIA, HIS). This interface permits a serial data transfer to DDC, PLC or SPS controls etc..
It can be also used for the connection of the instrument to a PC running the Novasina **NovaLog 32** visualisation software.

Note: This component is already built in as a standard in HygroDat 100 transmitters with C-sensors (HIC, HICS, HICH).

RS-232 to HygroDat 100:

Dimensions : 70 x 50 x 20mm
Weight : ca. 50 g
Power supply: intern. from cover electronics HD 100
RS-232 : standard level
Inputs : 1 x E-sensor
1 x C-sensor
Max. cable length for serial Interface : 15 m
Data protocol : ASCII string

111 9586 **Installation box** HICH

Installation box to HICH sensor

Part of delivery with HICH-sensor to HygroDat 100

Installation box for professional wiring of a HICH silicone sensor cable (for extended temp. range) to a screened 5 pole standard installation cable to the transmitter. This box has to be installed in a temp. area of 0...+60°C. It is standard part of the HICH sensor and is delivered together with it.

HICH cable installation box:

Dimensions : 88 x 88 x 52 mm
Weight : ca. 150 g
Connectors : 2 x 6 clamps
Protection grade: IP55 / IP65

Max. cable length 28 m between box and transmitter

Optionals to HygroDat 100 system

There are no options for this instrument