

## Operation Manual

### nLink Analog IP & EC Transmitter



## **Table of contents**

<b>2. General.....</b>	<b>3</b>
<b>3. Safety .....</b>	<b>3</b>
<b>4. Product Description .....</b>	<b>4</b>
4.1. Technical Data nLink Analog IP.....	4
4.2. Technical Data nLink Analog EC.....	5
4.3. Electrical Installation.....	6
4.4. Sensor cables and Configuration set.....	6
4.5. Wiring Diagram: .....	7
<b>5. Initial Operation .....</b>	<b>8</b>
<b>5.1. Windows PC Software Installation .....</b>	<b>8</b>
<b>5.2. Android App .....</b>	<b>8</b>
<b>6. Configuration with nSoft-ACT-T .....</b>	<b>9</b>
<b>7. Calibration / verification of measuring values.....</b>	<b>15</b>

## **1. Scope of application:**

This manual is valid for all nlink-Analog transmitter systems with firmware version V01.00 or higher.

## **2. General**

The nLink-Analog Transmitter has been designed for fixed mounting, either directly at or near the measuring location (IP version) or in the electrical cabinet (EC version=electrical cabinet). All nSens probes are compatible, either directly on the housing (IP version) or by the 3wire nSens cable or the nSens extension cable.

Configuration possible with the built in USB connection by Windows PC or Android Smartphone. With the NFC Antenna and compatible Android Smartphone the values and settings can be read anytime (no change possible).

## **3. Safety**

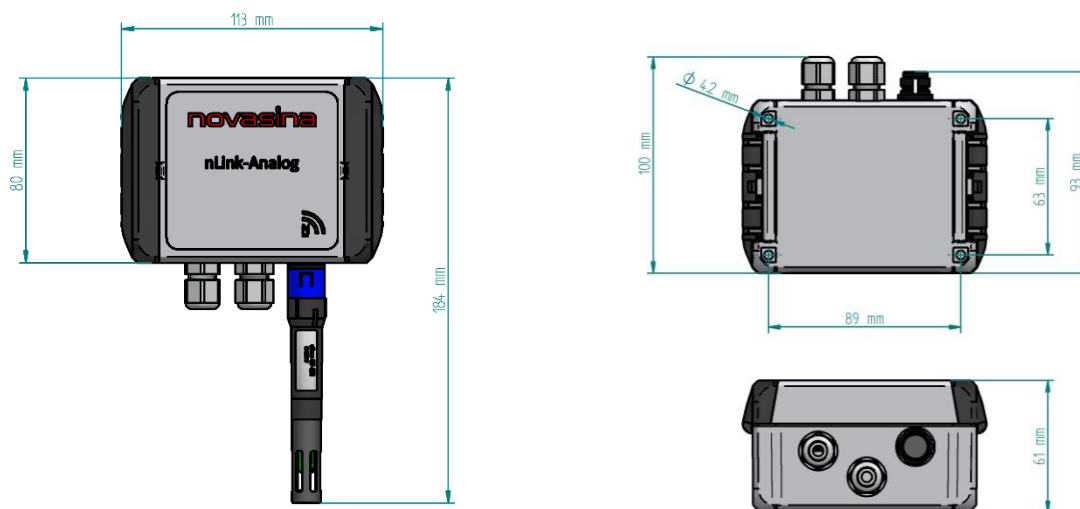
This instrument has left the factory in a faultless condition. No inappropriate modifications are allowed under the terms or the warranty. Please consider all notices and warning signs on the instrument and in this operating manual.

Please also note:

- This instrument has been developed only for the measurement of clean air within the defined specifications, operate the instrument only for this purpose. In case of other applications, outside of these specified uses, the supplier accepts no responsibility for any damage caused.
- The installation work shall be only done by skilled personnel (electrician).
- The instrument may only be operated under the specified operating conditions.
- Any faults that may occur and cause damage to material and people, additional safety precautions should be implemented. In case of any faults, the defined operating conditions have to be observed (e.g. limit switch etc.).
- The instrument is not adequate for the installation in rooms with explosion hazard.
- The installation has to be effected in accordance with the local electrical installation regulations as well as this operating manual.
- The instrument contains ESD-sensitive parts. Please follow the indicated safety measures.
- Use only original Novasina accessories and spare parts.
- Without any written approval by Novasina no adaptations and modifications shall be undertaken on the instrument.

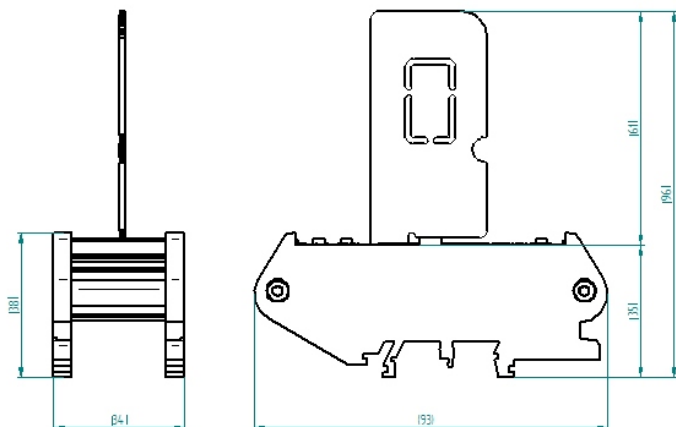
## 4. Product Description

### 4.1. Technical Data nLink Analog IP



Name	nLink Analog IP (Art-Nr 2601743)
Power supply	24V DC Permissible voltage range: 5 to 39V
Power consumption	<0.5W
Display	none, display possible with Android Smartphone
Analogue outputs (2 outputs)	2 scalable analogue outputs current 0/4..20mA or voltage 0/2..10V  Load (I): min. 0 $\Omega$ / max. 500 $\Omega$ or (Uin-2V)/Imax Load resistance (U): min. 10 k $\Omega$ / max. $\infty$ $\Omega$
Status LED	LED for power On, LED for nSens connected
Housing material	ABS
Protection class	IP67
Soldering material	lead free (RoHS compliant)
Working temp.	0 to 50°C
Storage temperature	-10 to 60°C (non-condensing)
CE-/EMC	Safety: IEC 61010-1:2010 EMC: IEC 61000-6-2:2016, EN 61000-6-2:2005 IEC 61000-6-3:2006+A1:2010, EN 61000-6-3:2007+A1:2011

## 4.2. Technical Data nLink Analog EC



Name	nLink Analog EC (Art-Nr 260 1747)
Power supply	24V DC Permissible voltage range : 5 to 39V
Power consumption	<0.5W
Display	none, values on Android Smartphone App (NFC)
Analogue outputs (2 outputs)	2 scalable analogue outputs current 0/4..20mA or voltage 0/2..10V  Load (I): min. 0 $\Omega$ / max. 500 $\Omega$ or (Uin-2V)/Imax Load resistance (U): min. 10 k $\Omega$ / max. $\infty$ $\Omega$
Status LED	LED for power On, LED for nSens connected
Housing material	PA6.6 (UL94V0), mounting rail holder
Protection class	none, installation in protected cabinet required
Soldering material	lead free (RoHS compliant)
Working temp.	0 to 50°C
Storage temperature	-10 to 60°C (non-condensing)
CE-/EMC	Safety: IEC 61010-1:2010 EMC: IEC 61000-6-2:2016, EN 61000-6-2:2005 IEC 61000-6-3:2006+A1:2010, EN 61000-6-3:2007+A1:2011

### 4.3. Electrical Installation




	Wire specification
Clamping range	0.13 - 1.5mm <sup>2</sup> (Push-in Spring clip)
Wires:	w. plastic collar ferrule DIN 46228/4: 0,25 - 0.75 mm <sup>2</sup> w. wire end ferrule DIN 46228/1: 0,25 - 1.50 mm <sup>2</sup> Solid, min. H05(07) V-U 0.2 - 1.50 mm <sup>2</sup> Wire connection cross section AWG28 - 14

Cable specifications depend on the installation and have to be defined by the designer or installer. Heavy machinery and other instrumentation should not share the same power supply wiring. Use noise filters and surge protectors if required.

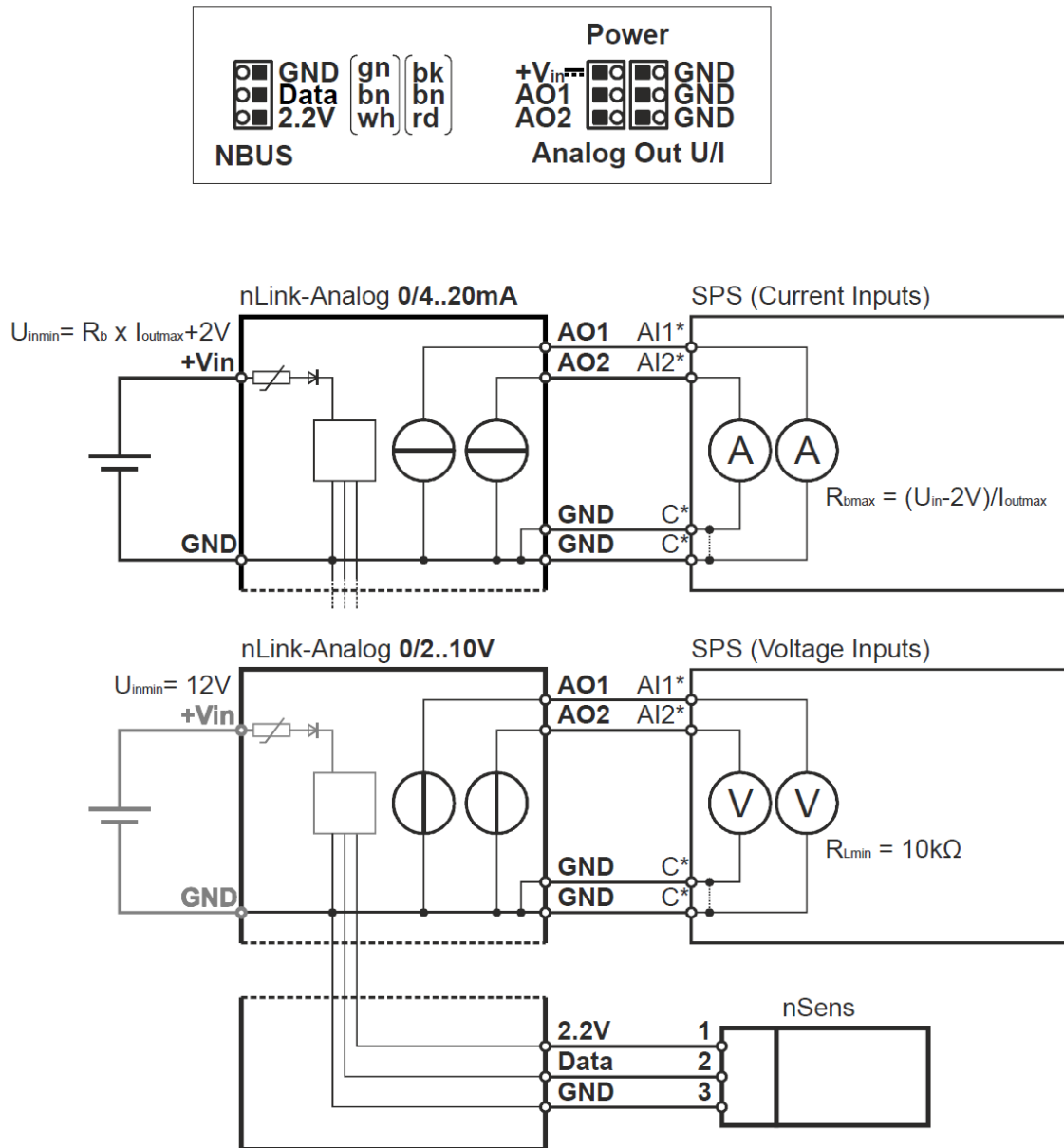
For EMC protection it is recommended to take the following measures:

- Wires emitting interference must be separated from measurement and analysis units
- Parallel guidance of measurement cables and electrical power cables must be avoided, use different channels with separation (see European Standard EN50170 for detailed information)

### 4.4. Sensor cables and Configuration set

nSens cable with end sleeves (for EC)	nSens cable extensions (for IP)	Configuration cable: nlink-USB&CA3
Connects nSens with nlink-AnalogEC.	Extension cable between any connector and nSens.	Configuration cable for nLink-Analog to Android or Windows PC. Software available for download
		
<a href="#">260 1080</a> nSens-cable 5m <a href="#">260 1079</a> nSens-cable 10m <a href="#">260 1078</a> nSens-cable 30m <a href="#">260 1225</a> nSens-cable 60m <a href="#">260 1226</a> nSens-cable 100m	<a href="#">260 1136</a> nSens Extension 5m <a href="#">260 1201</a> nSens Extension 2m	<a href="#">260 1818</a> nlink-USB-CA3 (complete set)  Single items: <a href="#">260 1755</a> CA-3 adapter <a href="#">260 1075</a> nlink USB cable

#### 4.5. Wiring Diagram:



\*Klemmenbezeichnung gemäss ihrer SPS o.ä.

**Remark:** If more than 1 probe is connected, the single wires can be fixed in parallel in the same screw terminal.

## **5. Initial Operation**

Before initial operation the power supply wiring and analogue output configuration should be checked (see wiring diagram).

**Important remark:** The power supply fuse protection has to be verified according to the local regulation. Voltages over 39VDC/27.6VAC result in a severe damage of the device!

### **5.1. Windows PC Software Installation**

The software «nSoft-ACT-T» is a requirement for the configuration (signal outputs, sensor parameters etc). The software must be installed on a Windows PC with administrator rights and following minimum requirements:

Supported operating systems:

- Windows XP with SP3 or higher (32+64bit)
- Administrator-rights

Hardware:

- CPU: mind. 1 GHz
- USB- connection
- min. 512 MB free memory
- min. 4 GB free hardware memory
- Software Adobe Acrobat Reader

The software can be obtained on the website [www.novasina.ch](http://www.novasina.ch) or send an email to [climate@novasina.ch](mailto:climate@novasina.ch).

Software is license free (Freeware), the special USB configuration cable with adapter is necessary (see accessories)

### **5.2. Android App**

Install the Android App on your Smartphone. With the USB configuration cable the configuration can be done directly from the phone.



## 6. Configuration with nSoft-ACT-T

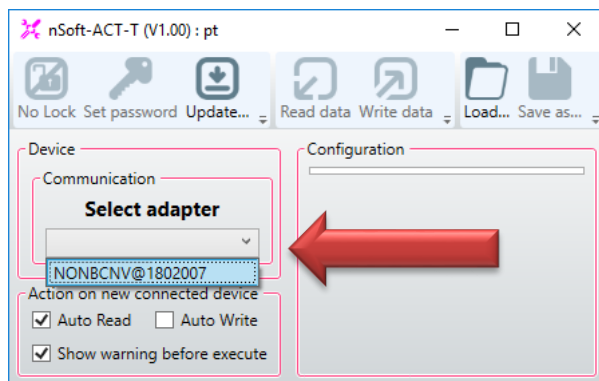
Connect the USB cable on the PC and the nlink-Analog  
Open the software by clicking on the Icon after installation.



The nlink-Analog does not require additional power supply. The USB connector is sufficient for configuration and sensor connection.

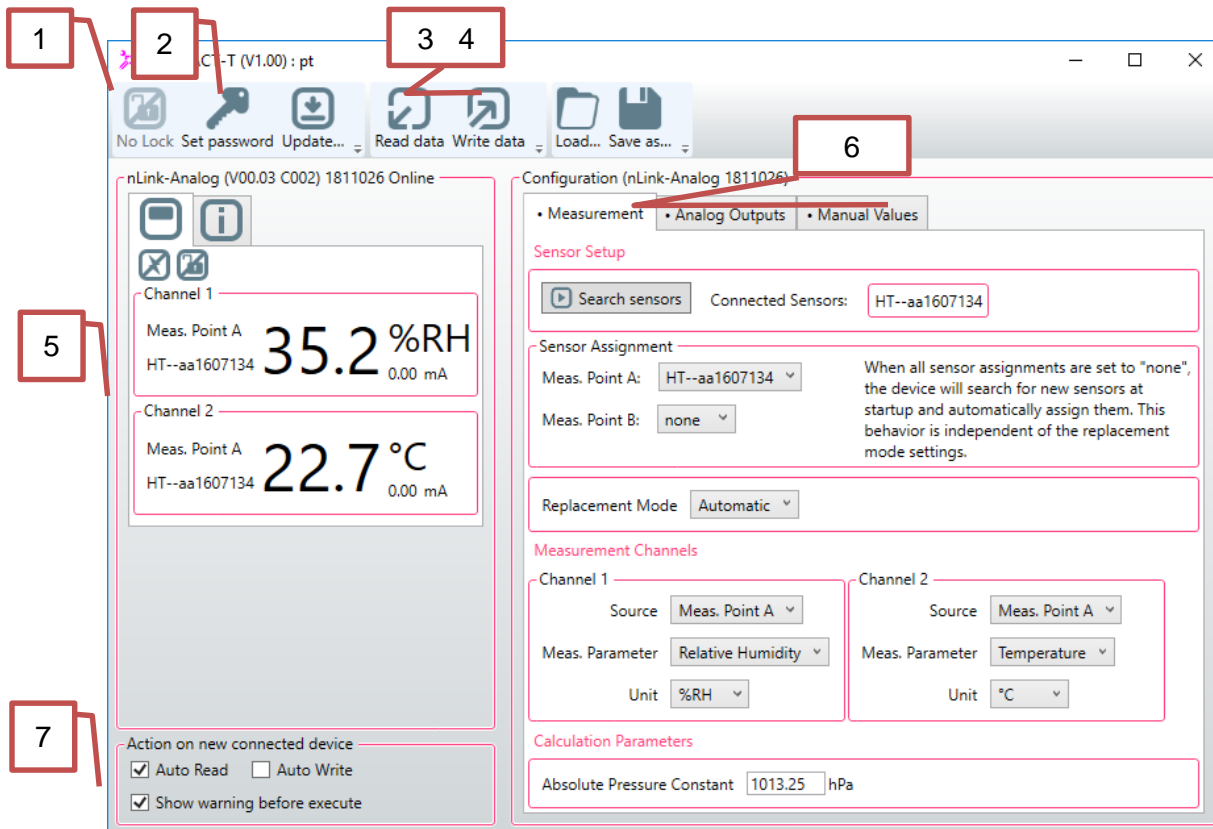
Analog signals / outputs are only active with the additional power supply.

### Startup



Connect configuration cable on the nlink-Analog and your PC.  
Choose the adapter in the dropdown menu.

### Main Screen



- 1: Activate password protection, requires a password set (2)
- 2: Set Password: the password is stored directly on the transmitter.
- 3: Read Data: Read configuration from the nlink-Analog
- 4: Write Data: Store the configuration on the nlink-Analog
- 5: Details from the nlink-Analog, such as serial numbers, measured values in real time etc.
- 6: Configuration-Register:
  - Measurement: Search connected sensors, choose channels and parameters
  - Analog Outputs: Configuration for analog outputs, low/high range etc
  - Manual Values: Set manual values for simulation and look control.
- 7: Action on new device.
  - Auto Read (default) : Transmitter configuration is automatically transferred to the software and displayed. Prepared configuration in the software is overwritten.
  - Auto Write: The configuration prepared on the software is automatically written to the nlink-Analog: Ideal to quickly configure multiple nlink-Analog with the same settings.
  - Show warning before execute (active by default) : If active a warning message will appear before read or write. Deactive if necessary.

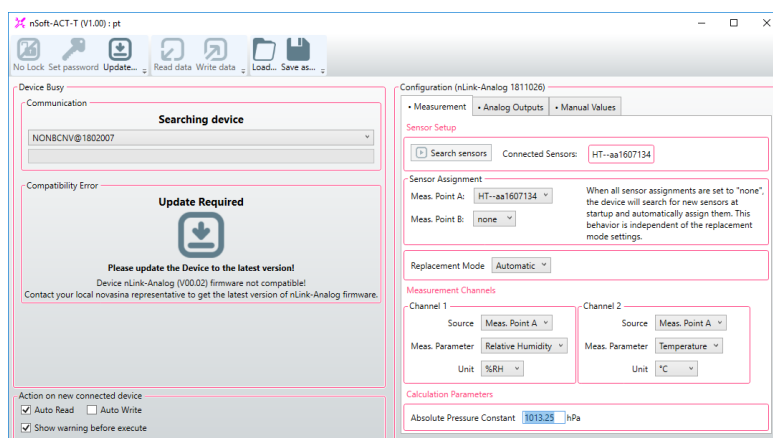
## Configuration procedure:

- Choose the adapter if the software does not automatically recognize
- Configure sensor (search sensor), measuring point and channels (6)
- Configure analog output settings (6, register analog out)
- After configuration activate «Write Data» (4) to store the settings on the transmitter.

## Update required

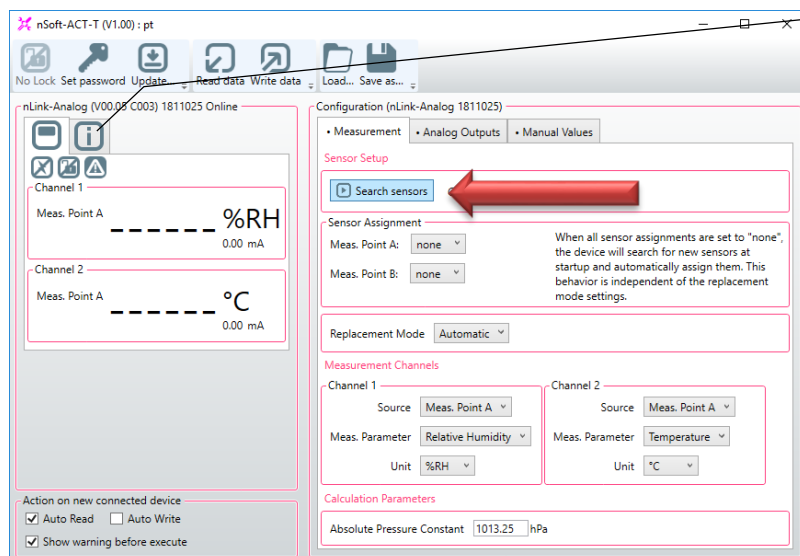
If a firmware version on the nlink-Analog is not compatible with the installed nSoft-ACT-T this message «Update required» is shown.

Contact your local support for the newest firmware file and update instructions.



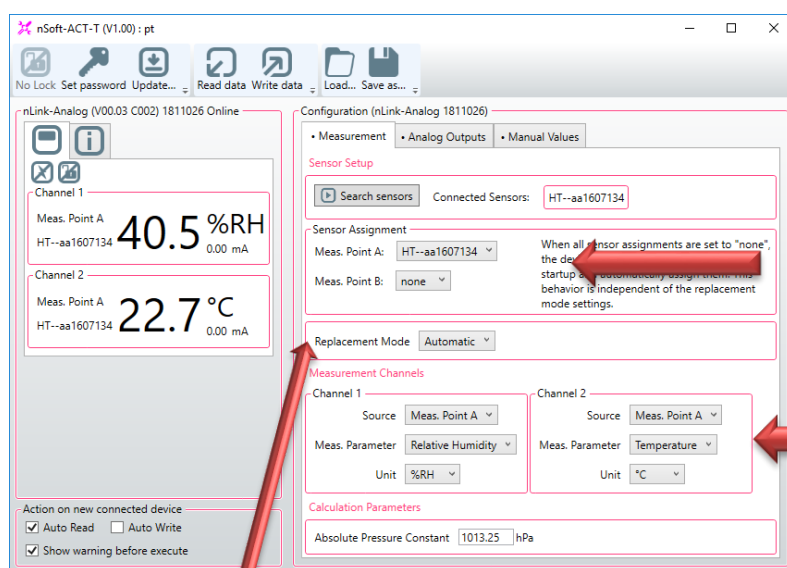
## New configuration

Connect your nLink-Analog with the configuration cable to your PC. Connect the nSens as well.



nlink-Analog is recognized.  
Register «i» displays additional  
information about the transmitter.

Click on «Search Sensor»  
Connected nSens probe will be  
recognized and displayed with the  
serial number.



The identified nSens must now be  
assigned to measuring points. If  
one nSens is connected it is  
automatically assigned to  
measuring point A.

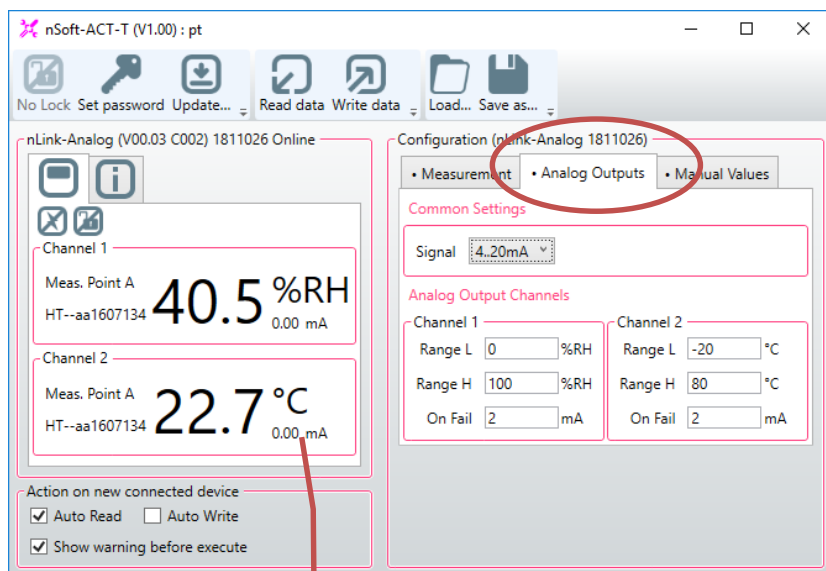
« Measurement Channel » 1 and 2  
correspond to analog out 1 and 2.  
Choose parameter and unit  
(depending on the type of nSens).

### « Replacement Mode »:

**Automatic** (default): If the nSens is replaced the nLink-Analog recognizes the different serial number and replace the removed nSens with the new nSens to the same measuring point. Configuration remains.

**Manual:** A different nSens has to be configured with this software again.

## Configuration analog outputs



Actual analog value on the output for each channel. Only active with additional power supply.

Register «Analog Outputs». Assign Signals (Loop mA oder V) and Range (Range low / Range high) according the specification from the automation system.

On Fail: In case an error is detected (e.g. nSens disconnected) this output is active. If power supply is interrupted signal output is zero.

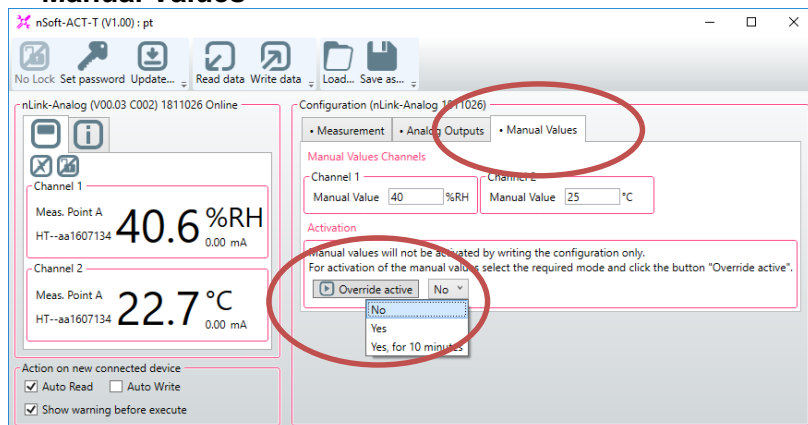
Store configuration with Write Data:



The configuration remains as long as no other nlink-Analog is connected and Read Data is activated.

Choose “Auto Write” and connect another transmitter. The prepared settings will now be stored on the transmitter automatically.

### « Manual Values »

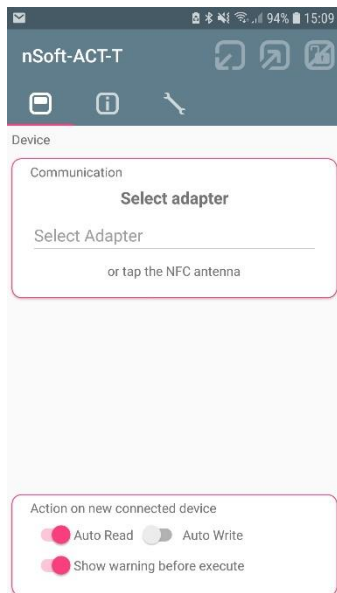


Program fixed values for Simulation and loop checks. Choose Override mode and “Write Data” for activation. As long as manual values are active the sensor values are not displayed.

**Beware:** Deactivate override after completing the checks to receive real time data from the nSens again.

## Configuration with Android App and USB Kabel.

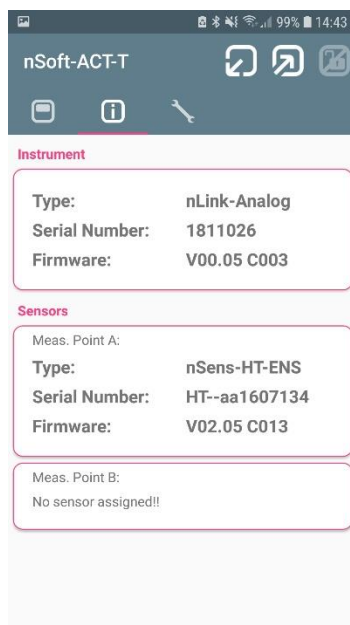
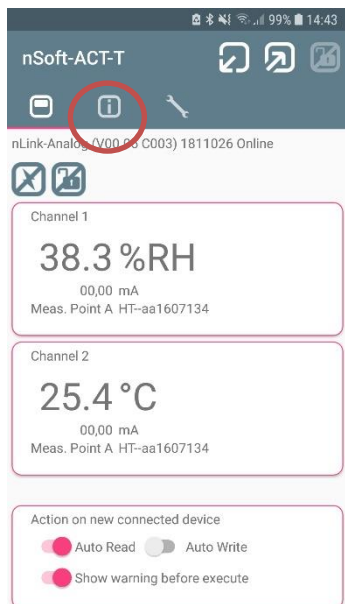
Icons and usage is similar to the PC Version. Also the configuration must be transferred to the transmitter with «Write Data»



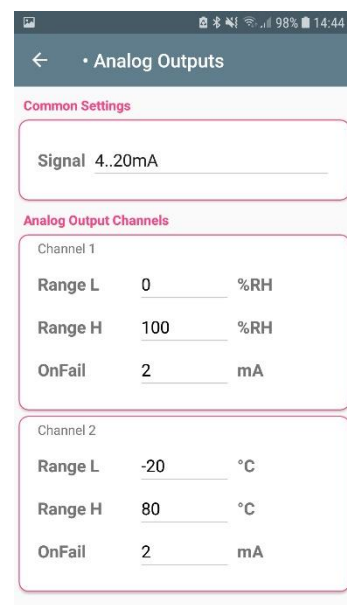
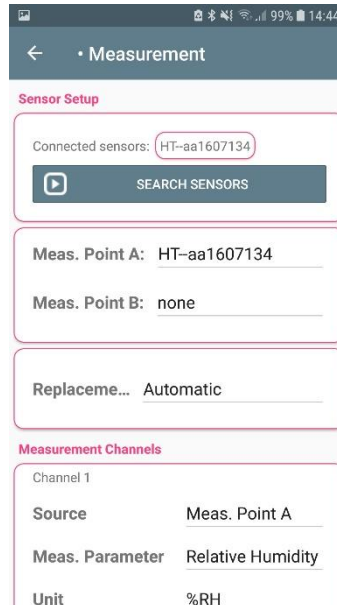
Start-Screen if no USB adapter is recognized. Check connection and tap «Select Adapter».

Auto-Start Settings. Same as the PC Version.

Start-Screen with recognized Adapter and active «Auto Read». If no values are display tap «Read Data».



## Configuration



**Change configuration according your customer requirement. Afterwards store the configuration unto the nlink-Analog device with «Write Data»**



Activate "Auto Write" to store the prepared configuration automatically unto the device.

The Android App can read out wireless the actual values and configuration. Configuration change is only possible with USB wired connection.

NFC works best when the device is powered either by USB connection or power supply.

Mobile phone vibrates when the NFC connection is recognized and must be hold steady for 2-3 seconds for the data transfer to finish. .



## 7. Calibration / verification of measuring values


For humidity calibration and verification Novasina humidity standards are recommended. These humidity generators are easy to use and reusable multiple times.

For the verification of the whole measurement range Novasina offers a set with 5 SAL-SC including carrying case and probe adapter rings. For an optimal calibration and/or verification the room temperature should be between 15...30°C and should not vary more than  $\pm 0,2^{\circ}\text{C}$ . In order to allow the standards to generate an accurate and stable air humidity the SAL-SC must be well sealed around the probe.

For this purpose an adapter with O-ring can be used, which is put inside the SAL-SC hole and then put over the probe. The standards should be adapted to the climatic ambient conditions approx. 1 hour before they are used.

If handled properly the SAL-SC generate very stable and accurate relative humidity and can be used as an alternative to humidity generators.



Article-No: <b>260 1154</b> <b>260 1636</b>	Name: ClimMate Set (Sal-SC 33+75%) ClimMate Set II (Sal-SC 75+97%)	
	<b>Complete Set in case incl.:</b> <ul style="list-style-type: none"> <li>• Multifunction handheld instrument <i>ClimMate</i></li> <li>• nSens-HT-ENS probe (accuracy 0.5%) with factory certificate</li> <li>• 2 humidity reference SAL-SC</li> </ul>	Dimension Case: 450x360x105mm ClimMate 170 x 62 x 34mm  Weight: 2'100 gr  <ul style="list-style-type: none"> <li>• Absolute pressure sensor integrated Measurement range 800....1'100 mbar</li> </ul>



**260 1094** nSoft-CAL Software

### nSoft-CAL calibration kit

Windows software for verification and calibration of nSens probes. Incl. nLink-USB connection cable for all nSens probes.

Contains:

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



Art. No. 1110885 - SAL-SC 11  
 Art. No. 1110855 - SAL-SC 33  
 Art. No. 1110857 - SAL-SC 53  
 Art. No. 2600219 - SAL-SC 58  
 Art. No. 1110859 - SAL-SC 75  
 Art. No. 2518965 - SAL-SC 84  
 Art. No. 1110896 - SAL-SC 90  
 Art. No. 2518966 - SAL-SC 97

### Sensor-Checks SAL-SC (humidity standards)

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

11.3 % rh	75.3 % rh
32.8 % rh	84.3 % rh
52.9 % rh	90.1 % rh
57.6 % rh	97.3 % rh

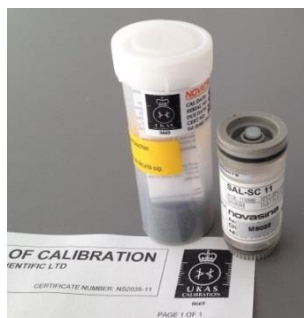
**Important:** please consult the operation manual of your instrument to see which points can be calibrated. Other SAL-SC can be used for verification.

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

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

The precision corresponds to the Greenspan Report 1977 typically  $\pm 0.3$  % rh

Weight : 90 g



Art. No.1111044 - SAL-SC 11C  
Art. No.1111037 - SAL-SC 33C  
Art. No.1111040 - SAL-SC 53C  
Art. No.1111035 - SAL-SC 75C  
Art. No.1111032 - SAL-SC 90C

### Sensor-Checks SAL-SC with European certificate

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

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

**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



Art.No. 111 7847  
Check set (standard)

Art. No. 1117841  
Case without content

### Set with 5 Humidity Generators SAL-SC

Reusable humidity standards SAL-SC in a case delivered incl. the needed adapters for Novasina probes and factory calibration certificates.

Case set contains:

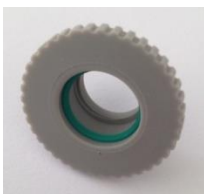
- SAL-SC 11
- SAL-SC 33
- SAL-SC 53
- SAL-SC 75
- SAL-SC 90
- Factory calibration certificates of SAL-SC
- 1 adapters for Novasina probes

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

11.3 ..... 11.3% rh / 15....30°C  
33.3 ..... 32.4% rh / 15....30°C  
55.9 ..... 51.4% rh / 15....30°C  
75.6 ..... 75.1% rh / 15....30°C  
90.9 ..... 89.9% rh / 15....30°C

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

Weight : 900 g



### Adapter SAL-SC for nSens probes

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

With integrated green coloured rubber sealing ring

Dimension : Out.diameter 30 mm  
Inner diam.13 mm

Weight : 5 g

Material : Thermoplastic resin



Art. No. 1117847

### Thermal insulation styrofoam box

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

Dimension : 100 x 65 x 50 mm

Weight : 10 g

Material : thermal insulating styrofoam PPE