novasina

nLINK+
MR
IP & EC

MANUAL

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Doc.-Nr. 007608.01

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1. SCOPE OF APPLICATION

This manual is valid for all nLink+ transmitter systems with firmware version V01.00 or higher.

2. GENERAL

The nLink+ 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.

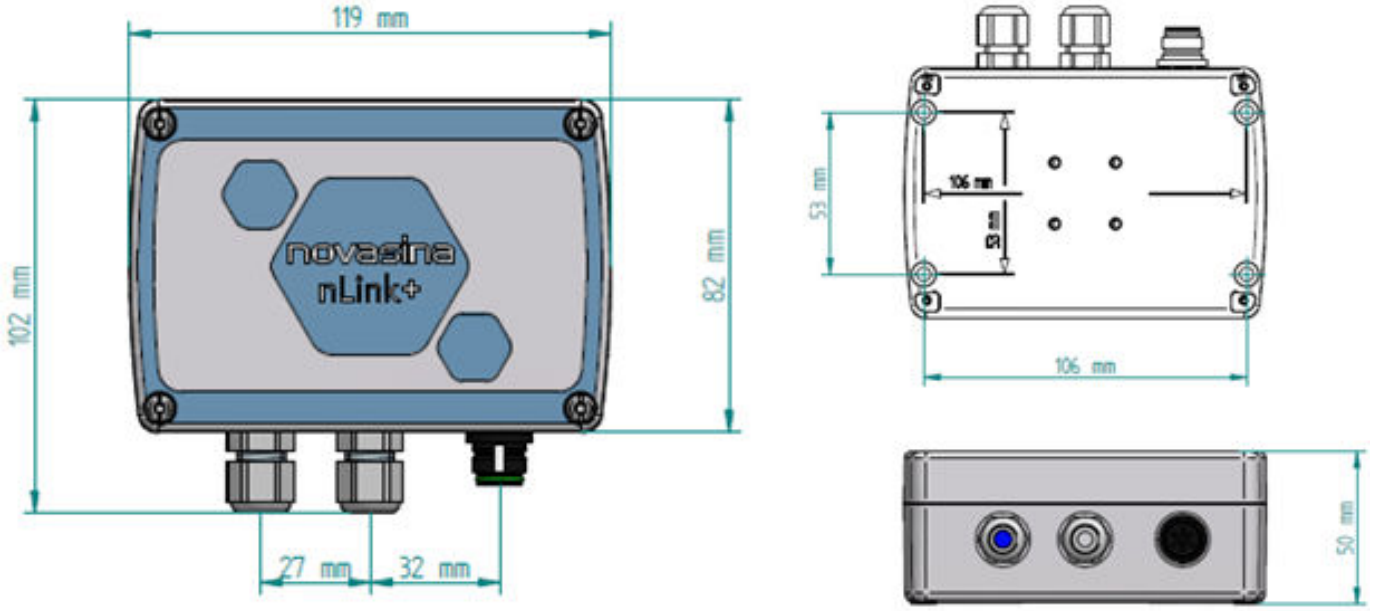
3. SAFTY

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

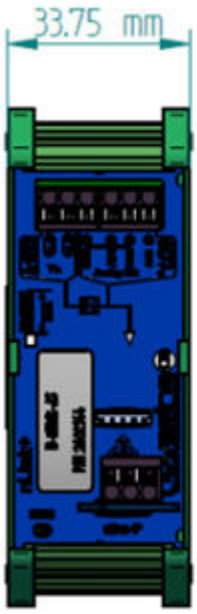
4. PRODUCT DESCRIPTION

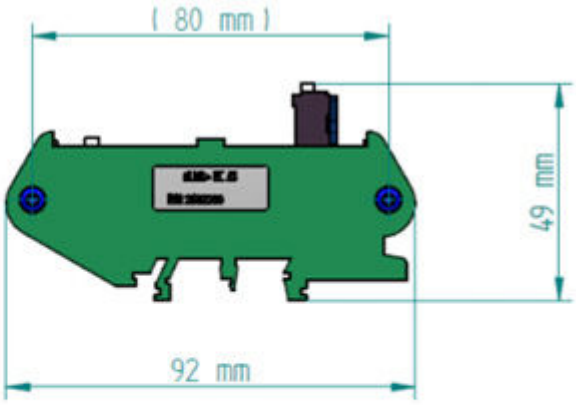
4.1 TECHNICAL DATA NLINK+ IP MR



Name	nLink+ IP MR
Art.-Nr.	2602224
Power supply	24V DC, Permissible voltage range: 5 to 39V
Power consumption	<0.5W
Status LED	LED for power On, LED for nSens connected
Output	ModbusRTU (all climate values and diagnostic information as described in the Modbusregister)
Housing material	PC/ABS
Protection class	IP65
Soldering material	lead free (RoHS compliant)
Working temp.	0 to 50°C
Storage temperature	-10 to 60°C (non-condensing)
Compatibility	Compatible with all nSens-HT V2.14 and later or nSens-dp
CE-/EMC	Safety: IEC 61010-1:2020 EMC: IEC 61000-6-2:2016, EN 61000-6-2:2019 IEC 61000-6-3:2020, EN 61000-6-3:2007+A1:2011

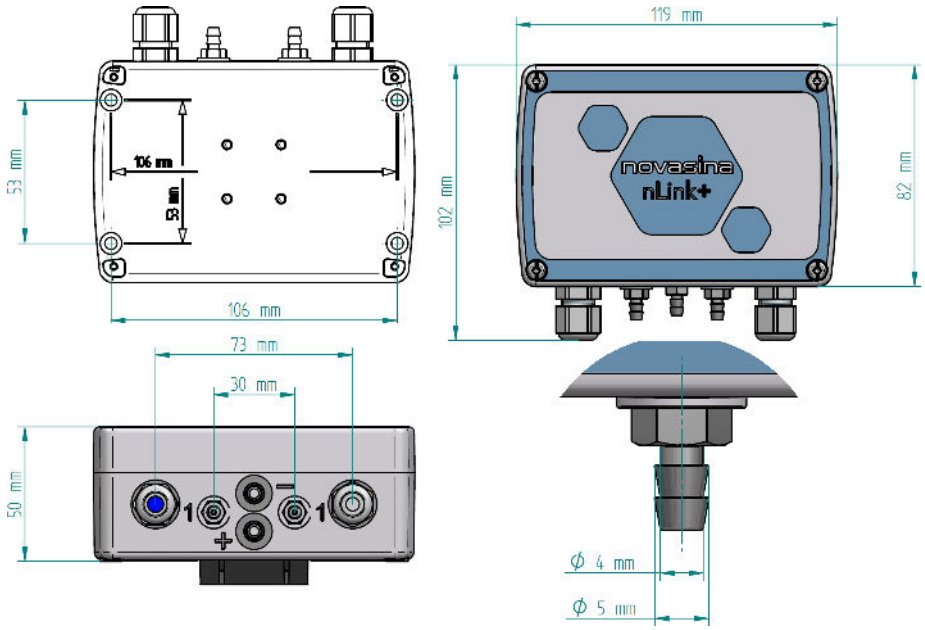
4.2 TECHNICAL DATA NLINK+ EC MR





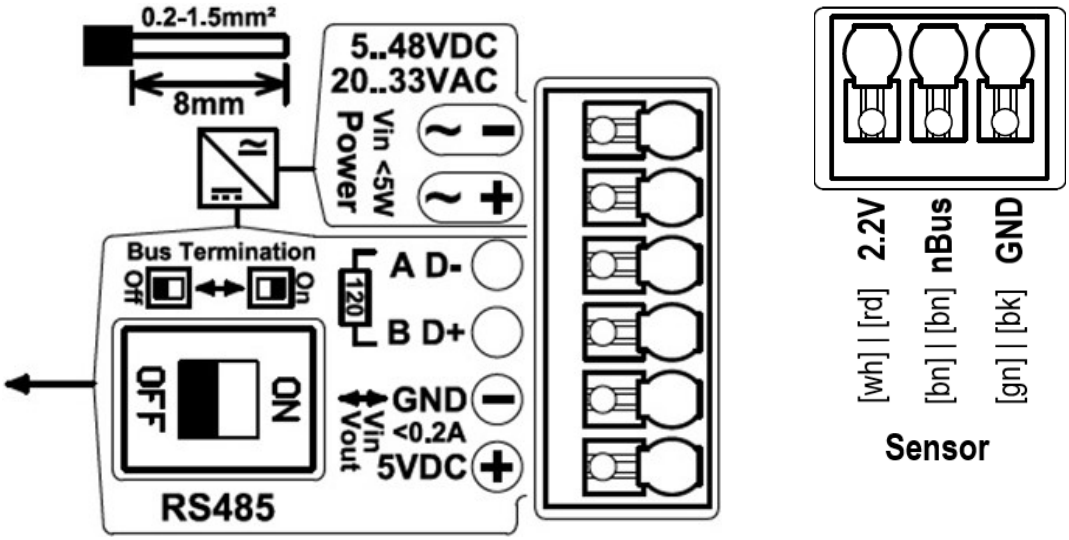
Name	nLink+ EC MR
Art.-Nr.	2602240
Power supply	24V DC, Permissible voltage range: 5 to 39V
Power consumption	<0.5W
Status LED	LED for power On, LED for nSens connected
Output	ModbusRTU (all climate values and diagnostic information as described in the Modbusregister)
Housing material	PA6.6 (UL94V0), 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)
Compatibility	Compatible with all nSens-HT V2.14 and later or nSens-dp
CE-/EMC	Safety: IEC 61010-1:2020 EMC: IEC 61000-6-2:2016, EN 61000-6-2:2019 IEC 61000-6-3:2020, EN 61000-6-3:2007+A1:2011

4.3 TECHNICAL DATA NLINK+ IP MR DP



nLink+ IP	MR A / MR AA	MR B / MR BB	MR C / MR CC
Art.-Nr.	2602225 / 2602226	2602230 / 2602231	2602238 / 2602239
Measurement range	-25 to +25 Pa	-250 to +250 Pa	-5000 to +5000 Pa
Accuracy at 20°C (F.S.)	±0.15Pa	±0.25Pa	±1.0% F.S
Temperature effect	Max. ±0.10Pa	Max. ±0.10Pa	Max. ±0.20Pa
Max. permissible overpressure	2 bar (burst pressure 4 bar)		0.1 bar (burst pressure 0.3 bar)
Flow rate	<200ul/min		None
Max. Resolution	0.1 Pa		
Long term stability	±0.05% FSS (typ)		
Ambient pressure dependency	Compensated with built in abs pressure sensor		
Ambient pressure: Range	700 – 1260 hPa / mBar		
Ambient pressure: Accuracy	±0.5 hPa		
Power supply	24V DC, Permissible voltage range: 5 to 39V		
Power consumption	<0.5W		
Status LED	LED for power On, LED for nSens connected		
Output	ModbusRTU (all climate values and diagnostic information as described in the Modbusregis-ter)		
Housing material	PC/ABS		
Protection class	IP64		
Soldering material	lead free (RoHS compliant)		
Working temp.	0 to 50°C		
Storage temperature	-10 to 60°C (non-condensing)		
CE-/EMC	Safety: IEC 61010-1:2020 EMC: IEC 61000-6-2:2016, EN 61000-6-2:2019 IEC 61000-6-3:2020, EN 61000-6-3:2007+A1:2011		

4.4 WIRING DIAGRAM



4.5 ELECTRICAL INSTALLATION

	Wire specification	
Clamping range	0.13 - 1.5mm2 (Push-in Spring clip)	
Wires	w. plastic collar ferrule DIN 46228/4:	0,25 - 0.75 mm²
	w. wire end ferrule DIN 46228/1:	0,25 - 1.50 mm²
	Solid, min. H05(07) V-U	0.2 - 1.50 mm²
	Wire connection cross section AWG28 - 14	

Remark:
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)

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!

6. MODBUS-MAP

6.1 POWER SUPPLY

- The power supply (5..48 Vdc or 20..33 Vac) is galvanically isolated from the RS485 interface.

6.2 RS485 INTERFACE

- Failsave: Open Bus, Idle Bus
- Bias resistors: Not absolutely necessary for the nLink Modbus.
  As soon as a bus participant requires bias resistors, these must be connected once, i.e. usually at the master.
  This can also improve the transmission quality in a disturbed environment.
- Terminating resistors: Not absolutely necessary for < 100m cable length, above this 2 x 150Ω 0.5W are recommended at both BUS ends depending on the baud rate.
  Note:
  „MODBUS over Serial LineSpecification and Implementation Guide V1.02" (www.modbus.org) is only complied with with terminating resistors.
- Unit load: < 1/6 (more than 200 nodes possible)
- The GND (pin 4) must be wired between all bus nodes.

6.3 REGISTER OVERVIEW

Start Addr	End Addr	Number of registers last entry	EndReg		Number of registers
1	2	1	2	**Communication parameters**	2
26	46	1	46	**Climate data Meas. Point A**	21
126	146	1	146	Climate data Meas. Point B	21
226	246	1	246	Climate data Meas. Point C*	21
326	346	1	346	Climate data Meas. Point D*	21
1000	1003	1	1003	Channel 1 configured with nSoft-ACT-T	4
1100	1103	1	1103	Channel 2 configured with nSoft-ACT-T	4
1200	1203	1	1203	Channel 3 configured with nSoft-ACT-T*	4
1300	1303	1	1303	Channel 4 configured with nSoft-ACT-T*	4
5000	5000	1	5000	Settings	
32769	32812	11	32822	**Description Gateway (Modbus Adapter)**	54
36865	36908	11	36918	**Description Sensor Meas. Point A**	54
36965	37008	11	37018	Description Sensor Meas. Point B	54
37065	37108	11	37118	Description Sensor Meas. Point C*	54
37165	37208	11	37218	Description Sensor Meas. Point D*	54

* Reserve, not implemented

6.4 OBJECTS

- The object area „ Climate data Meas. Point A" and „ Climate data Meas. Point B" is only used to establish nLink-Modbus compatibility for existing systems.
- For extended functionality (adjustable filter, manual measured value specification), as well as for querying not further sensors, we recommend using the objects from the area „ Channel n configured with nSoft-ACT-T".

Register Address	Parameter	Data type	RW
Climate data Meas. Point A			
30026 40026	Temperature [°C]	Float 32 (CDAB)	R
30028 40028	Temperature [°F]	Float 32 (CDAB)	R
30030 40030	Rel humidity [%RH]	Float 32 (CDAB)	R*1
30032 40032	Abs. humidity [g/m³]	Float 32 (CDAB)	R*1
30034 40034	Dewpoint [°C]	Float 32 (CDAB)	R*1
30036 40036	Dewpoint [°F]	Float 32 (CDAB)	R*1
30038 40038	Mixing ratio [g/kg]	Float 32 (CDAB)	R*1
30040 40040	Temperature [°C] *100.0	Signed integer 16 (AB)	R
30041 40041	Temperature [°F] *100.0	Signed integer 16 (AB)	R
30042 40042	Rel humidity [%RH] *100.0	Signed integer 16 (AB)	R*1
30043 40043	Abs. humidity [g/m³] *100.0	Signed integer 16 (AB)	R*1
30044 40044	Dewpoint [°C] *100.0	Signed integer 16 (AB)	R*1
30045 40045	Dewpoint [°F] *100.0	Signed integer 16 (AB)	R*1
30046 40046	Mixing ratio [g/kg], *100.0 limited to 327,67 g/kg	Signed integer 16 (AB)	R*1

Register Address	Parameter	Data type	RW
Climate data Meas. Point B			
30126 40126	Temperature [°C]	Float 32 (CDAB)	R
30128 40128	Temperature [°F]	Float 32 (CDAB)	R
30130 40130	Rel humidity [%RH]	Float 32 (CDAB)	R*1
30132 40132	Abs. humidity [g/m³]	Float 32 (CDAB)	R*1
30134 40134	Dewpoint [°C]	Float 32 (CDAB)	R*1
30136 40136	Dewpoint [°F]	Float 32 (CDAB)	R*1
30138 40138	Mixing ratio [g/kg]	Float 32 (CDAB)	R*1
30140 40140	Temperature [°C] *100.0	Signed integer 16 (AB)	R
30141 40141	Temperature [°F] *100.0	Signed integer 16 (AB)	R
30142 40142	Rel humidity [%RH] *100.0	Signed integer 16 (AB)	R*1
30143 40143	Abs. humidity [g/m³] *100.0	Signed integer 16 (AB)	R*1
30144 40144	Dewpoint [°C] *100.0	Signed integer 16 (AB)	R*1
30145 40145	Dewpoint [°F] *100.0	Signed integer 16 (AB)	R*1
30146 40146	Mixing ratio [g/kg], *100.0 limited to 327,67 g/kg	Signed integer 16 (AB)	R*1

Register Address	Parameter	Data type	RW
Channel 1 configured with nSoft-ACT-T			
31000 41000	Measuring value channel 1	Float 32 (CDAB)	R
31002 41002	Unit of measurement channel 1	Unsigned integer 16 (AB) u_none, // 0: [] u_degreeC, // 1: °C u_degreeF, // 2: °F u_kelvin, // 3: K u_dVal, // 4: novasina D(x)val u_relHum, // 5: %RH u_absHum_m, // 6: g/m³ u_absHum_i, // 7: gr/ft³ u_mixRat_m, // 8: g/kg u_mixRat_i, // 9: gr/lb u_specEnth_m, //10: kJ/kg u_specEnth_i, //11: Btu/lb u_p_hPa, //12: hPa u_p_Pa, //13: Pa u_p_kPa, //14: kPa u_p_bar, //15: bar u_p_mbar, //16: mbar u_p_mmHG, //17: mmHG(0°C) u_p_mmH2O, //18: mmH2O(4°C) u_p_psi, //19: psi u_p_inHG, //20: inHG(0°C) u_p_inH2O, //21: inH2O(4°C) u_c_ppm, //22: ppm	R
31003 41003	Source channel 1	Unsigned integer 16 (AB) 0, // None 1, // Meas. Point A 2, // Meas. Point B	
Channel 2 configured with nSoft-ACT-T			
31100 41100	Measuring value channel 1	Float 32 (CDAB)	R
31102 41102	Unit of measurement channel 2	Signed integer 16 (AB) See 31002	R
31102 41102	Source channel 2	Unsigned integer 16 (AB) See 31003	
Settings (at W Timeout 1s)			
35000 45000	Air pressure [mbar] for the calculation of the humidity variables. Factory settings: 1013.25 mbar	Float 32 (CDAB)	R
165000			W *3

Register Address	Parameter	Data type	RW
Communication parameters (compatible extended to E+E EE071 sensor) (with W timeout 1s)			
60001 30001 40001	Slave ID (1..247), Factory settings: 247	Signed integer 16 (AB) **Warning:** „It is of great importance to ensure at the time of the procedure of devices addressing, that there is not two devices with the same address. In such a case, an abnormal behavior of the whole serial bus can occur, the Master being then in the impossibility to communicate with all present slaves on the bus."	W *2, 3
60002 30002 40002	Communication settings: Factory settings: - 19200 Bit/s - Parity even - 1 Stop Bit - 8 Data Bits (not changeable) Factory settings: 282	High Byte: Must be set to 0x01 Low Byte: b7: Reserve, at 0 set b6: Reserve, at 0 set b5: 0 ≙ 1 Stop Bit 1 ≙ 2 Stop Bits b4...b3: 01 ≙ Parity none 10 ≙ Parity odd 11 ≙ Parity even b2..b0: 000 ≙ 4800 Bit/s 001 ≙ 9600 Bit/s 010 ≙ 19200 Bit/s 011 ≙ 38400 Bit/s	W *2, 3
Description Gateway			
3 32769 4 32769	Gateway Device identifier (will never be changed) Novax 0x0001/00	ASCII String 0 terminated, 11 Registers The identifier is *D-nLinkRS485 RTU*	R
3 32780 4 32780	Gateway Software Version Novax 0x0001/01	ASCII String 0 terminated, 11 Registers	R
3 32791 4 32791	Gateway Profil GUID Device identifier (All 0x00 if not present) U8[0] = most significant Byte Novax 0x0001/02	GUID U8[16], 8 Registers The identifier is BF A8 59 94 F0 13 44 FA 82 BF 58 0D 31 07 CC B4	R
3 32799 4 32799	Gateway Modbus Capabilitylevel Communication profile	Unsigned integer 16 (AB)	R
3 32800 4 32800	Gateway Modbus Required Capabilitylevel Master Communication profile	Unsigned integer 16 (AB)	
3 32801 4 32801	Gateway Marketingname Novax 0x0001/03	ASCII String 0 terminated, 11 Registers	

Register Address	Parameter	Data type	RW
Description Sensor Meas. Point A			
3 36865 4 36865	Sensor Device identifier (will never be changed) Novax 0x0001/00	ASCII String 0 terminated, 11 Registers The identifier is ModbusAdapter	R
3 36876 4 36876	Sensor Software Version Novax 0x0001/01	ASCII String 0 terminated, 11 Registers	R
3 36887 4 36887	Sensor Profil GUID Device identifier (All 0x00 if not present) U8[0] = most significant byte Novax 0x0001/02	GUID U8[16], 8 Registers	R
3 36895 4 36895	Sensor NBus Capabilitylevel Communication profile	Unsigned integer 16 (AB)	R
3 36896 4 36896	Sensor NBus Required Capabilitylevel Master Communication profile	Unsigned integer 16 (AB)	R
3 36897 4 36897	Sensor Marketingname Novax 0x0001/03	ASCII String 0 terminated, 11 Registers	R
3 36908 4 36908	Serial number Sensor	ASCII String 0 terminated, 11 Registers	R
Description Sensor Meas. Point B			
3 36965 4 36965	Sensor Device identifier (will never be changed) Novax 0x0001/00	ASCII String 0 terminated, 11 Registers The identifier is ModbusAdapter	R
3 36976 4 36976	Sensor Software Version Novax 0x0001/01	ASCII String 0 terminated, 11 Registers	R
3 36987 4 36887	Sensor Profil GUID Device identifier (All 0x00 if not present) U8[0] = most significant byte Novax 0x0001/02	GUID U8[16], 8 Registers	R
3 36995 4 36995	Sensor NBus Capabilitylevel Communication profile	Unsigned integer 16 (AB)	R
3 36996 4 36996	Sensor NBus Required Capabilitylevel Master Communication profile	Unsigned integer 16 (AB)	R
3 36997 4 36997	Sensor Marketingname Novax 0x0001/03	ASCII String 0 terminated, 11 Registers	R
3 36908 4 36908	Serial number Sensor	ASCII String 0 terminated, 11 Registers	R
*1	Not available with sensor nSens-T-Nxx		
*2	After setting the communication parameters, it can take up to 1s before the nLink Modbus can respond to requests again.		
*3	This parameter should not be written cyclically so that the lifetime of the persistent data memory (EEPROM) is not unnecessarily reduced.		

6.5 SLAVE ID

- The device can always be addressed via ID 247, regardless of the ID actually set. This ID must therefore not be used by any other device on the bus!

- For example, ID 247 is used by our configuration software.

6.6 NOTES ON REGISTER ADDRESS

- For example, a register address of 30026 means, according to Modbus notation, that register 26 is accessed via function code 0x03 (Read Holding Registers). With 40026, register 26 wouldbe accessed via function code 0x04 (Read Input Registers). All climate data can be read with both „Read Holding Registers“ and „Read Input Registers“.

- According to the Modbus specification, the register count starts at 1. In a Modbus telegram (PDU), however, the count of the „Communications Address“ starts at 0. Example:
  The register address 30026 thus causes the „Communications Address“ 25 to be accessed via function code 3.

6.7 TIMEOUT

- Although the response is usually sent after less than 30ms, we recommend a minimum timeout time of 200mS.

7. LIZENZ FREEMODBUS LIBRARY

The firmware of the ModbusAdapter contains parts of FreeModbus Libary under the following licence:

8. 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

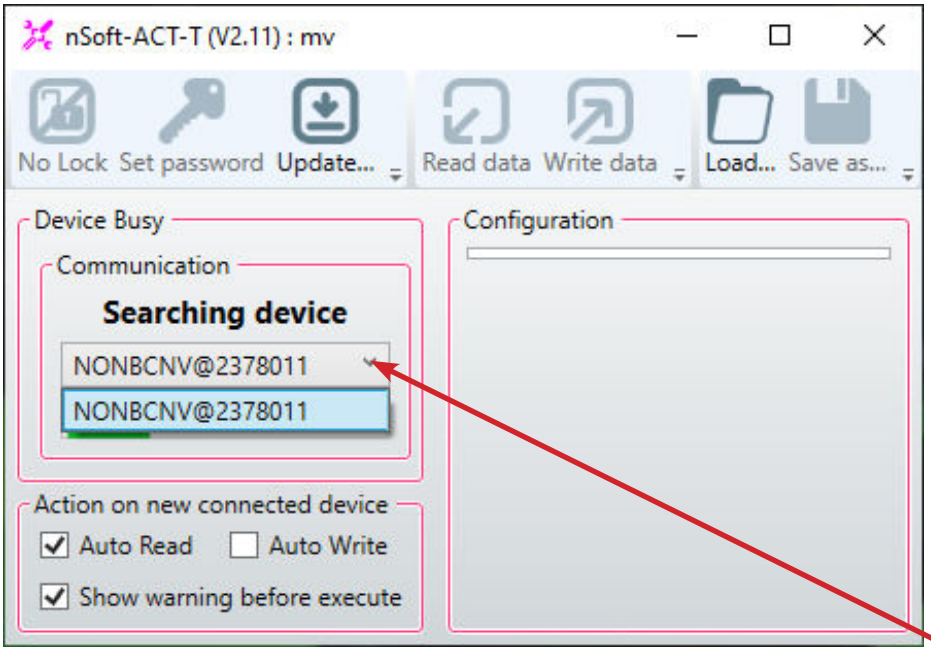
The software can be obtained on the website www.novasina.ch or send an email to sales@novasina.ch.
Software is license free (Freeware), the special USB configuration cable with adapter is necessary (see accessories)

9. CONFIGURATION WITH NSOFT-ACT-T

Connect the USB cable on the PC and the nLink+.
Open the software by clicking on the Icon after installation.

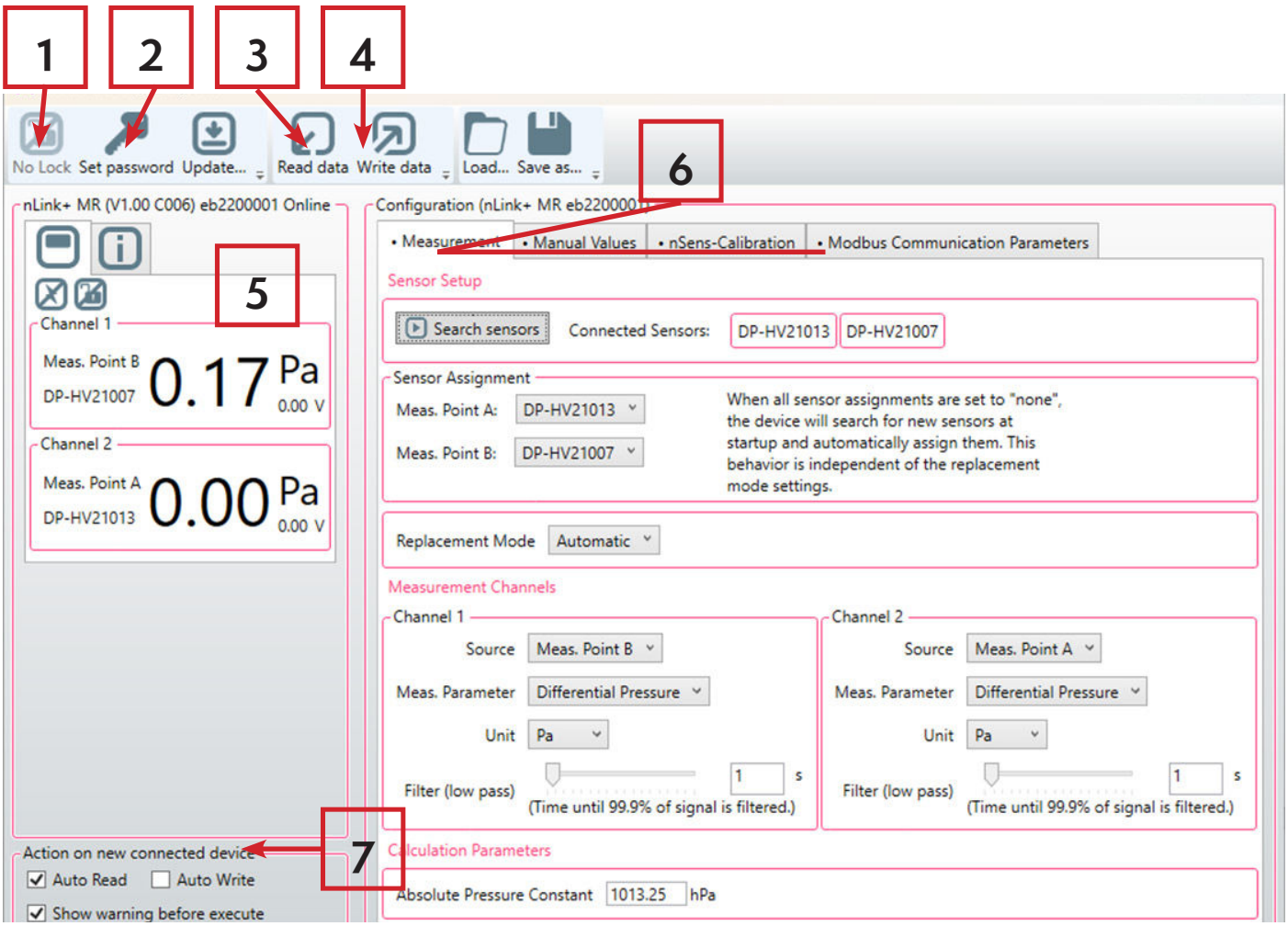
The nLink+ does not require additional power supply. The USB connector is sufficient for configuration and sensor connection.
Analog signals / outputs are only active with the additional power supply.

9.1 STARTUP



Connect configuration cable on the nLink+ and your PC. Choose the adapter in the dropdown menu.

9.2 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+
4: Write Data: Store the configuration on the nLink+

5: Details from the nLink+, such as serial numbers, measured values in real time etc.

6: Configuration-Register:
- Measurement: Search connected sensors, choose channels and parameters
- Modbus Communication Parameters: Configuration for Modbus outputs
- Manual Values: Set manual values for simulation and look control.

7: Action on new device.
- Auto Read: 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+. Ideal to quickly configure multiple nLink+ with the same settings.
- Show warning before execute: If active a warning message will appear before read or write. Deactivate if necessary.

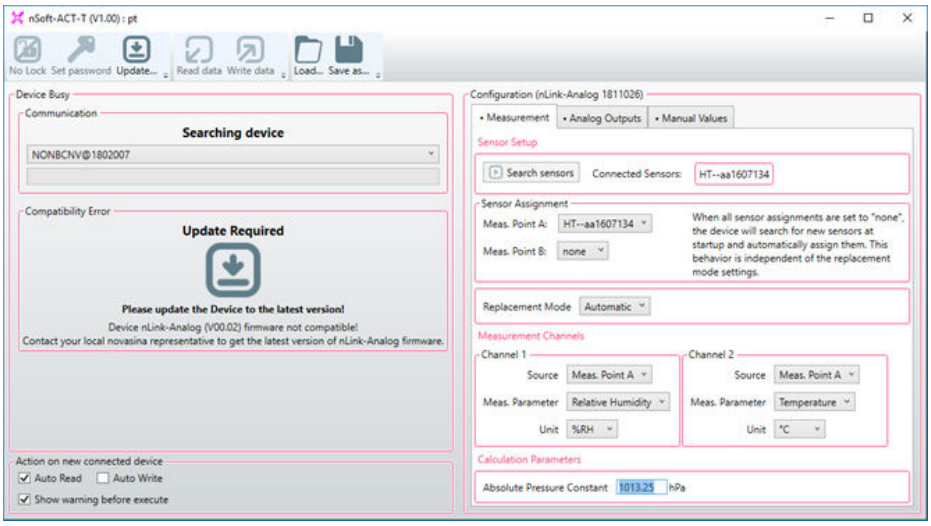
9.3 CONFIGURATION PROCEDURE

- 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.

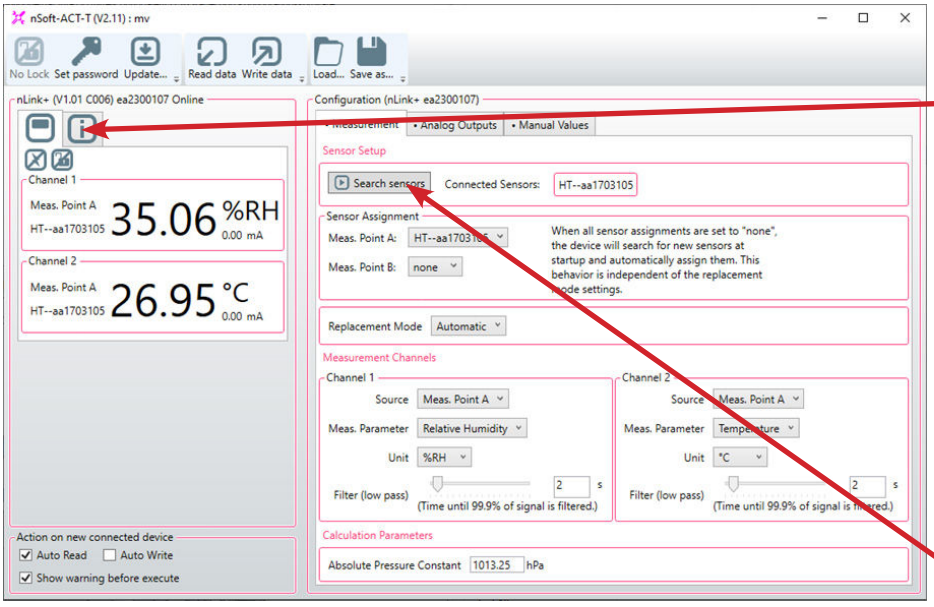
9.4 UPDATE REQUIRED

If a firmware version on the nlink+ 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.

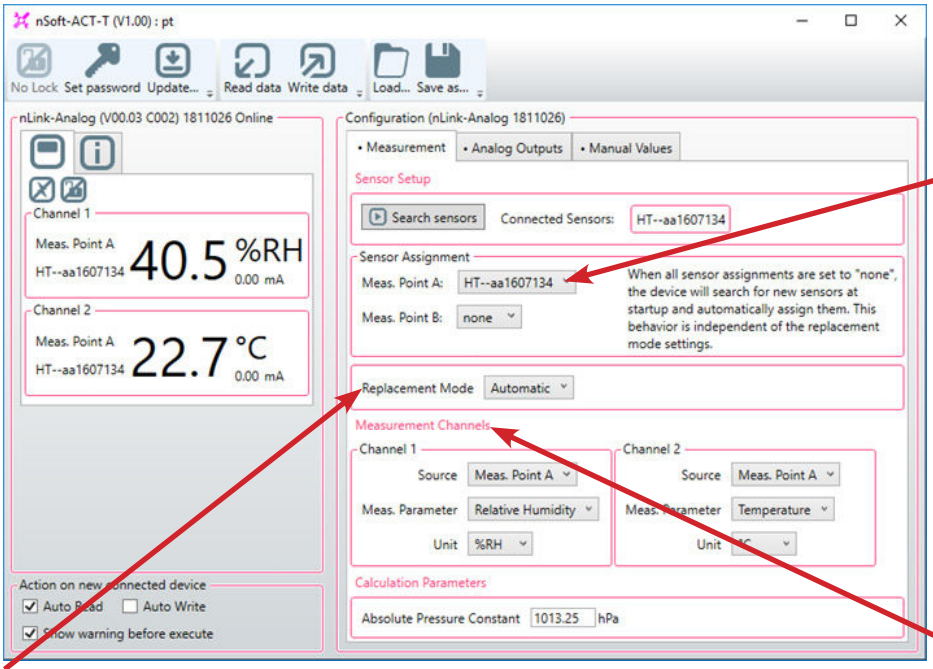


9.5 NEW CONFIGURATION



Nlink+ 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.

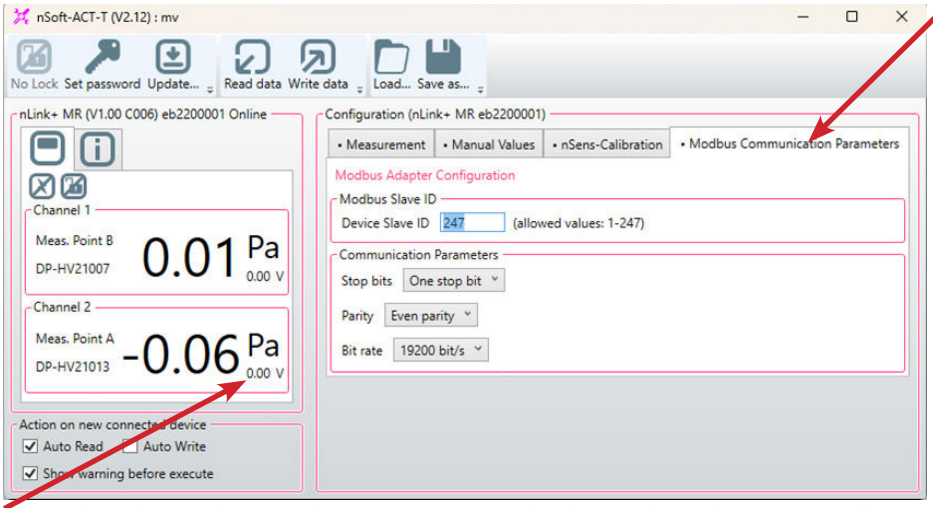


The identified nSens must now be assigned to measuring points. If one nSens is connected it is automatically assigned to measuring point A.

« 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+ 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.

9.6 MODBUS COMMUNICATION PARAMETERS



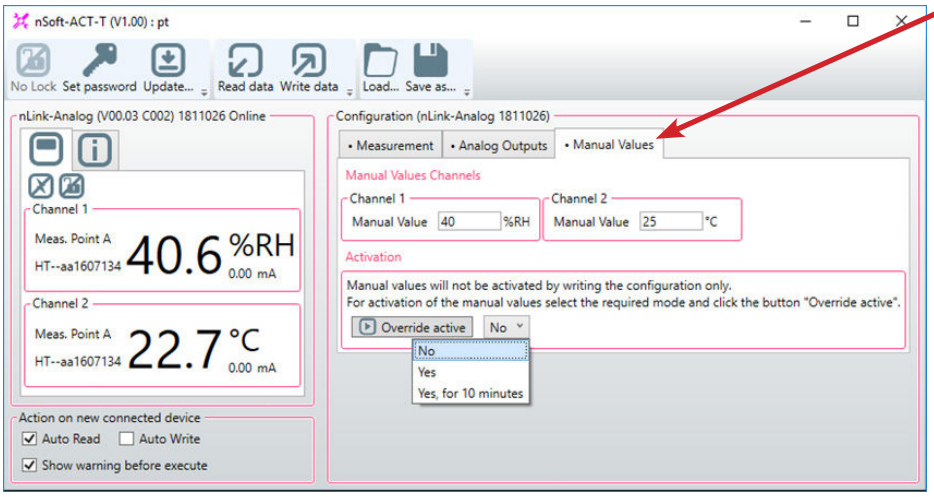
Setting the Modbus communication parameters

Store configuration with Write Data:

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

The configuration remains as long as no other nLink+ 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.

9.7 MANUAL VALUES

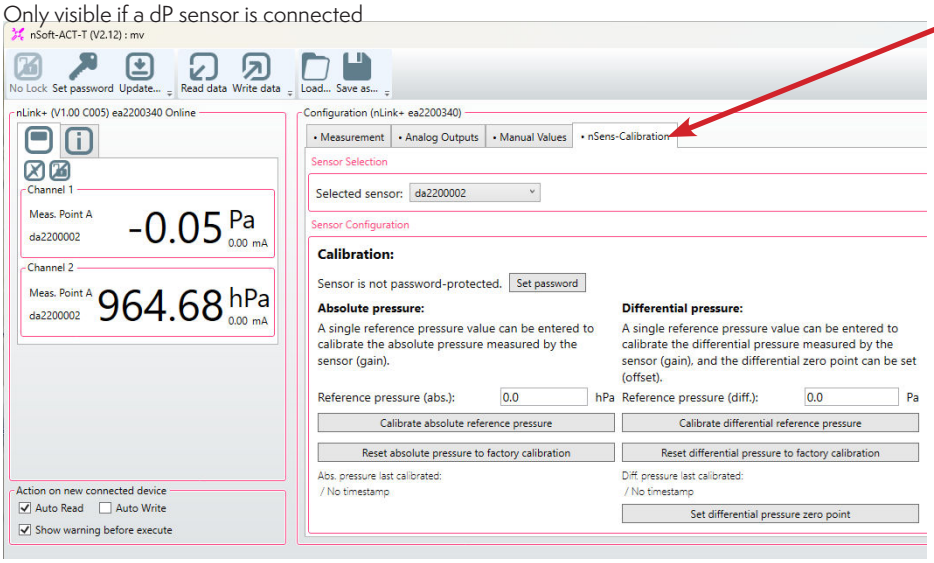


Program fixed values for Simulation and loop checks.
Choose Override mode and "Write Data" for activation.
As long as manual values are active the sensor values are not displayed.

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

9.8 SENSOR CALIBRATION

Only visible if a dP sensor is connected



Calibration menu to adjust sensors or to perform a zero point calibration.
The sensor to be adjusted must first be selected via the dropdown menu.

10. 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 +/-0,2°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.

10.1 SENSOR CABLES AND CONFIGURATION SET

nSens cable with end sleeves	nSens cable extensions	Configuration cable: nlink-USB & CA3
Connects nSens with nlink+	Extension cable between any connector and nSens.	Configuration cable for nLink+ to Windows PC. Software available for download
		
260 1080 nSens-cable 5m 260 1079 nSens-cable 10m 260 1078 nSens-cable 30m 260 1225 nSens-cable 60m 260 1226 nSens-cable 100m	260 1201 nSens Extension 2m 260 1136 nSens Extension 5m 260 1986 nSens Extension 10m 260 1987 nSens Extension 30m	260 1818 nlink-USB-CA3 (complete set) Single items: 260 1755 CA-3 adapter 260 1075 nlink USB cable

10.2 ACCESSORIES NSENS HT

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 +/- 0.3 % rh

Weight: 90 g

Art. No. 1117847
SAL-SC Sensor Check Set
Art. No. 1117841
Empty case for SAL-SC

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

Art. No. 2601143 Adapter SAL-SC for nSens probes

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 diameter 13 mm

Weight: 5 g

Material:
Thermoplastic resin

Art. No. 1111302
Styrofoam box

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

Technical information and other information subject to change without notice