

|                     |                           |              |    |   |
|---------------------|---------------------------|--------------|----|---|
| <b>Product</b>      | QuantaDat / nSens         |              |    | <b>novasina</b><br>The Art of Precision Measurement |
| <b>Document</b>     | Overview - Technical data |              |    | Novasina AG<br>CH-8853 Lachen                       |
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# ***QuantaDat / nSens***

## ***Measuring system with multi-sensor technology***



***For remote digital sensors in process applications***

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### QuantaDat transmitter

Modular transmitter used as display and signal output unit with 4 sensor channels. The sensors are recognised automatically and the measuring channels can be assigned and set up within the configuration menu. The integral processor allows the display and output of calculated climatic parameters. An RS-485 interface is built-in as standard and BUS modules can be assembled optionally. The QuantaDat transmitter is also available in a version with two additional integrated relay switches.



Art. no. 2601087

- Graphical display with LED backlight
- Menu navigation using front keypad with 3 buttons
- Modular configurable (e.g. with BUS modules)
- Several sensor channels active at once
- 4 scalable and adjustable analogue outputs
- Simulation of fixed measurement values (override)
- Integrated climatic parameter processor
- Password protection for all settings
- Permanent device function control

### Technical data

|                              |  |                       |                         |
|------------------------------|--|-----------------------|-------------------------|
| <b>Transmitter</b>           | <b>QuantaDat 4 channel multi-sensor system</b>   |                       |                         |
| Power supply                 | 24V +/- 15% AC or DC (galvanic isolated)<br>Maximum ratings / permissible voltage range:<br>DC: 19..39V<br>AC: 19..27.6V   |                       |                         |
| Power consumption            | max. approx. 3W  |                       |                         |
| Display                      | Graphical display with LED backlight, resolution 128 x 64 Pixel  |                       |                         |
| Display resolution           | Humidity   | 0.1% RH               |                         |
|                              | Temperature  | 0.1 °C                | 0.1 °F                  |
|                              | Mixing ratio   | 0.001 g/kg            | 0.01 gr/lb              |
|                              | Water vap. partial pressure  | 0.01 mbar             |                         |
|                              | Dew point temperature  | 0.1 °C td             | 0.1 °F td               |
|                              | Specific enthalpy  | 0.1 kJ/kg             | 0.1 Btu/lbm             |
|                              | Absolute humidity  | 0.01 g/m <sup>3</sup> | 0.01 gr/ft <sup>3</sup> |
| Analogue outputs (4 outputs) | 4 scalable analogue outputs, current 0/4..20mA or voltage 0/2..10V<br>Load (I): min. 0 Ω / max. 500 Ω<br>Load resistance (U): min. 10 kΩ / max. ∞ Ω<br>The analogue outputs are protected against external voltage of ±40V<br>A device with voltage input which is connected to the analogue output must tolerate minimum 15V input voltage. |                       |                         |
| Digital outputs              | RS-485 ( <i>Modbus-RTU under development</i> )<br>2 relay contacts, switching power <=50V/2A/60W ( <i>only versions with relay</i> )   |                       |                         |
| Housing material             | ABS - lid blue RAL 5014, bottom grey RAL 7035  |                       |                         |
| Protection class             | IP65   |                       |                         |
| Soldering material           | lead free (RoHS compliant)   |                       |                         |
| Working temperature          | 0 to 50 °C   |                       |                         |
| Storage temperature          | -10 to 60 °C (non-condensing)  |                       |                         |
| CE-/EMC                      | Safety: IEC 61010-2-051:2003<br>EMC: IEC 61000-6-2:2005, EN 61000-6-2:2005<br>IEC 61000-6-3:2006, EN 61000-6-3:2007  |                       |                         |

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## Electrical installation

Recommended wiring installation:

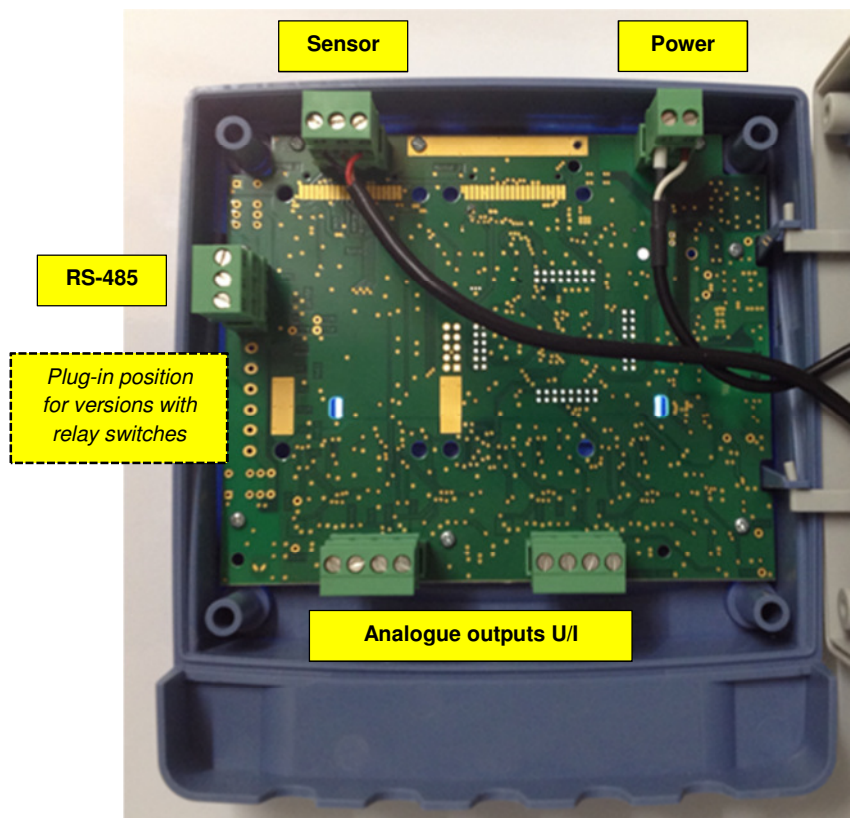
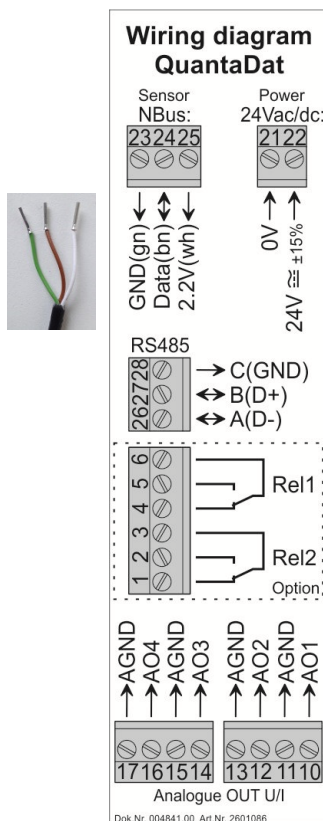
|                  | <b>Cable specification</b>   | <b>Comment</b>  |
|------------------|--|---|
| Power supply     | Single-cable of 0.5...0.75 mm <sup>2</sup> (22 ... 18 AWG) with PVC isolation or equivalent 2-fold cord cable.                         | Clamping range of connecting terminal:<br>0.2 - 2.5 mm <sup>2</sup> |
| Signal outputs   | Single cable of 0.25...0.5 mm <sup>2</sup> (24 ... 20 AWG) twisted with screen & PVC isolation or equivalent 2/4/6/8 multi-core cable. | Clamping range of connecting terminal:<br>0.2 - 2.5 mm <sup>2</sup> |
| RS-485 interface | 1 twisted pair + C(GND) connection recommended, screened   | acc. to EIA-485   |
| Relay contacts   | Cable dimensions dependant on the switching power needed   | only for version with relay   |

**Note:** cable specifications depend on the installation and have to be defined by the designer or installer.

**EMC:** if environmental conditions vary from the standards (see page 2) it is recommended to take the following measures:

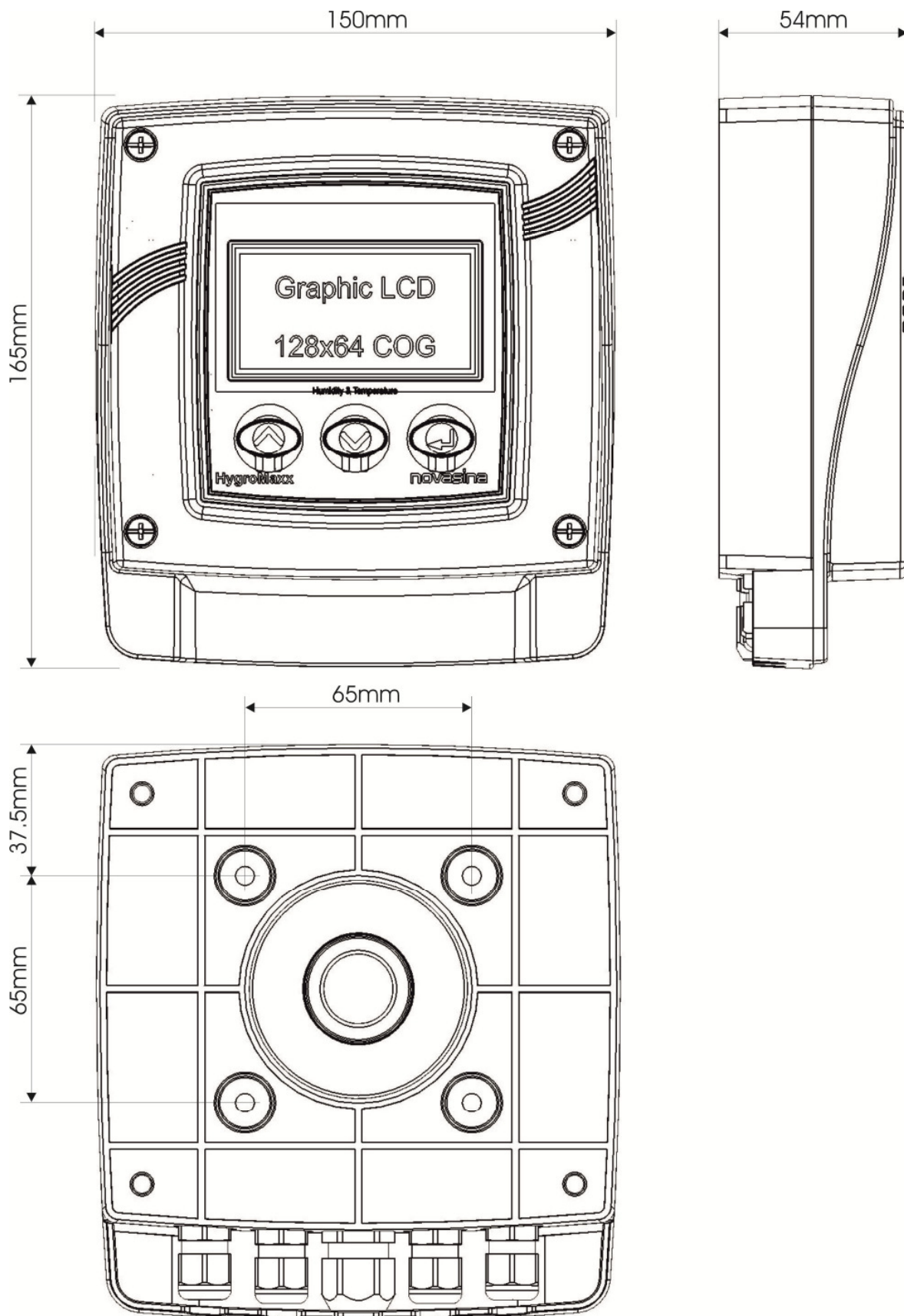
- Wires emitting interference must be separated from measurement and analysis units
- Parallel guidance of measurement- and electrical power-cables should be avoided
- Measurement cables must be screened to ground earth
- Cables not screened should be in twisted pairs and should be kept as short as possible

Wiring diagram:



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## Dimensions



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## Probes for QuantaDat

### Humidity- Temperature probe nSens-HT-ENS

Digital nSens-HT (Humidity/Temperature) probe with resistive-electrolytic humidity sensor and NTC temperature sensor. The calibration points are stored directly on the probe. The verification/calibration is done with the calibration software nSoft-CAL. The plug-in probe can be replaced quickly and easily.



- Intelligent probe with internal calibration point storage
- High measurement accuracy
- Linear response over full working range
- Factory calibration including certificate
- Verification/calibration with nSoft-CAL software

Art. no. 2601087

### Technical data

| Sensor type   | nSens-HT-ENS<br>Resistive-electrolytic humidity measurement<br>NTC temperature measurement |                                       |                       |
|---|--|---------------------------------------|-----------------------|
| Measurement ranges  | Humidity   | 0 ... 100% RH                         |                       |
|   | Temperature  | -20 ... +80 °C                        |                       |
| Measurement accuracy<br>incl. reproducibility<br>and hysteresis | Humidity*  | 15 ... 30 °C                          | typically +/- 0.5% RH |
|   |  | 0 ... 50 °C                           | typically +/- 1.0% RH |
|   | Temperature  | -20 ... +80 °C                        | typically +/- 2.5% RH |
|   |  | 0 ... +70 °C                          | typically +/- 0.1K    |
| Number of calibration points                                    | Humidity   | 13 points over full measurement range |                       |
|   | Temperature  | 2 points over full measurement range  |                       |
| Housing material  | PVDF black   |                                       |                       |
| Mechanical sensor protection                                    | Standard filter with "Poroplast" insert  |                                       |                       |
| Working temperature   | -20 to +80 °C  |                                       |                       |
| Storage temperature   | -10 to +60 °C (non-condensing)   |                                       |                       |

\* The humidity accuracy refers to the nominal values of Novasina humidity standards, which refer to the Greenspan Report.

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### Temperature probe nSens-T-NBS

Digital nSens-T temperature probe with NTC temperature sensor. The calibration points are stored directly on the probe. The verification/calibration is done with the calibration software nSoft-CAL. The plug-in probe can be replaced quickly and easily.



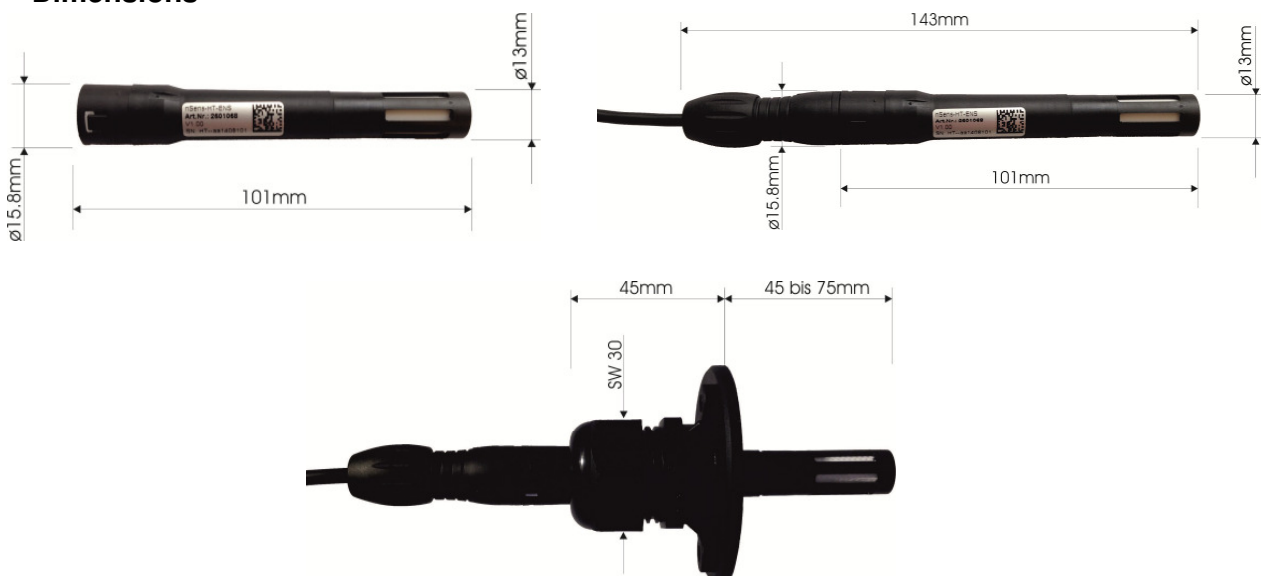
- Intelligent probe with internal calibration point storage
- High measurement accuracy
- Linear response over full working range
- Factory calibration including certificate
- Verification/calibration with nSoft-CAL software

Art. no. 2601084

### Technical data

|   |   |                                |  |
|---|---|--------------------------------|--|
| <b>Sensor type</b>  | <b>nSens-T-NBS</b><br>NTC temperature measurement |                                |  |
| Measurement range   | Temperature                                       | -20 ... +80 °C                 |  |
| Measurement accuracy<br>incl. reproducibility<br>and hysteresis | Temperature                                       | 0 ... +70 °C<br>-20 ... +80 °C | typically +/- 0.1K<br>typically +/- 0.2K |
| Number of calibration points                                    | 2 points over full measurement range              |                                |  |
| Mechanical sensor protection                                    | Plastic protection cap                            |                                |  |
| Housing material  | PVDF black  |                                |  |
| Working temperature   | -20 to +80 °C                                     |                                |  |
| Storage temperature   | -10 to +60 °C (non-condensing)                    |                                |  |

### Dimensions



|                     |                           |              |    |   |
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### Cable for nSens-HT / nSens-T



#### nSens cable 3\*0.25mm<sup>2</sup>

- Robust
- Halogen free
- With fast plug-in plug for nSens

nSens cable 30 meters - Art. no. 2601078

nSens cable 10 meters - Art. no. 2601079

nSens cable 5 meters - Art. no. 2601080

### Technical data

|   | Composition   | Characteristics   |
|---|---|---|
| <b>Temperature range</b><br>-40 °C to +90 °C<br><br><b>Working peak voltage</b><br>(not for high voltage installations)<br>>0,14 mm <sup>2</sup> = 500 V<br><br><b>Testing voltage</b><br>>0,14 mm <sup>2</sup> = 1200 V<br><br><b>Isolation resistance</b><br>min. 2 GOhm x km<br><br><b>Min. bending radius</b><br>ca. 7,5x cable-ø | <ul style="list-style-type: none"> <li>• Cu-cord blank, fine wiring according DIN VDE 0812 at 0,34 mm<sup>2</sup> cable composition 7x0,25 mm</li> <li>• PE-isolation mantle, mixing type L/MD according DIN VDE 0819-103 / DIN EN 50290-2-23</li> <li>• Cord identification according DIN 47100 without colour replication</li> <li>• Wires with optimal length of twist stranded in layers</li> <li>• Sheath material cross-linked Polyolefin, black</li> <li>• nSens plugs soldered</li> <li>• Wire termination</li> </ul> | <ul style="list-style-type: none"> <li>• Ozone-resistant according to EN 50396</li> <li>• Weather- and UV-resistant according to HD605/A1</li> <li>• Halogen free according to EN 50267-2-1, EN 60684-2</li> <li>• Acid- and leach-resistant according to EN 60811-2-1</li> <li>• Flame retardant according to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1</li> <li>• Very robust and abrasion-resistant mantle according to DIN EN 53516</li> <li>• Short-circuit-proof to +200 °C with double isolation, short-circuit temperature 200 °C/ 5s</li> <li>• Hydrolysis- and ammonia-resistant</li> </ul> |

**CE** = the product is compliant to the EC low voltage directives 2006/95/EC.

### Dimensions / Plug



### Wire termination / Core colours



|                     |                           |              |    |   |
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### **Mounting kit (nSens probe fixing)**

Art. no. 2601083

consisting of wall mounting clip & duct mounting flange:

#### **Wall mounting clip**



#### **Dimensions**



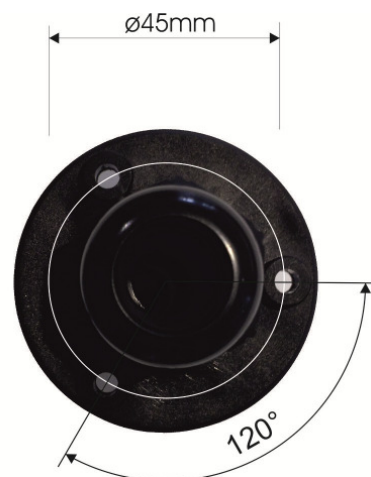
#### **Technical data**

|                         |                                       |
|-------------------------|---------------------------------------|
| Nominal diameter        | 15 mm                                 |
| Diameter clamping range | 14.3... 16.8 mm                       |
| Material                | Polyamide P12 - colour black RAL 9011 |
| Working temperature     | -20 to +80 °C                         |
| Storage temperature     | -10 to +60 °C (non-condensing)        |

#### **Duct mounting flange**



#### **Dimensions**



#### **Technical data**

|                              |                                |
|------------------------------|--------------------------------|
| Diameter clamping range      | 9 ... 14 mm                    |
| Seal burst strength          | up to 3 bar                    |
| Wrench size screw connection | 30 mm                          |
| Material                     | PP Verton 25% GF black         |
| Working temperature          | -20 to +80 °C                  |
| Storage temperature          | -10 to +60 °C (non-condensing) |