



Electronic data logger are used to measure and log physical units, such as temperature, humidity, pressure, CO₂.

The series **OPUS 20** are featured with a LAN interface, as well as USB e.g. for real time data recording.

By standard, the OPUS 20 is powered by its batteries or via USB. Optional POE versions are available, offering Power over Ethernet.



Typical Applications:

- Climate monitoring in buildings
- Control of all climate - sensitive production processes:
- In electronic data - processing centres, control cabinets, wind turbines,
- in calibration laboratories, storage rooms and museums

Functions / Model selection guide:



| Funktion | OPUS 20-THI | OPUS 20-THIP | OPUS 20-TCO |
|---|-------------|--------------|-------------|
| Order-Code without POE | 8120.00 | 8120.10 | 8120.20 |
| Order-Code with POE | 8120.01 | 8120.11 | 8120.21 |
| Power supply battery | • | • | • |
| Power supply USB | • | • | • |
| Power supply LAN (POE) | Optional | Optional | Optional |
| Measured data storage | 3,200,000 | 3,200,000 | 3,200,000 |
| Typical battery life | >1 Jahr | >1 Jahr | >4 Monate |
| LC-display | • | • | • |
| One-button operation | • | • | • |
| 1-point calibration by user | • | • | • |
| °C/°F switchable | • | • | • |
| Optical/acoustical alarm | • | • | • |
| Date/time | • | • | • |
| Records MIN/MAX/AVG | • | • | • |
| SmartGraph3 evaluation software | • | • | • |
| Measurement Categories | OPUS 20-THI | OPUS 20-THIP | OPUS 20-TCO |
| Temperature: | | | |
| Air temperature | • | • | • |
| Humidity: | | | |
| Relative humidity | • | • | • |
| Absolute humidity | • | • | • |
| Dew point temperature | • | • | • |
| Air pressure: | | | |
| Barometric air pressure | | • | |
| Relative air pressure | | • | |
| CO₂ Concentration | | | |
| Carbon dioxide | | | • |
| Functions of the PC-Software SmartGraph3 | | | |
| • Graphical representation | | | |
| • Numerical data (measured value display) | | | |
| • Print function | | | |
| • Export function for measured values (e.g. Excel) | | | |
| • Gathered printouts of all measurement sites | | | |
| • User administration | | | |
| • Administration of up to 255 measuring devices OPUS 20 | | | |



Technical data - all OPUS 20 models with internal sensors:

| | |
|------------------------------|---|
| Dimensions: | Length 166 mm x Width 78 mm x Depth 32 mm |
| Measurement rate: | 10/30 s, 1/10/12/15/30 min, 1/3/6/12/24 h |
| Storage rate: | 1/10/12/15/30 min, 1/3/6/12/24 h |
| Construction: | Plastic housing |
| Data storage: | 16 MB, 3,200,000 measured values |
| Interfaces: | USB, LAN |
| LC-display: | Size 90 x 64 mm |
| Weight: | Approx. 250 g |
| Power supply: | 4 x LRG AA Mignon, USB (optional: POE) |
| Operating temperature range: | -20...+50°C |
| Operating humidity range: | 0...95% r.F. <20 g/m ³ (non condensing) |
| Included in delivery: | PC-Windows Software Smartgraph 3 for graphical and numerical representation of measured values; instruction manual; USB data cable; batteries |
| Optional accessories: | Art.Nr. 8120.SV1 : Ersatzbatterien für OPUS 20 Art.Nr. 8120.NT : USB-Steckernetzteil 110...230 VAC |

**OPUS 20-THI:
 Temperature and Humidity**

Technical data of the internal sensors:



| Temperature | |
|-------------------|-------------------------------------|
| Principle: | NTC |
| Range: | -20...+50°C |
| Accuracy: | ±0.3°C (0...40°C, otherwise ±0.5°C) |
| Resolution: | 0.1°C |
| Relative Humidity | |
| Principle: | capacitive |
| Range: | 10...95% r. h. |
| Accuracy: | ±2% r. h. |
| Resolution: | 0.5% r. h. |

**OPUS 20-THIP:
 Temperature, Air pressure and Humidity**

*Perfect for
 Calibration Laboratories*

Technical data of the internal sensors:



| Temperature | |
|-------------------|-------------------------------------|
| Principle: | NTC |
| Range: | -20...+50°C |
| Accuracy: | ±0.3°C (0...40°C, otherwise ±0.5°C) |
| Resolution: | 0.1°C |
| Relative Humidity | |
| Principle: | capacitive |
| Range: | 10...95% r. h. |
| Accuracy: | ±2% r. h. |
| Resolution: | 0.5% r. h. |
| Air Pressure | |
| Range: | 300...1300 mbar (hPa) absolute |
| Accuracy: | ±0.5 mbar (700...1100 mbar @25°C) |
| Resolution: | 0.1 mbar (hPa) |



OPUS 20-TCO: Temperature, CO₂-concentration and Humidity

The amount of carbon dioxide had been virtually constant at 280 ppm (particles per million) – i.e. 280 gas molecules per million air molecules – the last ten thousand years. However in recent years, this measured value has been increasing rapidly at approx.. 2% per year.

A high level of CO₂ in the air within a room causes headaches, tiredness and lack of concentration. The regulation on CO₂ concentration was established in order to evaluate IAQ (Indoor Air Quality). Normal atmospheric air in so-called “clean air areas” has a level of 360 ppm and approx.. 500 ppm in urban areas. The limit of 1,000 ppm (“Pettenkofer Figure”) is still seen as being adequate indoor-air quality, which is especially important when regarding all meetings and conference rooms, as well as schools and open-plan offices.

As a guideline for school rooms in the USA the limit of 1,000 ppm applies; for workplaces the occupational exposure limit is 5,000 ppm.

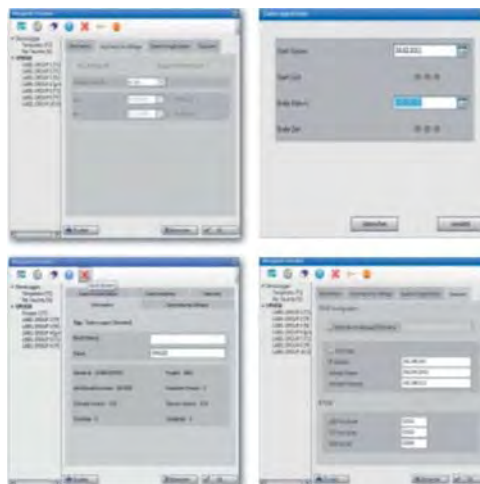
Technical data of the internal sensors:

| Temperature | |
|----------------------------------|---|
| Principle: | NTC |
| Range: | -20...+50°C |
| Accuracy: | ±0.3°C (0...40°C, otherwise ±0.5°C |
| Resolution: | 0.1°C |
| Relative Humidity | |
| Principle: | Capacitive |
| Range: | 10...95% r. h. |
| Accuracy: | ±2% r. h. |
| Resolution: | 0.5% r. h. |
| CO ₂ (carbon dioxide) | |
| Principle: | NDIR |
| Range: | 0...5,000 ppm (Particles per million) |
| Accuracy: | ±50 ppm +3 measured values @20°C @1013 mbar |
| Resolution: | 1 ppm |
| Long-term stability: | 20 ppm / year |

SmartGraph3:

PC-Software

Included in
standard delivery



With **SmartGraph3** the gathering of measured data is simple and as intuitive as possible:

- An OPUS 20 data logger is automatically recognised and added as a „network device“.
- In addition to its data-readout function, the software possesses a recording mode that enables parallel recording to be displayed on the computer.
- The data from any desired number of OPUS 20 devices can be read out simultaneously.
- The zoom function allows for quick analysis of critical time periods.
- The exporting of measured data in CSV format enables it to be imported into Excel.
- The device configuration can be printed out in order to check installation parameters.
- Alarm limits – like the measured data – are chronologically managed at various times so that when changes in alarm limits occur, they can be retraced.
- Automatic data readout of all measured data is supported.



The SmartGraph3 software is not only supplied on CD or DVD, the software can also be downloaded on our internet site. In this way, the user can get always the latest version:

<http://www.druck-temperatur.de/opus20/smartgraph3.zip>