

OPUS20 LAN-Datalogger Future Inside



a passion for precision · passion pour la précision · pasión por la precisión · passione per la precisione · a



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 **Lufft**

The world's toughest
legal guidelines: 21
CFR Part 11

*The pharmaceutical
industry trusts in Lufthansa.*

Rule out Fatal
Consequences

Keep Threshold Values in Check

Today's industrial data acquisition generally takes place in real time. The conditions and process environments of measured values regarding room climate change slowly, but are, nevertheless, permanent. Therefore, modern data recording systems that are implemented in this industry have to be reliable like Lufft products. Our products feature the following characteristics: modular design, a flexible and expandable sensor archive, freely programmable representation of measured values, as well as a monitoring system that is precisely tailored to the respective requirements and reacts as quickly as possible to potential nonconformities by setting off an alarm.

The performance and quality of the whole data acquisition system is determined by **measurement**. Each application requires the ideal sensor for the job, and for this reason we offer several sensors – according to specification and area of application – for identical measuring categories. While a customer, for example, implicitly requires sensors in a steel housing, another application might necessitate the need for a differential pressure sensor with display. Due to our experience in various projects we are not only able to recommend, when it comes to sensors, the best possible solution for each application to our customers, but we also possess a variety of alternatives so that each user can find the ideal product.

Measurement

Qualification completes the successful system implementation procedure; **calibration** ensures an error-free and long-term precise operation. In summary, the best solution is based on two conditions: the first of which is the complete information of the customer's requirements, the other being a flexible system representing the customer's demands. For more detailed information concerning our procedures and what measurements you can yield, please consult our technical description. At the same time we provide a long-term traceability of processes.

Qualification and Calibration

Data **storage** naturally takes place in the central computer instead of at its collection point in real time. What happens if the system crashes? In cases of maximum data security we have integrated data logger modules in the measurement chain. These are situated between the sensor and the central computer and represent a type of "Ham-mock". If the central computer does not receive all the data, then the data can be read "offline" and transferred from the data loggers.

Storage and Transfer

Representation and Evaluation

Representation and **evaluation** is carried out by the software's client/server structure, allowing users to access and obtain relevant data.

Nowadays modern data logging systems are independent of measurement rates, or rather measurement clocks. The data loggers establish an average value per sensor according to the user's requirements. With particle sensors this is the total sum per time unit.

Alarm

For many pharmaceutical and clean room applications the most important link in the chain is the **alarm**. Ultimately, it is imperative to act immediately to any possible deviations and take appropriate action.

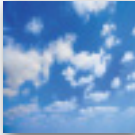
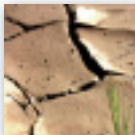
It is essential, for example, that processes such as "long-term stability tests" or clean room production be put right straight away if an error in the process chain arises.

In industry, data **transfer** is sent analogically to a computer in the network. Due to the technical connection with the IP Network, data recording sites each receive an IP address and are linked by means of existing network architecture.





OPUS20 Multiple Functions with Internal Sensors



Functions	THI 8120.00	THIP 8120.10	TCO 8120.20
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 year	> 1 year	> 1 year
LC-display	■	■	■
One-button operation	■	■	■
1-point calibration by user/operator	■	■	■
°C/°F switchable	■	■	■
Optical/acoustical alarm	■	■	■
Date/time	■	■	■
Records Min/Max/Avg.	■	■	■
SmartGraph 3 evaluation software	■	■	■
Measurement Categories	THI 8120.00	THIP 8120.10	TCO 8120.20
Temperature			
Air temperature	■	■	■
Humidity			
Relative Humidity	■	■	■
Absolute humidity	■	■	■
Dew point temperature	■	■	■
Air pressure			
Barometric air pressure		■	
Relative air pressure		■	
CO₂ Concentration			
CO ₂ Concentration			■
Function Table Software	THI 8120.00	THIP 8120.10	TCO 8120.20
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	■	■	■

THI



THIP



TCO



OPUS20 THI

Temperature and rel. Humidity



Opus20 Temperature and Relative Humidity			Order-No.
Opus20 Temperature / rel. Humidity (neutral without Lufft-Logo 8120.00N)			8120.00
Opus20 Temperature / rel. Humidity POE (neutral without Lufft-Logo 8120.01N)			8120.01
Technical data	Dimensions	length. 166mm, width 78 mm, depth 32mm	
	Measurement rate	10/30s, 1/10/12/15/30min, 1/3/6/12/24h	
	Construction	plastic housing	
	Operation life (battery)	> 1 Year	
	Data Storage	16 MB, 3,200,000 measured values	
	LC-Display	size 90x64 mm	
	Weight	approx. 250g	
	Included in delivery	PC-Windows Software SmartGraph 3 for graphical and numerical representation of measured values / instruction manual/ data cable / battery	
	Interface	USB, LAN	
	Storage rate	1/10/12/15/30min, 1/3/6/12/24h	
	Power supply	4 x LRG AA Mignon, USB, (POE opt.)	
	Max. operation temperature	-20...50°C	
	Max. rel. humidity	0...95%r.h.<20g/m³ (non condensing)	
	Principle	NTC	
	Measurement range	-20 ... 50 °C	
Temperature	Accuracy	±0,3°C (0...40°C), otherwise 0,5°C	
	Resolution	0,1°C	
	Principle	capacitive	
	Measurement range	10...95%r.h.	
Rel. humidity	Accuracy	±2%r.h.,	
	Resolution	0,5%r.h.	
Accessories	4 x LRG AA Mignon		8120.SV1

For climate monitoring in buildings and the control of all climate-sensitive production processes: in electronic data-processing centres, control cabinets, wind turbines, storage rooms and museums.

The Opus20 runs on batteries or powered via USB. Alternatively, you have the possibility to power the device via POE (Power over Ethernet).



For high-precision temperature and humidity measurements



The only LAN datalogger with built-in sensors and the highest precision



Finally available: Lufft's precise weather station for interior applications – an essential data collector for all calibration laboratories.

OPUS20 THIP Temperature, Rel. Humidity, Air Pressure

OPUS20 THIP Temperature, Relative Humidity, Air Pressure			Order-No.
OPUS20 THIP Temperature / Rel. Humidity / Air Pressure (neutral without Lufft-Logo 8120.10N)			8120.10
OPUS20 THIP Temperature / Rel. Humidity / Air Pressure POE (neutral without Lufft-Logo 8120.11N)			8120.11
Technical data	Dimensions	length. 166 mm, width 78 mm, depth 32mm	
	Measurement rate	10/30s, 1/10/12/15/30min, 1/3/6/12/24h	
	Construction	plastic housing	
	Operation life (battery)	> 1 Year	
	Data Storage	16 MB, 3,200,000 measured values	
	LC-Display	size 90x64 mm	
	Weight	approx. 250g	
	Included in delivery	PC-Windows Software SmartGraph 3 for graphical and numerical representation of measured values / instruction manual/ data cable / battery	
	Interface	USB, LAN	
	Storage rate	1/10/12/15/30min, 1/3/6/12/24h	
	Power supply	4 x LRG AA Mignon, USB, (POE opt.)	
	Max. operation temperature	-20...50°C	
	Max. rel. humidity	0...95%r.h.<20g/m³ (non condensing)	
	Max. altitude	10,000 m above sea level	
Temperature	Principle	NTC	
	Measurement range	-20 ... 50 °C	
	Accuracy	±0,3°C (0...40°C), otherwise 0,5°C	
	Resolution	0,1°C	
Rel. humidity	Principle	capacitive	
	Measurement range	10...95%r.h.	
	Accuracy	±2%r.h.,	
	Resolution	0,5%r.h.,	
Air pressure	Measurement range	300 ... 1300 hPa abs.	
	Accuracy	700 ... 1100mbar at 25°C ±0,5 hPa	
	Resolution	0,1 hPa	
Accessories	4 x LRG AA Mignon		8120.SV1



For high-precision pressure measurements



Opus20 TCO

Temperature, Rel. Humidity, CO₂



Opus20 TCO / Temperature / Relative Humidity / CO ₂			Order-No.
Opus20 TCO / Temperature / Rel. Humidity / CO₂ (neutral without Lufft-Logo 8120.20N)			8120.20
Opus20 TCO / Temperature / Rel. Humidity / CO₂ POE (neutral without Lufft-Logo 8120.21N)			8120.21
Technical data	Dimensions	length. 166 mm, width 78 mm, depth 32 mm	
	Measurement rate	10/30s, 1/10/12/15/30min, 1/3/6/12/24h	
	Construction	plastic housing	
	Operation life (battery)	> 1 Year	
	Data Storage	16 MB, 3,200,000 measured values	
	LC-Display	size 90x64 mm	
	Weight	approx. 250g	
	Included in delivery	PC-Windows Software SmartGraph 3 for graphical and numerical representation of measured values / instruction manual/ data cable / battery	
	Interface	USB, LAN	
	Storage rate	1/10/30min, 1/3/6/12/24h	
	Power supply	4 x LRG AA Mignon, USB, (POE opt.)	
	Max. operation temperature	-20...50°C	
	Max. rel. humidity	0...95%r.F.<20g/m ³ (non condensing)	
	Max. altitude	10,000 m above sea level	
	Temperature		
	Principle	NTC	
	Measurement range	-20 ... 50 °C	
Rel. Humidity	Accuracy	±0,3°C (0...40°C), otherwise 0,5°C	
	Resolution	0,1°C	
	Principle	capacitive	
	Measurement range	10...95%r.h.	
CO₂	Accuracy	±2%r.h.,	
	Resolution	0,5%r.h.,	
	Principle	NDIR	
	Measurement range	0 ... 5,000 ppm	
	Accuracy	± 50 ppm +3 measured values at 20 °C and 1,013 mbar	
	Resolution	1 ppm	
	Long-term stability	20 ppm/a	
Accessories	4 x LRG AA Mignon		8120.SV1

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.

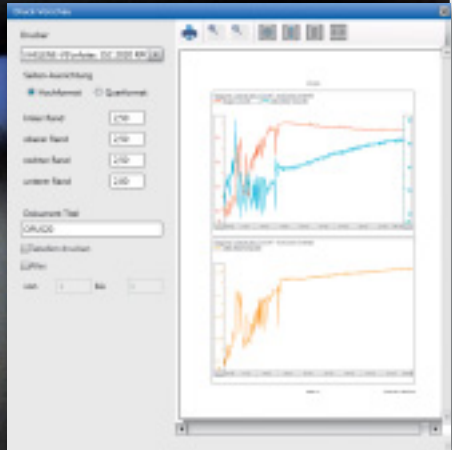
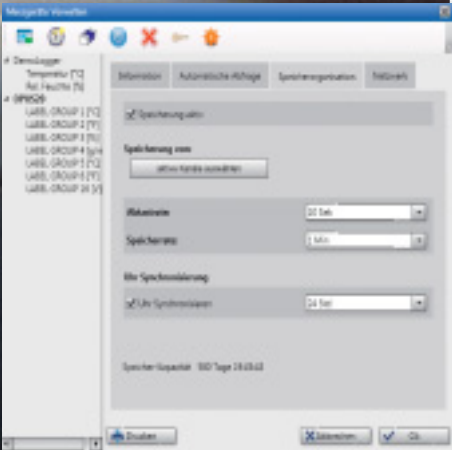
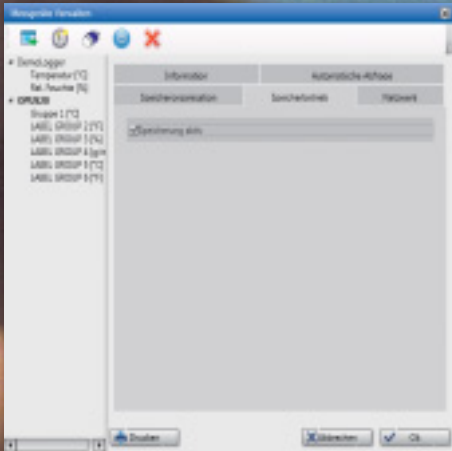
A high level of CO₂ in the air within a room causes headaches, tiredness and lack of concentration. The regulation on CO₂ concentration was established in order to evaluate IAQ (Indoor Air Quality). Normal atmospheric air in so-called 'clean air areas' has a level of 360 ppm and approx. 500 ppm in urban 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.



For high-precision CO₂ measurements

software



SmartGraph 3 Software



With SmartGraph 3 the gathering of measured data is simple and as intuitive as possible:

- An Opus20 datalogger 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 OPUS20 devices can be read out simultaneously.

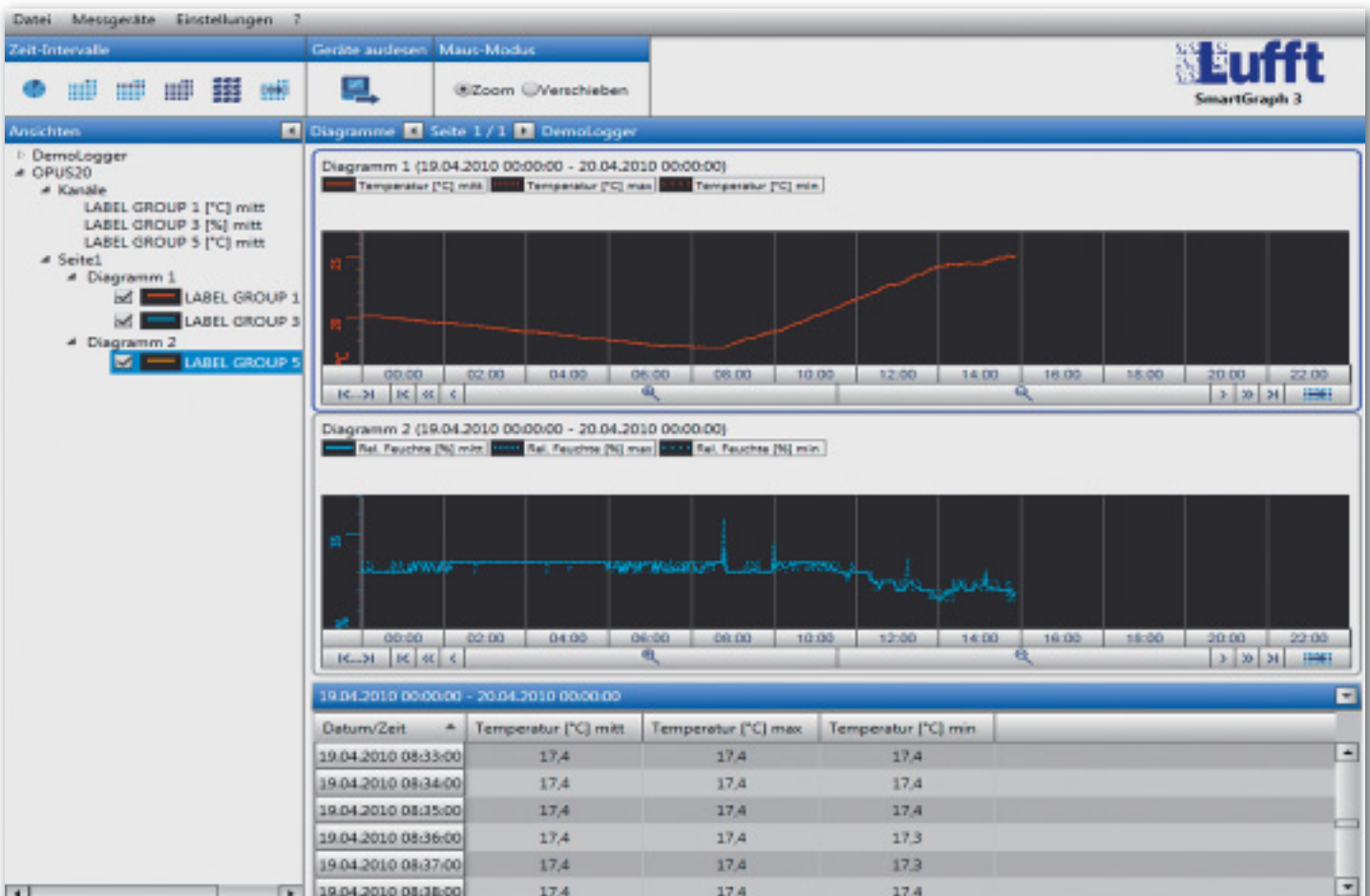
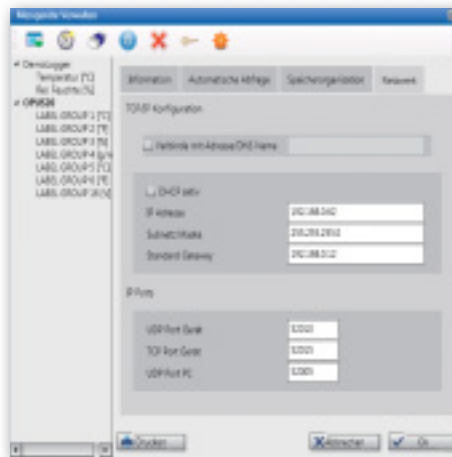
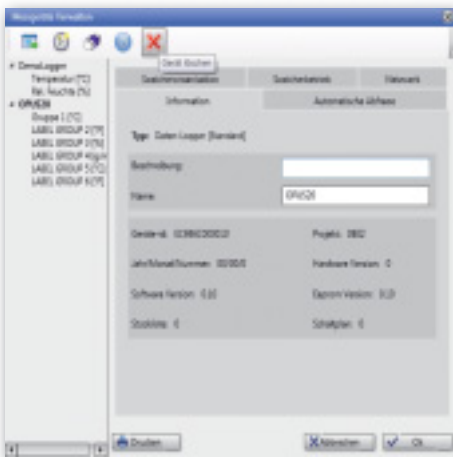
- The zoom function allows for quick analysis of critical time periods.

- 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.



Wherever measured data is transferred by means of LAN within industry, Lufft's OPUS20 datalogger family can be ideally applied everywhere!

With OPUS20, each ethernet capable datalogger can be provided with an IP address even in remot monitoring networks, where many dataloggers are in operation.

We see LAN, in connection with professional industrial applications with the highest reliability, as being the best possible data transfer method as opposed to WLAN applications that do not provide 100% data security during data transfer.

Furthermore, power can be supplied via LAN (PoE) with the built-in batteries operating as a UPS (uninterruptible power supply).

For these reasons this device concept corresponds to our development philosophy – "Future Inside"



Measurement



Storage and Transfer



Representation and Evaluation



Qualification and Calibration



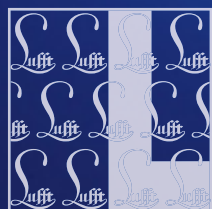
Alarm

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