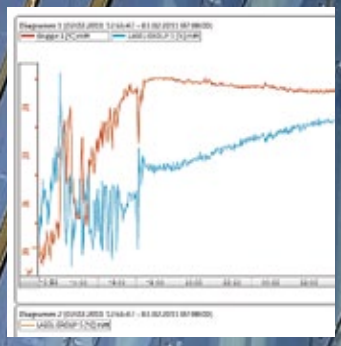
Industrial Measuring Devices

A Passion for Precision

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



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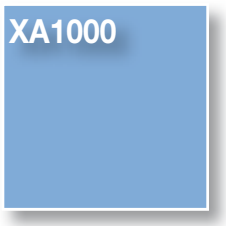
Lufft

The highly demanding and complex measuring tasks of today can only be mastered with high-precision devices. The special requirements placed on hand-held measuring devices are the result of the spectrum of physical measurements that are to be measured, as well as the decisions that are based on this measured data. Architects, specialists and surveyors, engineers, climate experts and many other professionals bear the responsibility for people, technology, goods and processes. Whether you are investigating or recording the temperature of a surface without contact, the dew point temperature of air on walls, the moisture content of oil, air pressure or air flow, Lufft hand-held devices are easy to operate and – above all – precise!

The **XA1000 hand-held-measuring device** is an all-round device that fulfils the highest demands. Various high-precision climatic measuring technology sensors can be alternatively connected. The measurement results are displayed in high resolution colour displays both in graphic and numeric formats. The integrated data recorder allows the measurement results to be transferred to a computer; for this purpose the Lufft software SmartGraph3 is ready and waiting.



The **XP Series** consists of hand-held measuring devices for specialists. The highest temperature precision combined with the most modern handling of measured data. This also applies to airflow, temperature and relative humidity, as well as CO2. The ideal hand-held measuring device for any measuring task. Available as of July 2013.

The **XC Series** rounds off the diverse range of hand-held measuring devices. A special option is the combination of temperature/ relative humidity with (infrared) surface temperature in order to identify areas affected by dampness e.g. in the walls of buildings. Available as of October 2013.

The **OPUS20 Dataloggers** are the stationary equivalent of the X-Series hand-held measuring devices. Many of the sensors offered can be used with both X-Series and OPUS20 Dataloggers. The devices are available with built-in sensors as well as with external sensors (intelligent) that can be connected. The OPUS20 are LAN capable and are configurated and analyzed using SmartGraph3.

The **Software**

SmartGraph3 manages and files measured data from both hand-held measuring devices and dataloggers. The managing of data can be carried out in real time (LAN datalogger) or also in cyclical readouts of the monitoring network. The configuration section of SmartGraph3 allows the measuring components to be setup for their respective applications. If the scope of operation of SmartGraph is not adequate for a special application, then we offer the optional **Software MCPS7** which fulfils all customer requirements up to and including customer-specific solutions.

Brand of the Century

As the only measurement technology company in its segment, Lufft was presented with this special award in 2012 as recognition for its uncompromising quality within the temperature measurement technology during its 100 year company history.

Calibration rounds off the quality requirements. Measuring devices without a measuring log lack traceability. The reference measurement in conjunction with reference norms ensures that your measuring device remains your reliable supplier of measured data throughout its entire period of use. Lufft is DKD-Labor certified for temperature, relative humidity, air pressure and airflow.

Lufft's hand-held measuring device product range is comprehensive and can be implemented in a full spectrum of various application areas. By using the table below you will be able to get an overview of the most important device features. This will enable you to find the right device from the various series that best meets your needs. Take your time and compare the range of functions offered with those of competitors' products and you will discover that Lufft is in a class of its own.
The physical measurements offered are the most important factor when selecting a hand held device for various applications. For this purpose we have compiled a concise table to be used as a general overview. More detailed information regarding our measuring devices and connectable sensors can be found in the technical descriptions on the following pages.

Functions

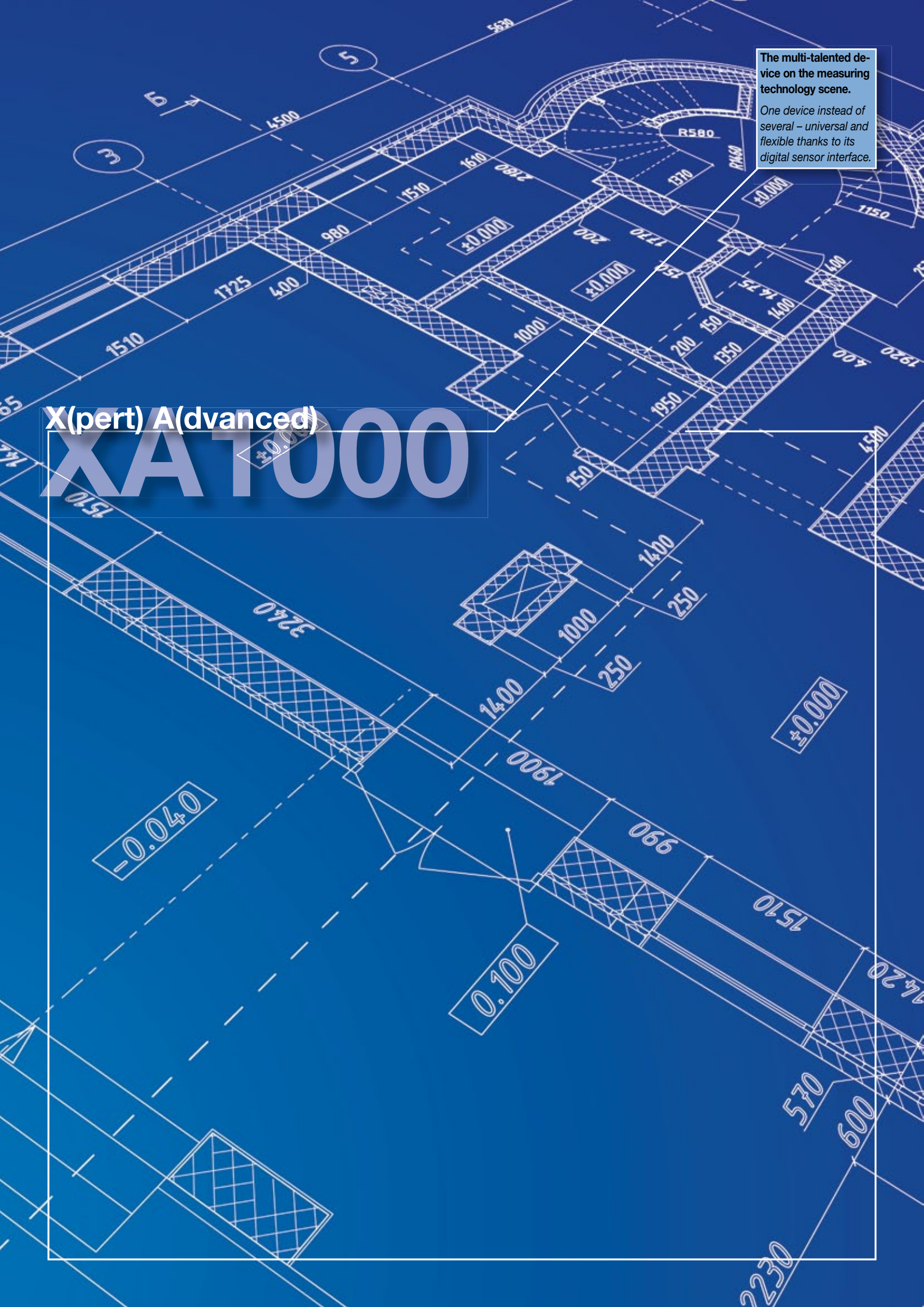
Functions and Features of Lufft Measuring Devices

Functions and Features	XA1000	XP100	XP200	XP400
Colour TFT-LCD (QVGA)	■	■	■	■
Legible in sunlight	■	■	■	■
Illumination dimmable	■	■	■	■
Touch operation	■	■	■	■
SmartGraph3 support (USB)	■	■	■	■
Firmware update possible online	■	■	■	■
Interface for SDI and digital sensors	■	■	■	■
Data storage (200 data files/1Mio measured values)	■	■	■	■
Low power design (>24h@4xAA)	■	■	■	■
Intuitive operation	■	■	■	■
Graphical user interface	■	■	■	■

Measurement Categories

What you can measure with Lufft measuring devices - now and in the future.

Measurement Categories		XA1000	XP100	XP200	XP400
Temperature (C° /°F)	Air temperature	■	■	■	■
	Surface temperature		■		
	Infrared temperature (non-contact)				
	Dew point temperature of the air	■			
	Dew point temperature on walls				
Humidity %r.h.	Air humidity	■		■	
	Absolute humidity	■		■	
Airflow (m^3/s)	Airflow	■			■
Pressure (hPa)	Absolute pressure	■			
	Air pressure	■			
CO_2	CO_2 concentration (ppm)				



The multi-talented device on the measuring technology scene.

One device instead of several – universal and flexible thanks to its digital sensor interface.

X(pert) A(dvanced)

XA1000

A complete package: the XA1000 is specially engineered for the requirements in the areas of heating/ air conditioning and ventilation to measure temperature, humidity and air flow.

Without a doubt the XA Series represents the advanced technology in Lufft's measuring device product range – a specially advanced device generation that utilises luminous colour displays and works with intelligent sensors. With the help of SmartGraph3, the recorded data taken from your measuring campaigns can be archived and analysed clearly.

The Smartphone for measurement technology – this was the requirement for the product development of the XA1000.

The ergonomic-optimised hand-held measuring device automatically recognises each connected sensor. The colour display reacts to your touch; alternatively the control pad below the display can be used to control the functions. In addition to the high-resolution representation of the measured values, the measuring curves can also be analysed in chronological sequence on the display.

As a special feature, the XA1000 comes with all possible calculations that can be determined with the help of the measured physical measurements: Dew point, wet-bulb temperature, absolute humidity, enthalpy and much more.

The Windows compatible SmartGraph3 software is included in delivery and in addition provides a clear representation and simple compilation of all measured data. This full-featured software can display measured values in both tables and graphs and possesses standard functions such as print and export, as well as zoom and scroll tools for specific, graphical analysis.

The saving of measuring campaigns is an important (functional) feature of portable hand-held measuring devices especially due to the frequent change of locations. The XA1000 permits the management of measured values at virtually any number of locations. This allocation of recorded measurements during analyses is made possible by SmartGraph3.

Robust technology in a sophisticated design.

Precision and reliabilty in one – made by professionals for professionals

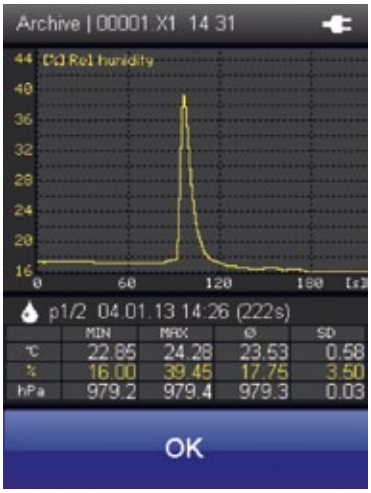
Measuring on the Go

- TFT colour display, legible in sunlight
- Capacitive touch operation
- Sampling rate 1s
- Data recording of up to 3 channels in parallel
- Graphical analysis with standard deviatzion representation
- Integrated Flash memory for 200 recording blocks with maximum length of 3 hours
- USB port for data transfer to SmartGraph3 (included in delivery)
- Various languages selectable
- Measuring temperature, humidity, airflow via external digital sensors
- Integrated air pressure measurement
- Numerous calculated measurements
- Online firmware update

Premium Segment XA1000

The best precision and greatest flexibility. The measurement all-rounder for professional applications – easy to handle and robust. Allows various intelligent sensors to be connected, sensors to be automatically recognised, saves measuring campaigns, allows all climate data to be calculated, and data to be archived on a computer and easily evaluated by means of SmartGraph3.

Hand-held Measuring Device XA1000 "All-in-ONE"			Order No.
"All-rounder" in the measurement technology segment. A universal measuring device for professionals with the inclusion of exchangeable SDI Sensors. Highly precise measurements of temperature and relative humidity. Integrated air pressure sensor, online/offline data recording. Equipment test certificate, can be calibrated.			**5900.00**
Technical data	Dimensions	170 x 62 x 34 mm	
	Weight	ca. 205g	
Storage conditions	Permitted ambient temperature	-20...+60°C	
	Permitted rel. humidity	<90%r.h. non-condensing	
Operating conditions	Permitted rel. humidity	<90%r.h. (20g/m³) non-condensing	
	Permitted altitude above sea level	4,000m	
Power supply	Power supply	4 Alkaline LR6 AA/NiMH 1.5...1.2V/USB 5V	
	Active power consumption	Approx. 400mW	
	Battery life passive	Approx. 1 year	
	Battery life active	min. 24 hours	
	Sensor power supply	5.5V ± 10% DC, max. 200mA	
Data storage	Integrated data storage	up to 200 gauges taking approx. 1 mill. values	
Interface	USB	Cable and SmartGraph3 software included in delivery	
Representation	Definition of measured values	2 decimal places	
Display	Control	Touch screen, capacitive	
	Technology	TFT, resolution 240x320, 65k colours, very good contrast due to Piezoresistive technology	
	Surface, toughened glass	Degree of hardness: 7, scratch-resistant	
Integrated air pressure sensor	Measuring range (full accuracy)	800...1,100mbar	
	Accuracy at 25°C,1013,25mb	0.5mbar	
	Long-term stability	type - 1mbar/year	
	Measurement resolution	0.024mbar	
	Measuring principle	Piezoresistive	
Calculated measurement categories for external temperature/humidity sensors	Mathematical: MIN/MAX/AVG/HOLD		
	Temperature (°C/°F)		
	Rel. humidity (%r.h)		
	Rel. humidity of ice (%r.h)		
	Water vapour density (absolute humidity) g/m³		
	Dew point temperature °C/°F		
	Frost point temperature °C/°F		
	Mixing ratio at saturation (100%) g/kg		
	Volume fraction of water vapour /mass fraction of water vapour (%)		
	Wet-bulb temperature °C/°F		
	Ice-bulb temperature °C/°F		
	Specific Enthalpy (mass of air) kJ/kg		
	Saturation vapour pressure above ice/water (hPa)		
	Vapour particle pressure (hPa)		
	Air density kg/m³		
Calculated measurement categories for external airflow sensors	Operating airflow volume - various units: (m³/s) (m³/h) (l/min)		
	Standard airflow volume: DIN 1343 (°C, 1013,25hPa), ISO 2533 (15°C, 1013,25hPa), DIN 1945 (20°C, 1013,25hPa)		
	Various units: (m³/s), (m³/h), (l/min)		
Compatibility	Sensor/probe: all SDI/digital sensors (temperature, humidity, SDI airflow, air pressure integrated		



Compatible sensors for XA1000		Page
Temperature/ humidity	digital TFF20	18
	Allround SDI	18
	4 mm diameter SDI	19
	High temperature SDI	19
	Sintered stainless steel filter	20
Current/ temperature	SDI (0…2m/s)	21
	SDI (0…20m/s)	21

A high utility item combining elegant design with ease of use.

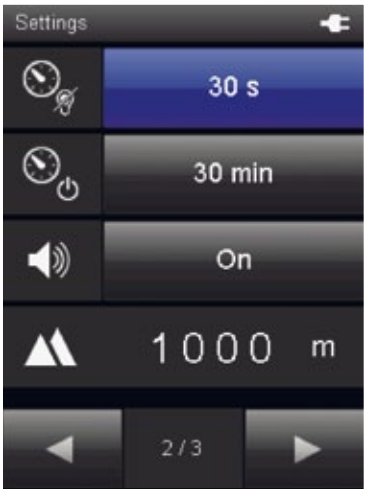
X(pert) P(rofessional) Series XP100

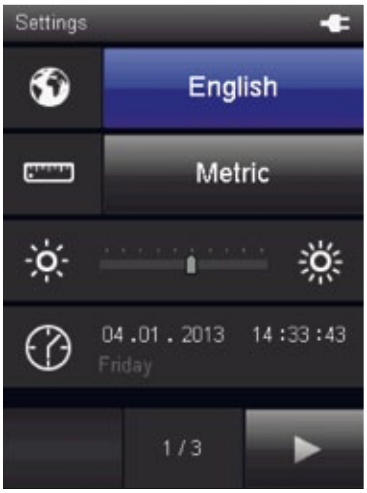
- TFT LCD , anti-glare colour display
- Capacitive touch screen
- Sampling rate 1s
- Data recording simultaneously on up to 3 channels
- Graphical analysis including standard deviation
- Integrated flash memory with space for up to 200 data blocks, or up to three hours continuous recording
- USB port for data transfer to Smartgraph 3 (included in delivery)
- Multilingual interface
- Numerous dimensions calculated
- Online firmware update

Hand-held measuring device XP100 for measuring temperature

High-precision hand-held device for PT100 temperature sensors. Suitable for measuring tasks requiring a high degree of precision. Mini USB port with software and online data collection. 25 languages available, precise to 0.05C. Solely for use with PT100 sensors.

Hand-held device XP100			Order No.
Very exact temperature measuring device (+/-0.05C). Ideal as a reference device and for comparison measurements in service or as part of ISO9000 tasks. We recommend a DAkkS calibration certificate for traceability to international standards.			**5810.00**
Technical data	Dimensions	170 x 62 x 34 mm	
	Weight	ca. 205g	
Storage conditions	Permitted ambient temperature	-20...+60°C	
	Permitted rel. humidity	<90%r.h. non-condensing	
Operating conditions	Permitted rel. humidity	<90%r.h. (20g/m³) non-condensing	
	Permitted altitude above sea level	4,000m	
Power supply	Power supply	4 Alkaline LR6 AA/NiMH 1.5...1.2V/USB 5V	
	Active power consumption	Approx. 400mW	
	Battery life passive	Approx. 1 year	
	Battery life active	min. 24 hours	
	Sensor power supply	5.5V ± 10% DC, max. 200mA	
Data storage	Integrated data storage	up to 200 data/approx. 1 Mio measured values	
Interface	USB	Cable and SmartGraph3 software included in delivery	
Representation	Definition of measured values	2 decimal places	
Display	Control	Touch screen, capacitive	
	Technology	TFT, resolution 240x320, 65k colours, very good contrast due to Piezoresistive technology	
	Surface, toughened glass	Degree of hardness: 7, scratch-resistant	





Compatible sensors for XP100		Page
Temperature	PT100 surface probe	17
	PT100 probe	16
	PT100 probe/ immersion probe (long)	16
	PT100 food probe, stainless steel	16
	Immersion probe 300x4mm	17

Genuine glass surface with high resolution colour display

X(pert) P(rofessional) Series

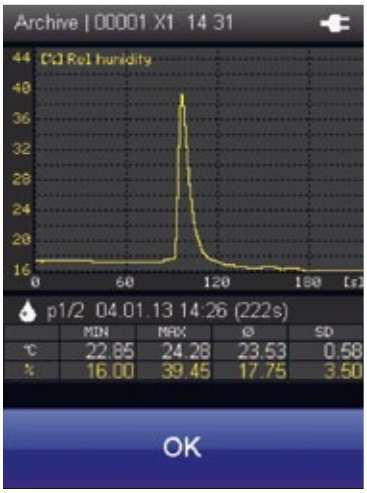
XP200

- TFT LCD, anti-glare colour display
- Capacitive touch screen
- Sampling rate 1s
- Data recording simultaneously on up to 3 channels
- Graphical analysis including standard deviation
- Integrated flash memory with space for up to 200 data blocks, or up to three hours continuous recording
- USB port for data transfer to Smartgraph 3 (included in delivery)
- Multilingual interface
- Numerous dimensions calculated
- Online firmware update

Hand-held measuring device XP200 for measuring temperature and humidity

X-perte range for humidity and temperature measurements in climate and environmental technology.

Hand-held measuring device XP200			Order No.
Temperature and humidity measuring device compatible with various intelligent sensors.			**5820.00**
Technical data	Dimensions	170 x 62 x 34 mm	
	Weight	ca. 205g	
Storage conditions	Permitted ambient temperature	-20...+60°C	
	Permitted rel. humidity	<90%r.h. non-condensing	
Operating conditions	Permitted rel. humidity	<90%r.h. (20g/m³) non-condensing	
	Permitted altitude above sea level	4,000m	
Power supply	Power supply	4 Alkaline LR6 AA/NiMH 1.5...1.2V/USB 5V	
	Active power consumption	Approx. 400mW	
	Battery life passive	Approx. 1 year	
	Battery life active	min. 24 hours	
	Sensor power supply	5.5V ± 10% DC, max. 200mA	
Data storage	Integrated data storage	up to 200 data/approx. 1 Mio measured values	
Interface	USB	Cable and SmartGraph3 software included in delivery	
Representation	Definition of measured values	2 decimal places	
Display	Control	Touch screen, capacitive	
	Technology	TFT, resolution 240x320, 65k colours, very good contrast due to Piezoresistive technology	
	Surface, toughened glass	Degree of hardness: 7, scratch-resistant	
Calculated measurement categories for external temperature/humidity sensors	Mathematical: MIN/MAX/AVG/HOLD		
	Temperature (°C/°F)		
	Rel. humidity (%r.h)		
	Rel. humidity of ice (%r.h)		
	Water vapour density (absolute humidity) g/m³		
	Dew point temperature °C/°F		
	Frost point temperature °C/°F		
	Mixing ratio at saturation (100%) g/kg		
	Volume fraction of water vapour /mass fraction of water vapour (%)		
	Wet-bulb temperature °C/°F		
	Ice-bulb temperature °C/°F		
	Specific Enthalpy (mass of air) kJ/kg		
	Saturation vapour pressure above ice/water (hPa)		
	Water vapour particle pressure (hPa)		
	Air density kg/m³		



Compatible sensors for XP200		Page
Temperature/ humidity	digital TFF20	18
	Allround SDI	18
	4 mm diameter SDI	19
	High temperature SDI	19
	Sintered stainless steel filter	20

Current measure-ments with time chart on a high resolution display

X(pert) P(rofessional) Series

XP400

- TFT LCD, anti-glare colour display
- Capacitive touch screen
- Sampling rate 1s
- Data recording simultaneously on up to 3 channels
- Graphical analysis including standard deviation
- Integrated flash memory with space for up to 200 data blocks, or up to three hours continuous recording
- USB port for data transfer to Smartgraph 3 (included in delivery)
- Multilingual interface
- Current measurement via external, digital sensors
- Integrated atmospheric pressure measurement ability
- Numerous dimensions calculated
- Online firmware update

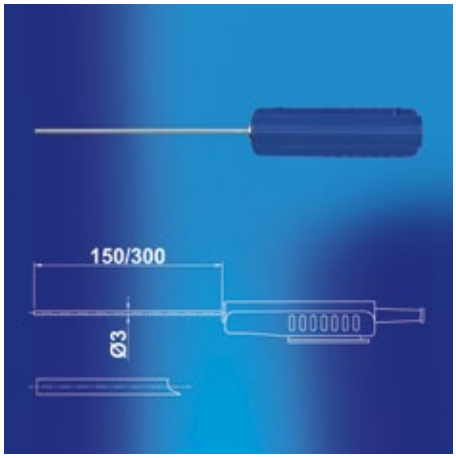
Hand-held measuring device XP400 for measuring current

Ideal for volume measurements, air intake and air discharge measurements in climate measuring technology. Data memory and software.

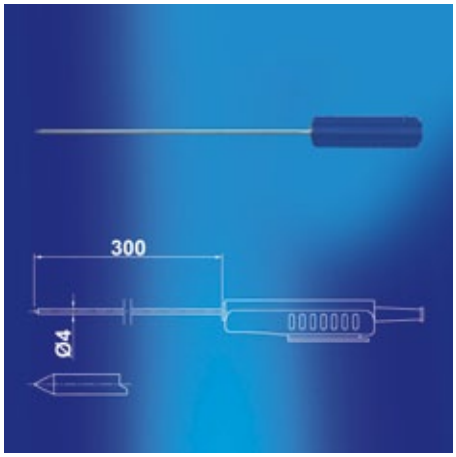
Hand-held measuring device XP400			Order No.
The X-pert for precise current measurements on various measurement ranges.			**5840.00**
Technical data	Dimensions	170 x 62 x 34 mm	
	Weight	ca. 205g	
Storage conditions	Permitted ambient temperature	-20...+60°C	
	Permitted rel. humidity	<90%r.h. non-condensing	
Operating conditions	Permitted rel. humidity	<90%r.h. (20g/m³) non-condensing	
	Permitted altitude above sea level	4,000m	
Power supply	Power supply	4 Alkaline LR6 AA/NiMH 1.5...1.2V/USB 5V	
	Active power consumption	Approx. 400mW	
	Battery life passive	Approx. 1 year	
	Battery life active	min. 24 hours	
	Sensor power supply	5.5V ± 10% DC, max. 200mA	
Data storage	Integrated data storage	up to 200 data/approx. 1 Mio measured values	
Interface	USB	Cable and SmartGraph3 software included in delivery	
Representation	Definition of measured values	2 decimal places	
Display	Control	Touch screen, capacitive	
	Technology	TFT, resolution 240x320, 65k colours, very good contrast due to Piezoresistive technology	
	Surface, toughened glass	Degree of hardness: 7, scratch-resistant	
Calculated measurement categories for external airflow sensors	Operating airflow volume - various units: (m³/s) (m³/h) (l/min)		
	Standard airflow volume: DIN 1343 (°C, 1013,25hPa), ISO 2533 (15°C, 1013,25hPa), DIN 1945 (20°C, 1013,25hPa)		
	Various units: (m³/s), (m³/h), (l/min)		

Compatible sensors for XP400		Page
Current/ Temperature	SDI (0…2m/s)	21
	SDI (0…20m/s)	21

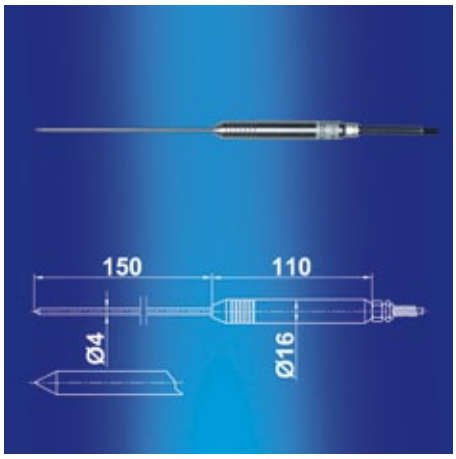
PT100 immersion probe



PT100 immersion probe			Order No.
The immersion probe is suitable for measurements in gaseous media, liquids and granular material, such as sand.			
Technical data	Dimensions, probe, short	150 x 3 mm	**3120.520**
	Dimensions, probe, long	300 x 3 mm	**3120.530**
	Dimensions, housing	119 x 27/35 mm	
	Weight	100g/120g	
	Protective housing	IP40	
	Max. permitted operating temperature	PUR cable and handle can be used up to 80°C	
	Storage temperature	-40 °C…+60 °C	
Temperature	Measurement range	-40 … 400 °C	
	Accuracy	±0.15 +0.002 x t	
	Measuring technique	four terminal sensing	
	Reaction time	10 s	
	Cable length	approx. 1m	
Compatibility	XP100		



PT100 (immersion) probe, long			Order No.
This high-precision immersion probe in stainless steel protective housing can also be used as a reference sensor for calibration and testing systems.			**3120.540**
Technical data	Dimensions, probe	300 x 4 mm	
	Dimensions, housing	119 x 27/35 mm	
	Weight	120g	
	Protective housing	IP40	
	Max. permitted operating temperature	PUR cable and handle can be used up to 80°C	
Temperature	Measurement range	-40 … 400 °C	
	Accuracy	±0.03 + 0.005 x t	
	Measuring technique	four terminal sensing	
	Reaction time	10 s	
	Cable length	approx. 1m	
Compatibility	XP100		

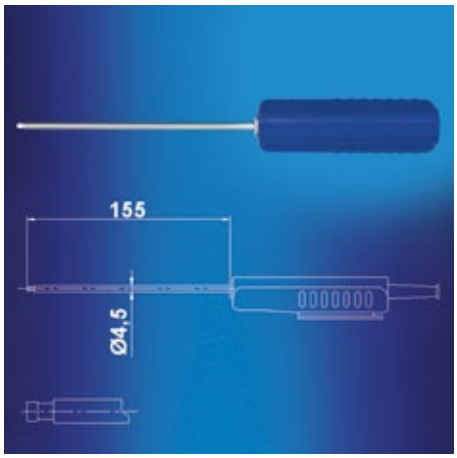


PT100 stainless steel food probe			Order No.
Food probe in stainless steel protective casing for precise temperature measurements			**3120.550**
Technical data	Dimensions, probe	150 x 4 mm	
	Dimensions, housing	110 x 16 mm	
	Weight	220g	
	Protective housing	IP65	
	Max. permitted operating temperature	PUR cable and handle can be used up to 80°C	
	Lagertemperatur	-40 °C…400 °C	
Temperature	Measurement range	-40 … 400 °C	
	Accuracy	±0.03 + 0.005 x t	
	Measuring technique	four terminal sensing	
	Reaction time	10 s	
	Cable length	approx. 1m	
Compatibility	XP100		

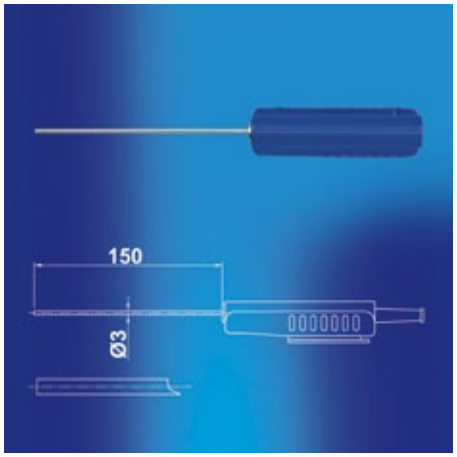
Further information about our products can be found on our websites: www.portable-instruments.info and www.lufft.com

PT100 Oberflächenfühler

PT100 surface probe			Order No.
At the head of the surface temperature probe is a spring-loaded sensor which takes the temperature. Can be used on flat, matt and metallic surfaces			**3120.600**
Technical data	Dimensions, probe	150 x 4,5 mm	
	Dimensions, housing	119 x 27/35 mm	
	Weight	120g	
	Protective housing	IP30	
	Max. permitted operating temperature	PUR cable and handle can be used up to 80°C	
Temperature	Measurement range	-50 … 400 °C	
	Accuracy	±0.3 + 0.005 x t	
	Reaction time t90	approx. 30s	
	Measuring technique	four terminal sensing	
	Cable length	approx. 1m	
Compatibility	XP100		



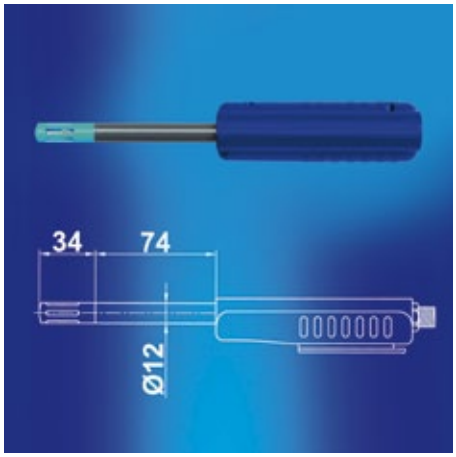
Immersion probe for XP100			Order No.
Accuracy with PT100 1/10 DIN 8 (0.05C) in stainless steel protective casing, mineralized sleeve.			**3120.560**
Technical data	Dimensions, probe	150 x 4 mm	
	Dimensions, housing	119 x 27/35 mm	
	Weight	120g	
	Protective housing	IP40	
	Max. permitted operating temperature	PUR cable and handle can be used up to 80°C	
	Storage temperature	-40 … +60 °C	
Temperature	Measurement range	-40 … +400 °C	
	Accuracy	0.05 °C at 0 °C	
	Reaction time	10 s	
	Measuring technique	four terminal sensing	
	Cable length	approx. 1m	
Compatibility	XP100		



Further information about our products can be found on our websites: www.portable-instruments.info and www.lufft.com

Temperature/Humidity Sensor

Digital TFF20			Order No.
Reference measurement in service and maintenance, suitable for measurements in air conditioning and heating industry segmetnts.			**5900.TFF**
Technical Data	Dimensions	Length 85 mm, Ø 12 mm	
	Weight	Approx. 50g	
	Protection	Polycarbonate / IP65	
	Permitted operation temp.	0...50°C	
	Permitted humidity	0...95% r.h.	
	Storage temperature	-20...+60°C	
	Storage humidity	20...80% r.h.	
Relative Humidity	Measurement range	0.00 … 100.00 % r. h.	
	Accuracy	±2 % (0 … 90 %), ±3 % (90 … 100 %) r. h.	
	Resolution	0.01% r.h.	
	Principle	capacitive	
Temperature	Measurement range	-40 … 80 °C	
	Accuracy (20°C)	±0.1°C	
	Accuracy (0...40°C	±0.2°C otherwise ±0.5°C	
	Resolution	better 0.01°C	
	Principle	PT1000, Class A, DIN EN 60751	
Absolute Humidity	Measurement range	0...300g/m³	
	Unit	g/m³	
Dew Point Temperature	Measurement range	-40...80°C	
Mixing Ratio	Measurement range	0...550g/kg	
Compatibility	XA1000		
Accessories	Stainless steel sinter cap		

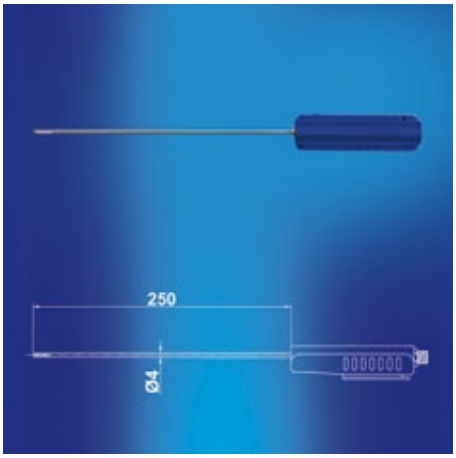


Allround SDI Temperature/Humidity Sensor			Order No.
Compact temperature-/humidity sensor, in stainless steel tube. Application in HVAC field, reference measurement in accordance with ISO9000 Quality Assurance			**9130.540**
Technical Data	Dimensions Sensor	Length 74 mm, Ø 12 mm	
	Dimensions Housing	117 x 38 mm	
	Weight	Approx. 80g	
	Protection	Housing/Sensor IP40 Sensor head plastic mesh	
	Permitted operation temp.	0...50°C	
	Permitted humidity	0...95% r.h.	
	Storage temperature	-20...60 °C	
	Storage humidity	20...80% r.h.	
Relative Humidity	Measurement range	0 … 100 % r. h.	
	Accuracy	±2 % (0 … 90 %), ±3 % (90 … 100 %) r. h.	
	Resolution	0.1% r.h.	
	Principle	capacitive	
Temperature	Measurement range	-20 … 70 °C	
	Accuracy (20°C)	±0.2 °C	
	Accuracy (-10...50°C)	±0.4 °C otherwise ±0.5 °C	
	Resolution	0.1°C	
	Principle	NTC	
Compatibility	XA1000		
Accessories	Stainless steel sinter cap		

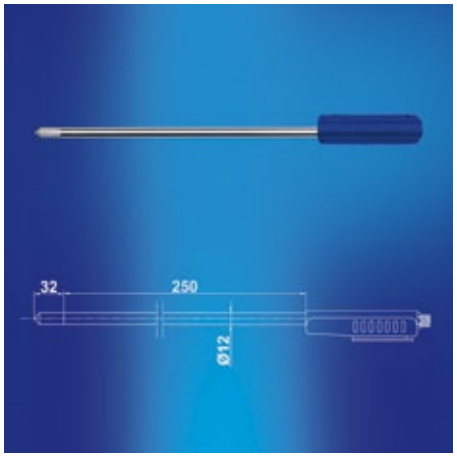
Further information about our products can be found on our websites: www.portable-instruments.info and www.lufft.com

Temperature/Humidity Sensor

SDI Temperature-/Humidity Sensor with 4mm Diameter			Order No.
Compact, slim temperature-/humidity sensor in stainless steel protective tube. With a diameter of only 4mm, the sensor is suitable for applications in measurement areas that are difficult to access.			**9130.520**
Technical Data	Dimensions sensor tube	Length 250mm, Ø 4mm	
	Dimensions housing	117 x 38 mm	
	Weight	Approx. 85g	
	Protection	Housing IP40 / sensor IP40 sensor head: screwable, stainless steel cap, PTFE filter	
	Permitted operation temp.	0...50°C	
	Permitted humidity	0...95% r.h.	
	Storage temperature	-20...+60°C	
	Storage humidity	20...80% r.h.	
Relative Humidity	Measurement range	0.00 … 100.00 % r. F.	
	Accuracy	±2 % (0 … 90 %), ±3 % (90 … 100 %) r. h.	
	Resolution	0.1% r.h.	
	Principle	capacitive	
Temperature	Measurement range	-40 … 100 °C	
	Accuracy	±0.2°C at 20 °C otherwise ±0.7°C	
	Resolution	0.1°C	
	Principle	PT1000 (tolerance class B, DIN EN 60751)	
Compatibility	XA1000		



SDI High Temperature/Humidity Sensor			Order No.
Stainless steel sensor equipped with a Teflon probe is especially suitable for high temperature/humidity measurements.			**9130.530**
Technical Data	Dimensions sensor tube	Length 250mm, Ø 12mm	
	Dimensions housing	117 x 38 mm	
	Weight	Approx. 200g	
	Protection	Housing IP40 / sensor IP40 sensor head: stainless steel sinter filter	
	Permitted operation temp.	0...50°C	
	Permitted humidity	0...95% r.h.	
	Storage temperature	-20...+60°C	
	Storage humidity	20...80% r.h.	
Relative Humidity	Measurement range	0.00 … 100.00 % r. h.	
	Accuracy	±2 % (0 … 90 %), ±3 % (90 … 100 %) r. h.	
	Resolution	0.1% r.h.	
	Principle	capacitive	
Temperature	Measurement range	-40 … 180 °C	
	Accuracy	±0.2°C at 20 °C otherwise ±0.7°C	
	Resolution	0.1°C	
	Principle	PT1000 (tolerance class B, DIN EN 60751)	
Compatibility	XA1000		



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Temperature/Humidity Sensor

Stainless Steel Sinter Filter			Order No.
Stainless steel sinter filter for high dirt protection			**5120.212**
Technical data	Material	Sintered stainless steel	
	Response time	30s	
	Size of pores	10µm	

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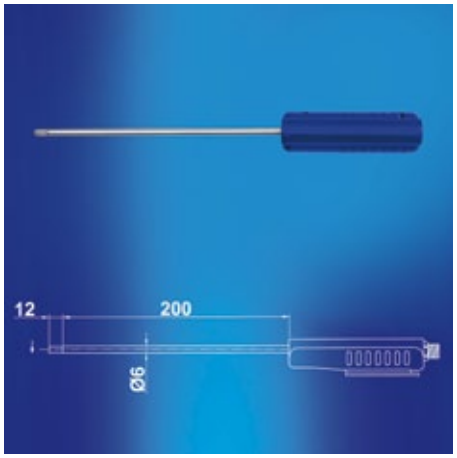
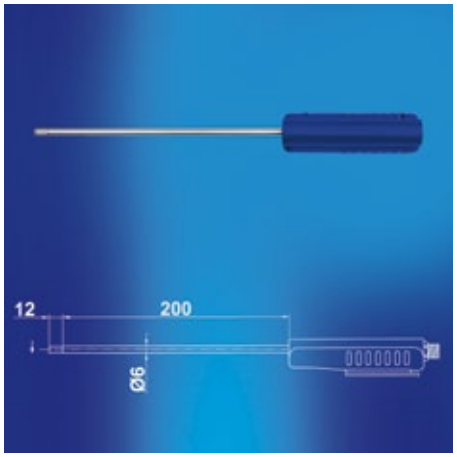
SDI Airflow-/Temperature Sensor (0...2m/s)

SDI Airflow-/Temperature Sensor (0…2m/s)			Order No.
Reference device for airflow and temperature measurements in service and maintenance. Proof of air tightness of buildings and rooms.			**6120.510**
Technical data	Dimensions sensor tube	Length 200mm, Ø 6mm	
	Dimensions housing	117 x 38 mm	
	Weight	Approx. 200g	
	Protection	Housing: plastic (ABS) IP40 sensor head: stainless steel	
	Permitted operation temp.	0...50°C	
	Permitted humidity	0...95% r.h.	
	Storage temperature	-20...+60°C	
	Storage humidity	20...80% r.h.	
Airflow	Measurement range	0…2m/s	
	Accuracy	20°C, 45% r.h., 1013 hPa: ±(0.04m/s + 1% of measured value)	
	Resolution	0.01 m/s	
	Principle	Hot film anemometer	
Temperature	Measurement range	-20…+70°C	
	Accuracy	±0.7°C in the range 0…+50°C and v > 0.5m/s	
	Resolution	0.1°C	
	Principle	NTC	
Compatibility	XA1000		



SDI Airflow-/Temperature Sensor (0…20m/s)			Order No.
Application: airflow and temperature measurements in climate measurement technology			**6120.520**
Technical data	Dimensions sensor tube	Length 200mm, Ø 6mm	
	Dimensions housing	117 x 38 mm	
	Weight	Approx. 200g	
	Protection	Housing: plastic (ABS) IP40 sensor head: stainless steel	
	Permitted operation temp.	0...50°C	
	Permitted humidity	0...95% r.h.	
	Storage temperature	-20...+60°C	
	Storage humidity	20...80% r.h.	
Airflow	Measurement range	0…2m/s	
	Accuracy	20°C, 45% r.h., 1013 hPa: ±(0.02m/s + 2% of measured value)	
	Resolution	0.01 m/s	
	Principle	Hot film anemometer	
Temperature	Measurement range	-20…+70°C	
	Accuracy	±0.7°C in the range 0…+50°C and v > 0.5m/s	
	Resolution	0.1°C	
	Principle	NTC	
Compatibility	XA1000		



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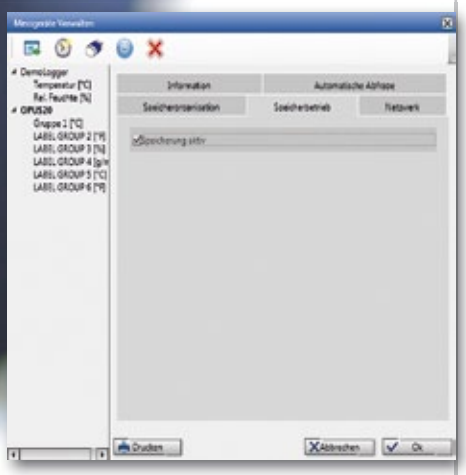
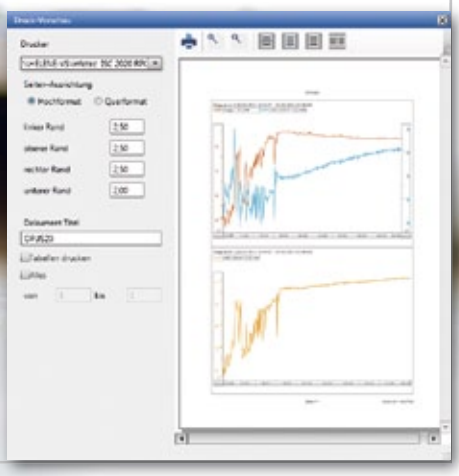
When it comes to evaluation, have the works!

With the aid of powerful software, hand-held measuring devices are turning into archives.

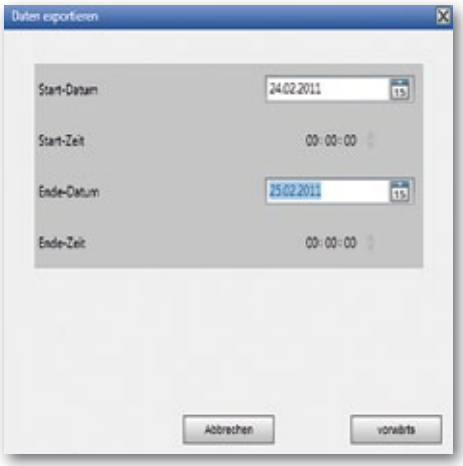
Smart-Graph3

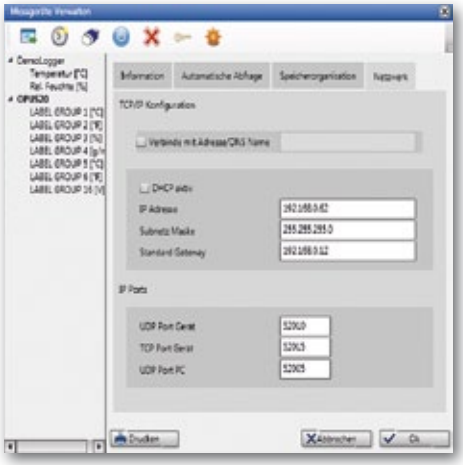




Software SmartGraph3 for Lufft Hand-held Devices and OPUS20-Series

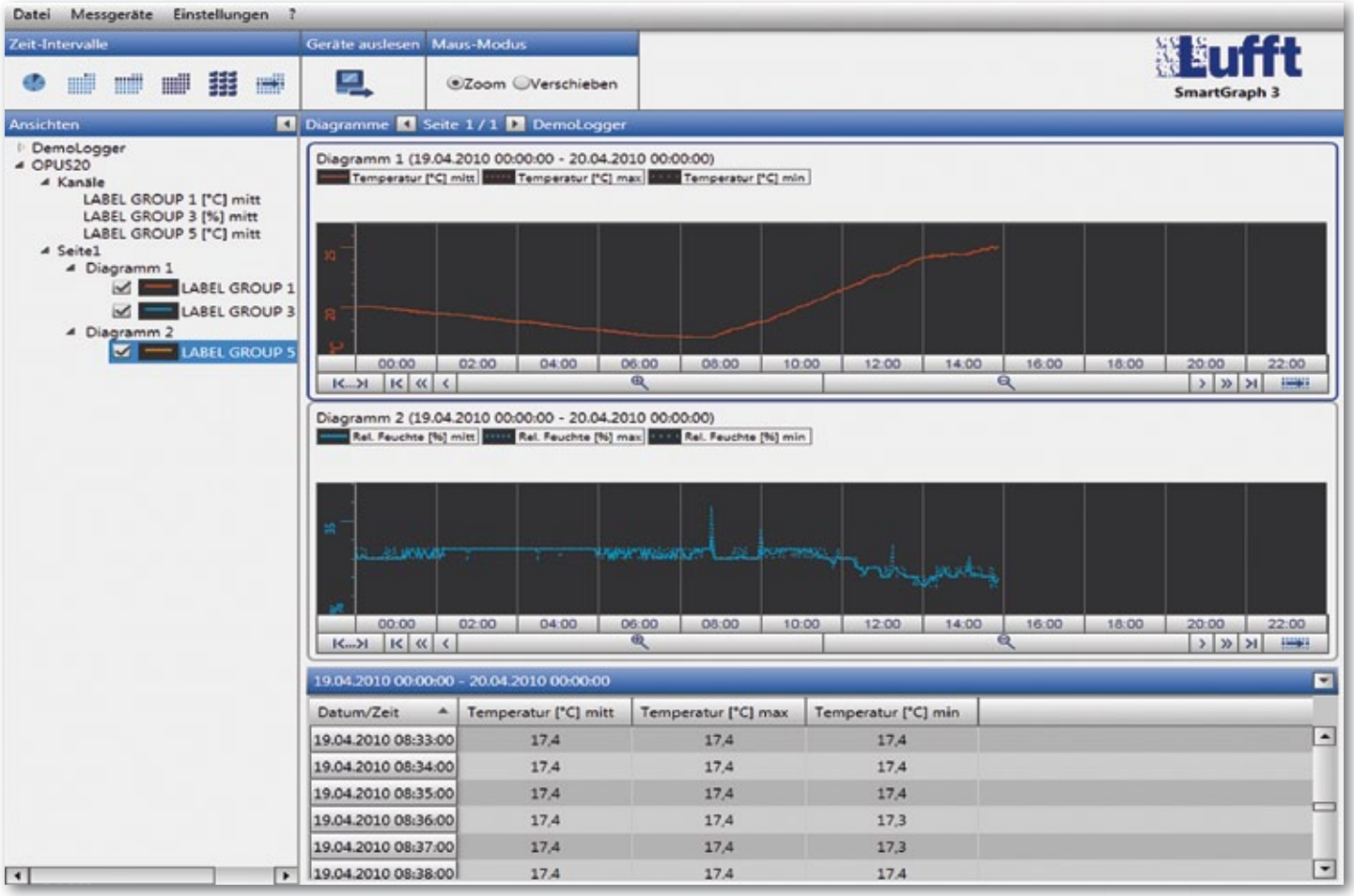
Represen-tation and Evaluation





SmartGraph3 for OPUS20-Series

- 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.

SmartGraph3 for Hand-held Measuring Devices

- A Lufft hand-held measuring device is automatically recognised and added by means of a USB interface.
- In addition to its data-readout function, the software possesses a recording mode that enables parallel recording to be displayed on the computer.
- 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.
- Different measurement campaigns are archived in their respective accounts.
- All measurements recorded by the hand-held measuring device (also calculated values) are transfered to SmartGraph3.