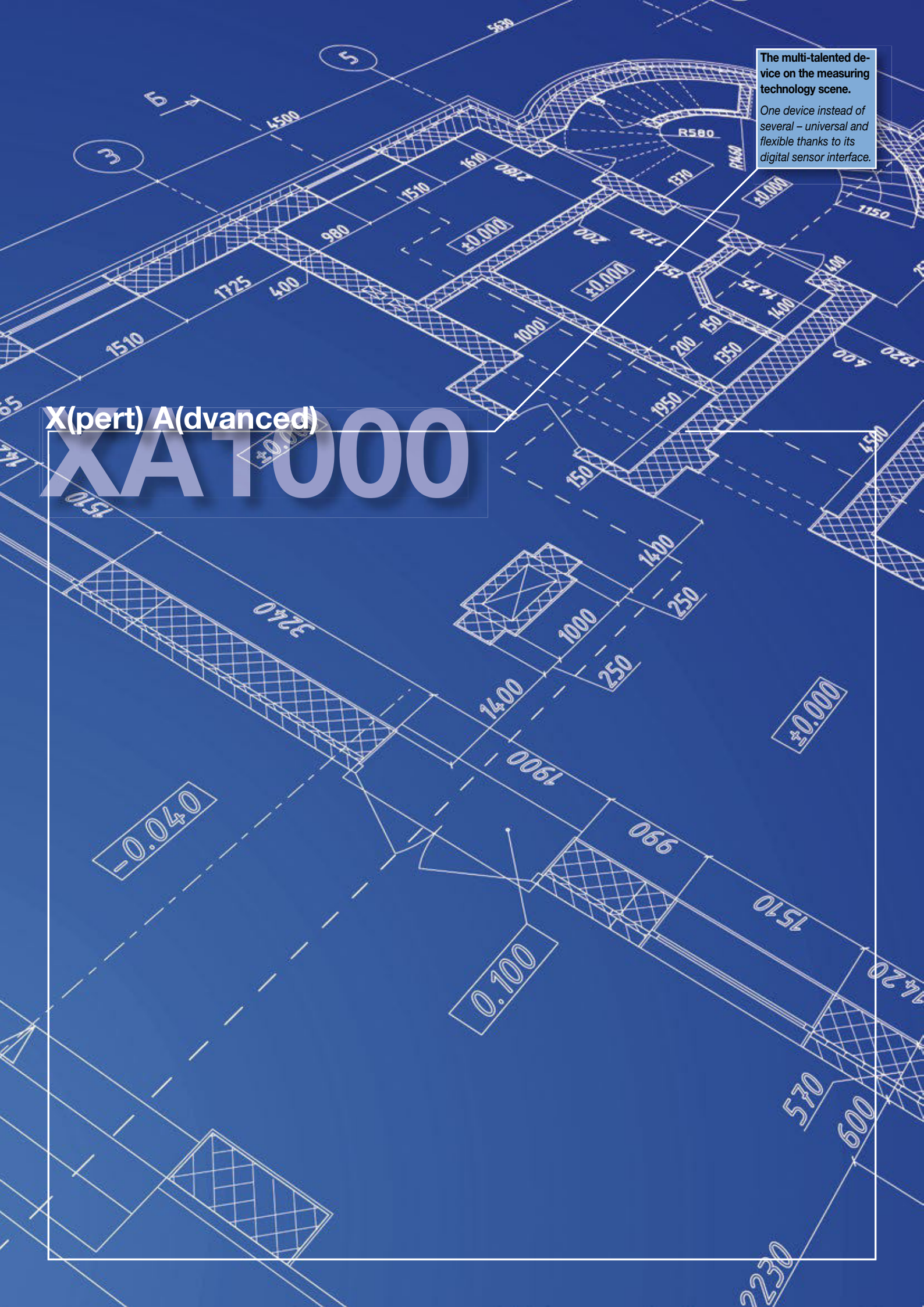


The multi-talented device on the measuring technology scene.

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

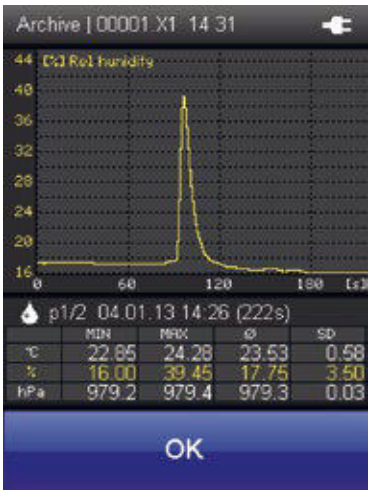
Measuring on the Go

- 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 resolution
- 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 most precice and flexible all-rounder instrument for professional applications-easy to handle and robust. Allows various intelligent sensors to be connected with automatic recognition, saves measuring campaignes, allows all climate data to be calculated and archieved on a computer for further evaluation by SmartGraph3 software.

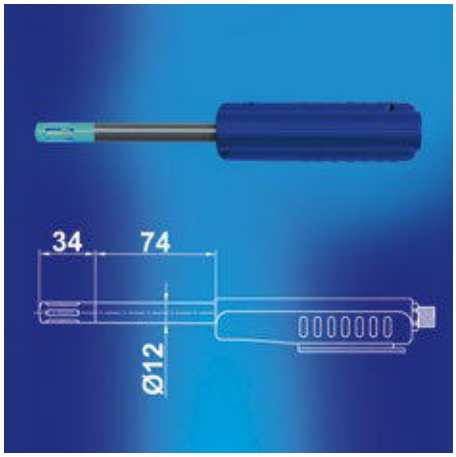
Hand-held Measuring Device XA1000 "All-in-ONE"			Order No.
"All-rounder" in the measurement technology segment. A universal measuring device for professionals with the inclusion of exchangeable SDI Sensors. Highly precise measurements of temperature and relative humidity. Integrated air pressure sensor, 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% RH non-condensing	
Operating conditions	Permitted rel. humidity	<90% RH (20g/m³) non-condensing	
	Permitted altitude above sea level	4000m	
Power supply	Power supply	4 Alkaline LR6 AA 1.5V / 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	
Resolution	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,1013.25mbar	0.5mbar	
	Long-term stability	typ. - 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 (% RH)		
	Rel. humidity of ice (% RH)		
	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/min), (m³/h), (l/min)		
Compatibility	Sensor/probe: all SDI/digital sensors (temperature, humidity, SDI airflow, air pressure integrated)		
Accessories	Extension and/or connecting cable for digital sensor, 2m		**8120.KAB2**
	Extension and/or connecting cable for digital sensor, 10m		**8120.KAB10**



Compatible sensors for XA1000		Page
Temperature/ humidity	Digital TFF20	24
	Allround SDI	24
	5 mm diameter SDI	25
	High temperature SDI	25
	High-precision Temperature/Humidity Sensor	26
Airflow/ temperature	SDI (0…2m/s)	27
	SDI (0…20m/s)	27
CO_2	CO_2 Sensor	26

Temperature/Humidity Sensor

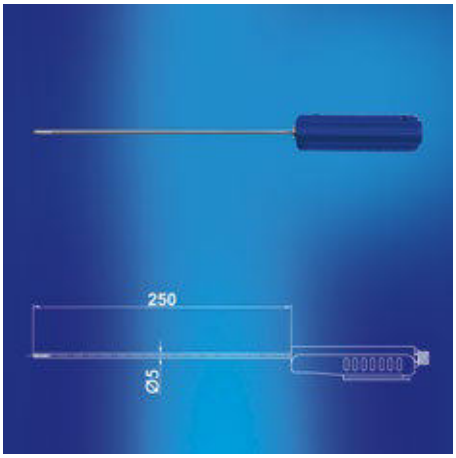
Digital TFF20			Order No.
Reference measurement in service and maintenance, suitable for measurements in air conditioning and heating industry segmetnts.			**8120.TFF**
Technical Data	Dimensions	Length 85 mm, Ø 12 mm	
	Weight	Approx. 50g	
	Protection	Polycarbonate / IP65	
	Permitted operation temp.	0...50°C	
	Permitted humidity	0...100% RH	
	Storage temperature	-20...60°C	
	Storage humidity	20...80% RH	
Relative Humidity	Measurement range	0… 100% RH	
	Accuracy	±2 % (0…90 %), ±3 % (90…100 %) RH	
	Resolution	0.01% RH	
	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	0.01°C	
	Principle	PT1000, Class A, DIN EN 60751	
Absolute Humidity	Measurement range	0...300g/m³	
	Unit	g/m³	
Dew Point Temp.	Measurement range	-40...80°C	
Mixing Ratio	Measurement range	0...550g/kg	
Compatibility	XA1000, XP200, OPUS20E		
Accessories	Stainless steel sinter cap		**5120.212**
	Calibration salt 11,3% RH		**5700.113**
	Calibration salt 32,8% RH		**5700.328**
	Calibration salt 52,9% RH		**5700.529**
	Calibration salt 75,3% RH		**5700.753**
	Calibration salt 90,1% RH		**5700.901**
	Calibration adapter		**8120.ADAP**



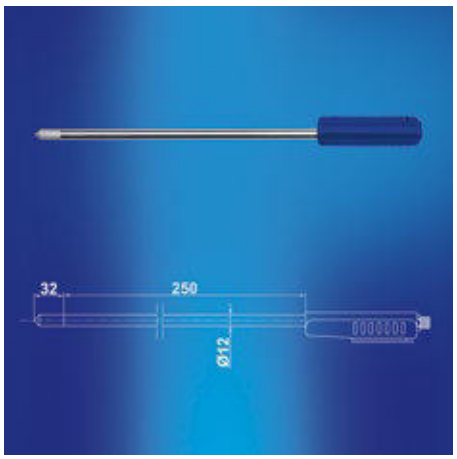
Allround SDI Temperature/Humidity Sensor			Order No.
Compact temperature-/humidity sensor, in stainless steel tube. Application in HVAC field, reference measurement in accordance with ISO9000 Quality Assurance			**9130.540**
Technical Data	Dimensions Sensor	Length 74 mm, Ø 12 mm	
	Dimensions Housing	117 x 38 mm	
	Weight	Approx. 80g	
	Protection	Housing/Sensor IP40 Sensor head plastic mesh	
	Permitted operation temp.	0...50°C	
	Permitted humidity	0...100% RH	
	Storage temperature	-20...60 °C	
	Storage humidity	20...80% RH	
Relative Humidity	Measurement range	0… 100% RH	
	Accuracy	±2 % (0…90 %), ±3 % (90…100 %) RH	
	Resolution	0.1% RH	
	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, XP200		
Accessories	Stainless steel sinter cap		**5120.212**
	Extension and/or connecting cable for digital sensor, 2m		**8120.KAB2**
	Calibration salt 11,3% RH		**5700.113**
	Calibration salt 32,8% RH		**5700.328**
	Calibration salt 52,9% RH		**5700.529**
	Calibration salt 75,3% RH		**5700.753**
	Calibration salt 90,1% RH		**5700.901**
	Calibration adapter		**8120.ADAP**

Temperature/Humidity Sensor

SDI Temperature-/Humidity Sensor with 5mm Diameter			Order No.
Compact, slim temperature-/humidity sensor in stainless steel protective tube. With a diameter of only 5mm, the sensor is suitable for applications in measurement areas that are difficult to access.			**9130.520**
Technical Data	Dimensions sensor tube	Length 250mm, Ø 5mm	
	Dimensions housing	117 x 38 mm	
	Weight	Approx. 85g	
	Protection	Housing/sensor IP40 sensor head: screwable, stainless steel cap, PTFE filter	
	Permitted operation temp.	0...50°C	
	Permitted humidity	0...100% RH	
	Storage temperature	-20...60°C	
	Storage humidity	20...80% RH	
Relative Humidity	Measurement range	0…100% RH	
	Accuracy	±2 % (0…90 %), ±3 % (90…100 %) RH	
	Resolution	0.1% RH	
	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, XP200		
Accessories	Extension and/or connecting cable for digital sensor, 2m		**8120.KAB2**
	Calibration salt 11,3% RH		**5700.113**
	Calibration salt 32,8% RH		**5700.328**
	Calibration salt 52,9% RH		**5700.529**
	Calibration salt 75,3% RH		**5700.753**
	Calibration salt 90,1% RH		**5700.901**
	Calibration adapter		**5700.A06**



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/sensor IP40 sensor head: stainless steel sinter filter	
	Permitted operation temp.	0...50°C	
	Permitted humidity	0...100% RH	
	Storage temperature	-20...60°C	
	Storage humidity	20...80% RH	
Relative Humidity	Measurement range	0…100% RH	
	Accuracy	±2 % (0…90 %), ±3 % (90…100 %) RH	
	Resolution	0.1% RH	
	Principle	Capacitive	
Temperature	Measurement range	-40...180°C (grip of sensing probe up to 80°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, XP200		
Accessories	Extension and/or connecting cable for digital sensor, 2m		**8120.KAB2**
	Calibration salt 11,3% RH		**5700.113**
	Calibration salt 32,8% RH		**5700.328**
	Calibration salt 52,9% RH		**5700.529**
	Calibration salt 75,3% RH		**5700.753**
	Calibration salt 90,1% RH		**5700.901**
	Calibration adapter		**8120.ADAP**



More Information Lufft X-Series
www.lufft-xseries.com

Temperature/Humidity Sensor

High-precision Temperature/Humidity Sensor			Order No.
High-precision Temperature/Humidity Sensor			**8130.TFF**
Technical data	Measurement accuracy incl. reproducibility and hysteresis	Humidity*: 15...30°C, ±0,5% RH 0...50°C, ±0,8% RH -20...80°C, ±2,5% RH	
Temperature	Measuring range	-20...80°C	
	Operating temperature	-20...80°C	
	Storage temperature	-10...60°C (non-condensing)	
	Principle	NTC	
	Accuracy	0,15°C between 0…+70°C, otherwise 0,25°C	
Relative humidity	Principle	Resistive-electrolytic	
	Measuring range	0 ... 100 %	
Housing	Material	PVDF black	
	Mechanical sensor protection	Standard polyethylene dust filter	
Compatibility	XA1000, XP200, OPUS20E		
Accessories	Calibration salt 11,3% RH		**5700.113**
	Calibration salt 32,8% RH		**5700.328**
	Calibration salt 52,9% RH		**5700.529**
	Calibration salt 75,3% RH		**5700.753**
	Calibration salt 90,1% RH		**5700.901**
	Calibration adapter		**5700.A13**

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

CO_2 Sensor

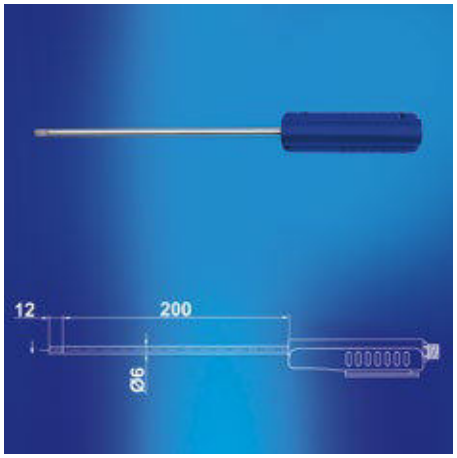
CO_2 Sensor			Order No.
CO_2 Sensor			**7120.CO2**
Technical data	Dimensions	Length 96 mm, Ø 18.5 mm	
	Operating temp.	-40...60°C	
	Operating humidity range	0...100% RH (non-condensing)	
	Admissible air pressure	850...1100hPa	
	Storage temp.	-40...60°C	
	Storage humidity	0...100% RH (non-condensing)	
	Storage pressure	700...1100hPa	
	Temperature dependency	typ. 1ppm CO2 | °C (-20...45°C)	
	Outputs	Digital RS485-BUS	
	Power supply	4,75...7,5V DC, max. 350mA for 0.05s	
	Electrical connection	Connector M12	
	Electromagnetic compatibility (Industrial environment)	EN61326-1 EN61326-2-3	
CO_2	Principle	Dual wavelength, non-dispersive infrared technology (NDIR)	
	Measuring range	0 ... 5000 ppm	
	Accuracy	at 25°C and 1013mbar: < ±50ppm +3% of measuring value (for averaging output)	
Housing	Material	Plastic PC	
	Protection level	IP65	
Compatibility	XA1000, XP200		
Accessories	Y Connector for Temperature/Humidity and CO_2 sensor (IAQ-Indoor Air Quality Measurement)		**8120.STY**

The CO_2 probe is designed for use in harsh, demanding OEM applications. A multiple point CO_2 and temperature adjustment procedure leads to excellent CO_2 measurement accuracy over the entire temperature working range, ideal for use in agriculture or outdoors for instance.
The probe incorporates the dual wavelength NDIR CO_2 sensor, which compensates for ageing effects, is highly insensitive to pollution and stands for outstanding long term stability.
The measured data range of up to 10000ppm is available on the Modbus or on the E2 digital interface.
An optional kit facilitates easy configuration and adjustment. The measurement interval can be set according to the application requirements, by this the average current consumption can be reduced to 120µA for battery-operated devices.

More Information Lufft X-Series

SDI Airflow-/Temperature Sensor (0...2m/s) (0…20m/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% RH	
	Storage tempe-rature	-20...60°C	
	Storage humidity	20...80% RH	
Airflow	Measurement range	0…2m/s	
	Accuracy	±(0.08m/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	
	Resolution	0.1°C	
	Principle	NTC	
Compatibility	XA1000		
Accessories	Extension and/or connecting cable for digital sensor, 2m		**8120.KAB2**



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% RH	
	Storage tempe-rature	-20...60°C	
	Storage humidity	20...80% RH	
Airflow	Measurement range	0…20m/s	
	Accuracy	±(0.2m/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	
	Resolution	0.1°C	
	Principle	NTC	
Compatibility	XA1000		
Accessories	Extension and/or connecting cable for digital sensor, 2m		**8120.KAB2**