


Catalogue Portable Measuring Instruments

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AFRISO

Professional measuring systems for building technology and industrial applications

Suitable measuring systems for any application. AFRISO offers solutions for official measurements, adjustment, servicing, maintenance and repair work. The pictograms indicate ideal suitability of the system for your specific application:


HVAC companies, customer service, service technicians


Chimney sweeps


Energy consultants, experts, environmental experts, facility management


Architects, real-estate brokers


Industry: Production processes, servicing

All stock items have part numbers printed in blue.

The catalogue has been presented by:

We would be pleased to help you with any questions you may have. You can reach your contact person on +49 7135 102-

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Information on prices/delivery periods: -134

Technical consulting
Domestic -255

Service and repairs
Hotline -211

www.afriso.com/contact

CATALOGUE PORTABLE MEASURING INSTRUMENTS

Portable service instruments for domestic and industrial technology

AFRISO development centre:
SYSTRONIK at the Illmensee site

The perfect instrument for all applications

Measuring and testing – reliably and professionally

Combustion systems must operate optimally. Oil, gas, pellets or log wood fired systems, gas or drinking water lines – AFRISO measuring systems ensure successful measurements. We support you in helping your customers achieve their goals: the right amount of heat at the right time, low energy consumption and low emissions as well as safety of domestic installations.

Our instruments yield high-precision, reproducible measurement results. You can always rely on us. Our products are future proof and we have an impeccable reputation as a major innovation leader. Integration of the maximum number of measuring cells in minimum space, ergonomic design and outstanding usability, smart and effective solutions such as wireless data transmission via QR codes, data evaluation and processing by means of apps for smartphones and tablet PCs: AFRISO keeps setting the standards.

BlueLine measuring instrument series

Professional, proven and unparalleled

Benefit from a comprehensive range of measuring instruments for all applications – from basic devices for simple tasks all the way to all-in-one analysis computers.

- Tested measuring instruments according to the applicable standards and directives
- H_2-compensated CO sensors for official measurements
- Maximum ease of use due to state-of the-art technology such as TFT colour display, SD memory card and operation via touch pad or display
- Easy and fast communication with PCs, tablets, smartphones and printers via QR codes or interfaces such as Bluetooth® Low Energy, infrared and USB
- Android and iOS apps for graphical visualisation of measurement results
- Automatic device check with sensor test during program start for precise measurement results
- Magnets at the back of the instruments allow for hands-free operation
- Robust protective housing or sleeve against dirt, impact and shock
- Comprehensive range of accessories to adapt the instruments exactly to your requirements

HTML. PDF. QR code. ZIV interface.

Maximum flexibility in processing of the measurement results

All measurement logs of the BlueLine flue gas analysers can be archived as HTML files without any additional software and opened with any Web browser. It is also possible to convert them to QR codes so that they can be scanned by smartphones and tablets and transferred to management software. With the ZIV interface EuroSoftZIV for MS Windows, the measurement data can be transferred directly to the German chimney sweep management programs.
In addition, the AFRISO app EuroSoft connect offers numerous functions for modern data communication.

Innovative. Future proof. Simply powerful.

From a simple measuring instrument to an all-rounder with CAPBs®.

You already own an AFRISO BlueLine measuring instrument and want to use it for the majority of your daily measuring tasks, for example, tightness test, gas leak detection, flow rate measurement or 4 Pa test? No problem with your AFRISO measuring instrument. In conjunction with the AFRISO CAPBs® base handles and the sensor modules for a whole variety of different applications such as pressure, temperature, gas leak detection or humidity, almost all tasks of heating system technicians and chimney sweeps can be performed easily and with high accuracy. The compact CAPBs® can be connected wirelessly via Bluetooth® to the measuring instruments of the AFRISO BlueLine series or to mobile devices. The new CAPBs® device displays the determined values on the display in real-time and also provides a QR code for mobile devices for data transmission. All measurement data can be further processed with the AFRISO apps on the smartphone or tablet and saved as clearly structed PDF records.

TOOLBOX

live

GET IT ON Google Play

Download on the App Store

Available for Windows

See chapter 4 for detailed information on the available CAPBs®.

AFRISO

The CAPBs® excel with an unprecedented diversity of measuring possibilities with a single system. Numerous sensor modules CAPBs® sens can be easily plugged into the modular base handles. The ergonomic handles themselves are made of high-quality plastic. The compact base handle BG 10, for example, contains the power supply (battery, optionally rechargeable), a tripod socket, a multi-purpose key and a multi-colour LED. The multi-purpose key features customisable function assignments. For example, it can be used for zero calibration regardless of the measuring site. In addition, a device for audible signals is integrated into the handle. The AFRISO measuring instrument or the apps for smartphone and tablet provide numerous pre-installed measurement menus for the CAPBs®. They include, for example, tightness test and load test, pressure loss measurement, gas leak detection, heating system check, hydraulic balancing, thermal disinfection, etc.

The BlueLine measuring instrument series at a glance





		BLUELYZER ST	EUROLYZER STx	MULTILYZER STx	STM 225 BLACK EDITION	Series S4600 ST
O_2	Parameters/measured values	•	•	•		
CO (up to 6,000 ppm)		•				
CO (up to 10,000 ppm)			•	•		
CO_2 (calculated)		•	•	•		
NO			•***	•***		
NO_2				•***		
NO_x			•***	•***		
CO (40,000 ppm)				•***		
SO_2				•***		
Particulate matter					•	
Methane						
Propane (liquefied gas)						
Butane						
Lambda		•	•	•		
Eta efficiency / eta coefficient		•	•	•		
Flue gas loss qA		•	•	•		
Temperature		•	•	•		
Pressure		•	•	•		•
Dew point		•	•	•		
Humidity in %						
Volume flow			•***	•***		•***
Measurements of filters, ventilation systems, ducts	Typical applications areas					•
Measurements of production facilities, tanks						•
Burner servicing (gas, oil, solid fuel systems)		•	•	•	•	•
CO ambient measurement		•	•	•		
Servicing of water heaters		•	•	•		
Servicing of CHP systems			•	•		
Flue gas measurement		•	•	•		
Pressure measurement		•	•	•		•
Measurement of inlet pressure, flow pressure, static pressure, nozzle pressure			•	•		•
Pressure / vacuum measurement		•	•	•		•
Differential pressure measurement			•	•		•
Vacuum measurement						•
Temperature measurement (flue gas, air, external wall)		•	•	•		
Temperature measurement (water)						
Temperature measurement (moving objects)						
Surface temperature measurement		•	•	•		
Differential temperature measurement		•	•	•		
Draft/chimney draft measurement		•	•	•		•
Ventilation loss measurement						
Flue gas loss measurement		•	•	•		
Heating system check						
4 Pa test						
Gas leak detection						
Gas concentration measurement						
Flow rate measurement (water)						
Moisture measurement (material/moisture/indoor climate)						
Air velocity			•***	•***		•***
BImSchV	Approvals		•	•		
EN 50379-2			•	•		•
EN 15378						
KÜO			•	•		
		Page 14	Page 16	Page 18	Page 20	Page 32

* See product description on the catalogue page or in the operating instructions.
** Depends on product version.
*** Optional.








Series S2600	GSP 4	MFM 22	TM 7/ TMD 7	TMD 9	TM 8-IR	CAPBs®	BlueAir-STx
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Bluetooth®

MULTILYZER STx

Bluetooth®

EUROLYZER STx

Bluetooth®

Dust measuring instrument STM

Bluetooth®

BLUELYZER ST

FLUE GAS ANALYSIS

Portable measuring instruments BlueLine series for flue gas analysis, adjustment work and servicing

FLUE GAS MEASUREMENT

DUST MEASUREMENT

GAS TREATMENT

State-of-the-art technology at work for you

All-in-one flue gas analysers for heating systems

Innovative

Many devices with Bluetooth® Low Energy interface on board: Power-saving data transmission to PCs, Bluetooth® printers, to apps and for pairing with CAPBs® and other measuring instruments.

Universal

All-in-one: Flue gas analysis, (differential) pressure measurement, (differential) temperature measurement and, depending on the device, CO room air monitoring, dust measurement, Pitot measurement (air velocity).

Multitasking

Measure, navigate, charge and evaluate measurement results at the same time.

Environmentally friendly

Lead-free ECO sensor (O_2) with long service life and optimised calibration phase, short response time, resistant to biogenous fuels (not BLUELYZER ST).

Proven

Infrared and Bluetooth Low Energy interface for thermal printer.

Ergonomic

Light-weight handheld measuring instruments, ergonomic design with robust protective sleeve and integrated magnets.

Flexible

USB interface for charging.

Intuitive

Intuitive operation via touch pad for scrolling or quick-access function keys, large TFT colour display, well-structured step by step measurement programs.

Reliable

Fully automatic device check during program start.

Smart

Optional data logger function (1–999 seconds, interval freely selectable) for long-term measurement or diagnostics. Data is stored in XML format for flexible further processing with standard software applications such as MS Excel.

Perseverant

Powerful lithium-ion battery for up to 14 hours of operation.

EuroSoft connect app

connect

Mobile

Measurement logs as QR codes for smartphones, tablets or management software.

Compatible

Suitable for all AFRISO flue gas probes and type K temperature probes.

GET IT ON Google Play

Download on the App Store

Independent

microSD card for system-independent storage of measurement logs (HTML format) and fast software updates by user.

TÜV SÜD

Bluetooth®

No hassle

5 or 7 years full warranty (sensors covered) in conjunction with a service contract.

FLUE GAS ANALYSER

BLUELYZER ST

Picture shows original size

1

- The world's smallest, fully-featured HVAC all-rounder with TFT colour display
- Flue gas analysis, pressure measurement (draft) and (differential) temperature measurement with a single instrument
- CO ambient measurement with two freely adjustable alarm thresholds
- Fully-fledged temperature measurement program, differential temperatures (e.g. flow/return) can also be determined
- Hold function: Display shows the measured value for a given period of time while the measurement keeps running in the background
- Measurement programs and measured values can be freely edited
- Display reverse function: TFT display can be rotated by 180° for easy reading and excellent working conditions at the point of measurement
- Zoom mode for entire display, "Single-value display"
- Memory function with up to 100 measurement logs
- CAPBs® enabled

EuroSoft connect app

connect

GET IT ON Google Play

Download on the App Store

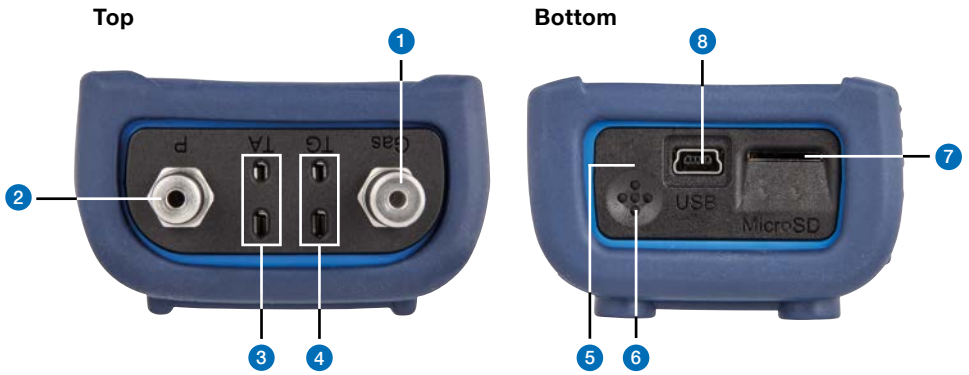
Bluetooth®

TÜV SÜD

CO: EN 50379-3

Application

Ideal for HVAC professionals for accurate adjustments or inspections, on par level with official flue gas analysers. BLUELYZER ST is suitable for flue gas analysis, pressure measurement and (differential) temperature measurement. It is the universal, handheld measuring instrument of choice for measuring small and medium-sized oil- and gas-fired heating systems according to the 1st German Federal Immission Act (BImSchV) and for CO concentration checks at gas-fired systems.



1 Gas inlet
2 Pressure measurement (draft)
3 Temperature connection, for example for ambient air/ combustion air temperature
4 Temperature connection, for example, for flue gas temperature
5 Infrared printer interface
6 Signal unit (speaker)
7 MicroSD card slot
8 Mini USB connection for power supply unit/ charger

Technical specifications

Measuring ranges (measured values)

Flue gas temperature/differential temperature
0/1,150 °C

Air temperature/combustion air temperature
-20/+200 °C

Draft
±70 hPa

Pressure
±150 hPa

Draft/pressure
±70 hPa/±150 hPa

O_2 measurement
0/21 % by volume

CO measurement
Nominal: 0/2,000 ppm
Maximum: 0/6,000 ppm

Indication (calculated values)

CO_2, CO undiluted (air-free), lambda, dew point, Eta efficiency, flue gas losses qA, CO mg/m³ (natural gas), CO mg/kWh (fuel oil)

Operating temperature range
Ambient: 0/10 °C
Storage: -20/+50 °C

Weight
Approx. 275 g

Dimensions
W x H x D: 66 x 143 x 37 mm

Degree of protection
IP 42 (EN 60529)

Display
TFT colour display 2.8"
W x H: 45 x 60 mm (240 x 320 pixels)

Connections
Draft/pressure: Ø 7 mm
Gas: Ø 8 mm
Temperature: 2 x socket type K

Supply voltage
Lithium-ion battery (3.6 V/1,800 mAh), power supply unit (mini USB), battery or mains operation

Hours of operation (eco mode)
12 hours

Data memory
MicroSD card, max. 16 GB

Interfaces
Infrared, Bluetooth® Low Energy, QR code generator, microSD card slot

Approvals
VDI 4206 (sheet 1)
DIN EN 50379-2 for O_2/CO_2, TA, TG, pressure
DIN EN 50379-3 for CO

i Please enquire for other device versions.
See chapter 6 for options and accessories.

BLUELYZER ST Set

DG: H, PG: 4	O_2	CO	(Diff.) temperature	Draft/pressure	Calibration report, protective sleeve with magnets for device, power supply unit NTE 5mini USB-A, charging cable USB-A to mini USB, 5 x particle filter, 5 x Teflon membrane, condensate filter cartridge KFP 2P, case	MicroSD card with USB 2.0 SD card reader	Flue gas probe compact AKS-K 240 mm with draft, without condensate filter cartridge KFP 2P	Ambient air probe TFB-UL 50-1	Bluetooth® Low Energy	Part no.	Price €
BLUELYZER ST Set	•	•	•	•	•	•	•	•	•	P04438116	

Picture shows original size

1

FLUE GAS ANALYSER

EUROLYZER STx

- All-in-one: Flue gas analysis, (differential) pressure measurement, (differential) temperature measurement, Pitot measurement
- Ready for the future: Pairing with the AFRISO CAPBs® measuring units for additional measuring tasks
- ECO sensor: Lead-free O_2 sensor with long service life and optimised calibration phase, short response time, resistant to biogenous fuels
- H_2-compensated CO sensor (measuring range up to 10,000 ppm)
- CO ambient measurement
- NO sensor can be retrofitted
- qA mean value measurement as per 1st German Federal Immission Act BImSchV
- Measurement logs as QR code, database memory, customer data management
- 44. BImSchV
- 5 years warranty on O_2 sensor
- 7 years full warranty in conjunction with a service contract

TÜV SÜD

Bluetooth®

EuroSoft connect app

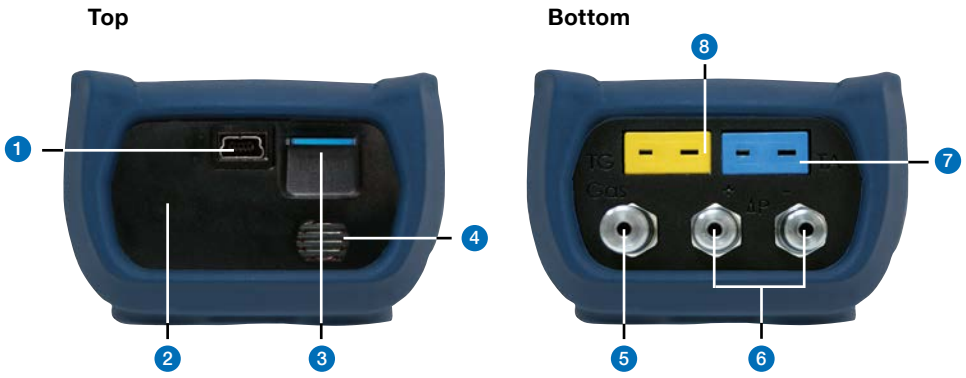
connect

GET IT ON Google Play

Download on the App Store

Application

Universal application for measuring small and medium-sized oil-, gas- and pellets-fired heating systems according to the 1st German Federal Immission Act (qA mean value measurement) and for CO concentration safety checks at gas-fired systems.
EUROLYZER STx is the analyser of choice for measurements of bivalent, modulating CHP systems. Ideal for measurements at heating systems with a high proportion of biofuels.



1 USB connection for power supply unit/charger
2 Infrared printer interface
3 MicroSD card slot
4 Signal unit (speaker)
5 Gas inlet
6 Pressure/differential pressure measurement (draft)
7 Temperature connection, for example, for ambient air/combustion air temperature
8 Temperature connection, for example, for flue gas temperature

Technical specifications

Measuring ranges (measured values)

Flue gas temperature/differential temperature
0/1,150 °C

Air temperature/combustion air temperature
-20/+200 °C

Draft
±70 hPa

Differential pressure
±150 hPa

Pitot
0.5/70 m/s

O_2 measurement
0/21 % by volume

CO/H_2 measurement
0/10,000 ppm (max.)

NO measurement
0/2,000 ppm

Indication (calculated values)

CO_2, CO undiluted (air-free), lambda, dew point, eta efficiency, flue gas losses qA
CO mg/m³ (natural gas), CO mg/kWh (fuel oil)

Operating temperature range
Ambient: 0/40 °C
Storage: -20/+50 °C

Weight (measuring instrument)
Approx. 500 – 650 g (depends on equipment with sensors)

Dimensions
W x H x D: 65 x 215 x 45 mm

Degree of protection
IP 42 (EN 60529)

Display
TFT colour display: 2.8"
W x H: 45 x 60 mm (240 x 320 pixels)

Connections
Draft/pressure: Ø 7 mm
Gas: Ø 8 mm
Temperature: 2 x socket type K

Supply voltage
Lithium-ion battery (3.6 V/2,300 mAh), power supply unit (mini USB), battery or mains operation

Hours of operation (eco mode)
14 hours

Data memory
MicroSD card, max. 16 GB

Interfaces
Infrared, Bluetooth® Low Energy, QR code generator, microSD card slot

Approvals
VDI 4206 (sheet 1), DIN EN 50379-2, $NO_{(x)}$: 44. BImSchV, DIN EN 15378

i Please enquire for other device versions.
See chapter 6 for options and accessories.

EUROLYZER STx Sets

DG: H, PG: 4

	O_2, CO/H_2 (differential) temperature	Draft/pressure	Differential pressure, connection kit ASS-DP	NO	Calibration report, protective sleeve for device with magnets, power supply unit NTE 5, USB-A, Charging cable USB-A to mini USB, 5 x Infiltec fine filter, 5 x Teflon membrane, covers for measurement holes (10 pieces), case	MicroSD card with USB 2.0 SD card reader	Base handle AWS-B, 2.4 m, draft, for interchangeable probes with KFP	Interchangeable probe AWS-S, 300 mm	Ambient air probe TFB-UL 50-1	Bluetooth® Low Energy	Part no.	Price €
EUROLYZER STx Set 1	•	•	•		•	•	•	•	•	•	P04629210	
EUROLYZER STx Set 2	•	•	•	•	•	•	•	•	•	•	P04630210	

Picture shows original size

1

FLUE GAS ANALYSER

MULTILYZER STx

- All-in-one: Flue gas analysis, (differential) pressure measurement, (differential) temperature measurement, dust measurement, Pitot measurement (in conjunction with STM 225)
- ECO sensor: Lead-free O_2 sensor with long service life and optimised calibration phase, short response time, resistant to biogenous fuels
- Can be equipped with a combination of up to six sensors: O_2, CO/H_2, NO, SO_2, NO_2 und CO_{high}
- CO room air monitoring
- qA mean value measurement as per 1st German Federal Immission Act BImSchV
- Quick-access function keys for direct data access
- Measurement logs as QR code, database memory, customer data management, data logger
- 5 years warranty on O_2, CO/H_2 sensors
- 7 years full warranty in conjunction with a service contract
- CAPBs® enabled

TÜV SÜD

Bluetooth®

EuroSoft connect app

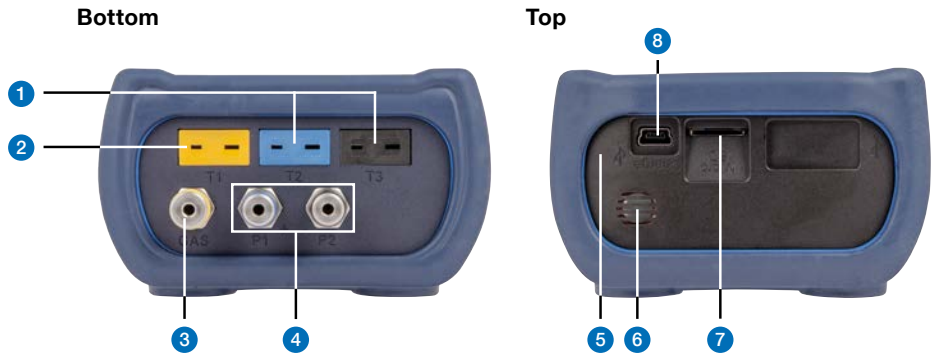
connect

GET IT ON Google Play

Download on the App Store

Application

Flue gas analyser for measuring small and medium-sized oil-, gas- and pellets-fired heating systems according to the German Federal Immission Act and for CO concentration safety checks at gas-fired systems. Ideal for servicing solid fuel systems (for example, coal or wood fired systems with temporary CO peaks) or bivalent, modulating combined heating and power plants. If used within the framework of dust measurements, MULTILYZER STx determines the flue gas value and serves as the central controller for the dust measuring instrument STM 225.



1 Temperature connection, for example, for ambient air/ combustion air temperature
2 Temperature connection, for example, for flue gas temperature
3 Gas inlet
4 Pressure/differential pressure measurement
5 Infrared printer interface
6 Signal unit (speaker)
7 MicroSD card slot
8 Mini USB connection for power supply unit/charger

Technical specifications

Measuring ranges (measured values)

Flue gas temperature/differential temperature
0/1,150 °C

Air temperature/combustion air temperature
-20/+200 °C

Draft
±70 hPa

Differential pressure
±150 hPa

Pitot
0.5/70 m/s

O_2 measurement
0/21 % by volume

CO/H_2 measurement
0/10,000 ppm

CO measurement
0/40,000 ppm

NO measurement
0/5,000 ppm

NO_2 measurement
0/500 ppm

SO_2 measurement
0/5,000 ppm

Indication (calculated values)

CO_2, CO undiluted (air-free), lambda, Eta efficiency, flue gas losses qA, dew point, temperature difference, CO mg/m³ (natural gas), CO mg/kWh (fuel oil)

Operating temperature range
Operation: 0/40 °C
Storage: -20/+50 °C

Weight
Approx. 625 – 685 g (depends on equipment with sensors)

Degree of protection
IP 42 (EN 60529)

Display
TFT colour display 3.5"
W x H: 53 x 71 mm (240 x 320 pixels)

Connections
Draft/pressure: Ø 7 mm
Gas: Ø 8 mm
Temperature: Socket type K

Supply voltage
Lithium-ion battery (3.6 V/2,900 mAh), power supply unit (mini USB), battery or mains operation

Hours of operation (eco mode)
12 hours

Data memory
MicroSD card, max. 16 GB

Data logger
1–999 seconds, interval freely selectable

Interfaces
Infrared, Bluetooth® Low Energy, QR code generator, microSD card slot

Approvals
VDI 4206 (sheet 1), DIN EN 50379-2, $NO_{(X)}$: 44. BImSchV, DIN EN 15378

i Please enquire for other device versions. See chapter 6 for options and accessories.

MULTILYZER STx Sets

DG: H, PG: 4

	O_2, CO/H_2	NO	CO 40,000	Draft, differential pressure, connection kit ASS-DP	Calibration report, protective sleeve with magnets for device, power supply unit NTE 5 USB-A, , charging cable USB-A to mini USB, 5 x Infiltec fine filter, 5 x Teflon membrane, case	MicroSD card with USB 2.0 SD card reader	Base handle AWS-B, 2.4 m, draft, for interchangeable probes with condensate filter cartridge KFP, sampling probe 300 mm	Ambient air probe TFB-UL 50-1	Bluetooth® Low Energy	Module particulate matter measurement	Part no.	Price €
MULTILYZER STx set 1	•			•	•	•	•	•	•		**P04729210**	
MULTILYZER STx set 2	•	•		•	•	•	•	•	•		**P04730210**	
MULTILYZER STx set 3	•		•	•	•	•	•	•	•		**P04741210**	
MULTILYZER STx set 4	•	•	•	•	•	•	•	•	•		**P04748210**	
MULTILYZER STx set 5	•		•	•	•	•	•	•	•	•	**P04741217**	

DUST MEASURING INSTRUMENT

STM 225 – BLACK EDITION

1

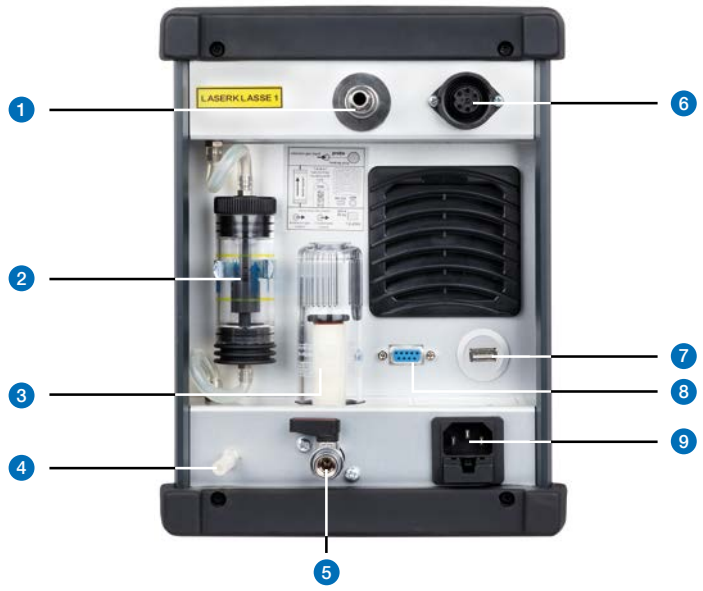
NEW

- Optical measuring principle for fast, accurate measurement results and real time diagnostics
- Reliable measurement results, not influenced by interference (e.g. shocks)
- Intuitive operation via menu-guided measuring sequences
- Operation, flue gas analysis and data output via the optional flue gas analyser MULTILYZER STx as central controller
- Withdrawal system with quick-action coupling lock
- Visualisation via 5.7" colour touch display
- Permanent indication of the current measured value
- Output of the mass concentration of dust as a 15 minute mean value
- Qualification-tested also for 30-minutes mean value measurement
- Short setup time due to fast heat-up and zero point phase
- Connectivity for flue gas analyser MULTILYZER STx via Bluetooth®
- Compact, robust measuring system

Bluetooth®

Application Dust measuring instrument specially designed for mobile use at solid-fuel systems such as pellets or wood fired systems, for determining the mass concentration of particles/dust and for monitoring the limit values for particulate matter. Approved for stages 1 and 2, including limit value monitoring 150 mg/m³ for old systems as well as 30-minutes mean value measurement of single room combustion systems. The sampling probe can also be used for tightness tests of the entire gas path. Ideal for chimney sweeps, heating system engineers and service technicians for performing required particulate matter measurements, e.g. as per 1st German Federal Immission Act.

Rear



1. Gas inlet, connection
2. Condensate collector
3. Particle filter for pump
4. Gas outlet
5. Condensate drain
6. Connection socket sampling line
7. USB interface for manufacturer servicing (e.g. software updates)
8. RS 232 interface for software
9. Connection socket power supply unit

Technical specifications

Measuring range
Dust: 0/300 mg/m³

Resolution
0.1 g/m³

Measured values (via MULTILYZER STx)
O_2: 0/21 % by volume
CO: 0/40,000 ppm

Operating temperature range
Ambient: 5/40 °C
Storage: -25/+65 °C

Housing
W x H x D: 210 x 275 x 375 mm

Degree of protection
IP 40 (EN 60529)

Weight (device)
Approx. 7.5 kg

Display
TFT colour touch display 5.7"

Supply voltage
AC 230 V, 50 Hz

Nominal power
Without probe: 90 VA
With heated probe: 230 VA

Interfaces
Bluetooth®, USB, RS 232

Approvals
Approved for fuels 1–8 as per 1. BImSchV, approved suitability for stages 1+2, including 150 mg/m³, 30 mean value measurement, VDI 4206 sheet 2

Transport bag
Light-weight and heavy-duty with carrying strap and handle

i See chapter 6 for options and accessories.

STM 225 – BLACK EDITION sets

DG: H, PG: 4

	STM 225 with calibration report, mains cable, transport bag	Sampling probe with ENS-W with heated sampling line ENL-H 2A, connection line, condensate filter cartridge KFP, Infiltec fine filter (5 pieces)	MULTILYZER STx with module particulate matter measurement, with calibration report, Bluetooth® Smart interface, protective sleeve with magnets for device, power supply unit, Infiltec fine filter (5 pieces), Teflon membrane (5 pieces)	Ambient air probe TFB-UL-50-1	Cleaning kit: 5 cleaning swabs and cleaning cloths, 1 cleaning brush	Part no.	Price €
Dust measuring instrument STM 225 – BLACK EDITION, set 1	•	•			•	570200	
Dust measuring instrument STM 225 – BLACK EDITION, set 2	•	•	•	•	•	570228	

MOBILE GAS TREATMENT SYSTEM

NEW

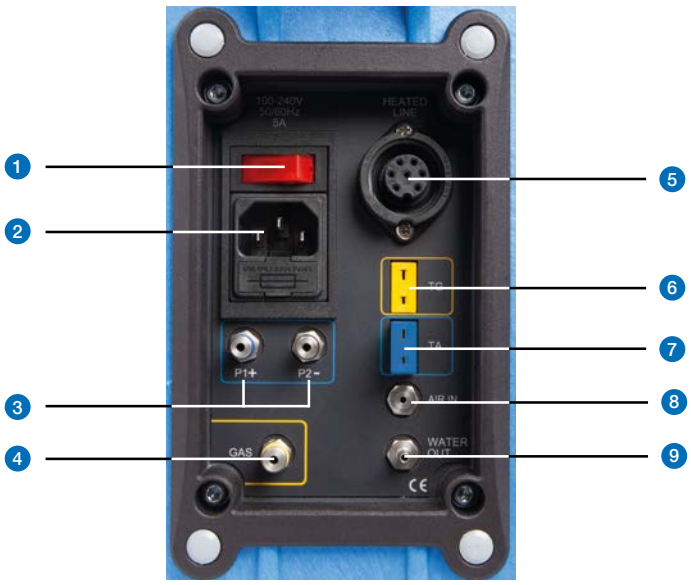
MAXISYSTEM ST

- Automatic sensor regeneration via fresh air valve allows for convenient long-term measurements of up to 12 hours
- Optional with humidity sensor for sensor protection
- Smart system protection by means of continuous monitoring of fresh air valve, heated line, cooler and humidity sensor
- Particularly suitable for industrial applications due to the robust, light.weight design (7.5 kg)
- Large range of probes:
  - Heated line including draft and flue gas temperature
  - Modular probe system
  - High-temperature probes
- Automatic zero point for convenient and fast measurement preparation

Application

Gas treatment system specially for mobile applications. Whenever high-precision gas analysis is required where the flue gas may contain pollution and condensate, MAXISYSTEM ST is the system of choice. In the analysis of highly water-soluble gases such as NO_2 and SO_2, MAXISYSTEM ST must be used in order to be able to obtain reliable measurement results. The modular measurement concept allows to use the corresponding flue gas analyser MULTILYZER STx as a "stand-alone device" or in conjunction with MAXISYSTEM ST. With the integrated temperature controller, the temperature of the heated line can be optimally adjusted to the application between 100 °C and 180 °C. Flue gas analysis, draft/differential pressure and flue gas temperature are directly measured. Efficiency, flue gas loss and dew point are calculated in real time. The operating state of the measuring device can be checked via the status indication of the heated line and the gas cooler. The condensate outlet integrated in the housing reliably discharges condensate. MAXISYSTEM ST is designed for quasi-continuous operation with an operating time of up to 12 hours.

Lateral connections/controls



1. On/off switch
2. Connection socket power supply unit
3. Pressure/draft/differential pressure measurement
4. Gas inlet
5. Connection socket heated line
6. Connection socket flue gas temperature
7. Connection socket ambient air
8. Inlet fresh air
9. Gas outlet

Technical specifications

Dimensions (W x H x D)
420 x 350 x 220 mm

Weight
7.5 kg

Material
Polypropylene (PP)

Operating temperature range
Ambient: 5/40 °C
Storage: -20/+50 °C

Pressure range
750 hPa/1,100 hPa

Humidity
20 % r.h./80 % r.h.

Main fuse
T 5 A / 250 V (4 x 20 mm)

Supply voltage
230 V / 50 Hz – 60 Hz

Approvals
2014/35/EU (Low Voltage Directive)

Gas cooler "cooling system"
5 °C, alarm at ± 3 °C

Heated line "Heating"
100 – 180 °C, alarm at ± 3 °C

Cooling capacity
72 kJ/h

i
See chapter 6 for accessories.

PG: 4	Part no.	**Price €**
MAXISYSTEM ST docking	M05100210	
Options		
MAXISYSTEM ST humidity sensor	511180	
MAXISYSTEM ST heated line	524437	

GAS TREATMENT

TMA 65

- Compact version of a fully-featured gas treatment system in a robust case
- Can be used as a portable or stationary gas treatment system
- Adjustable output dew point and alarm thresholds
- Gas cooler with 80 kJ/h nominal capacity
- Optional: humidity probe with bypass valve, rotameter
- With connection for 1 heated line (no control or controlled)
- Ready to operate after approx. 10 minutes

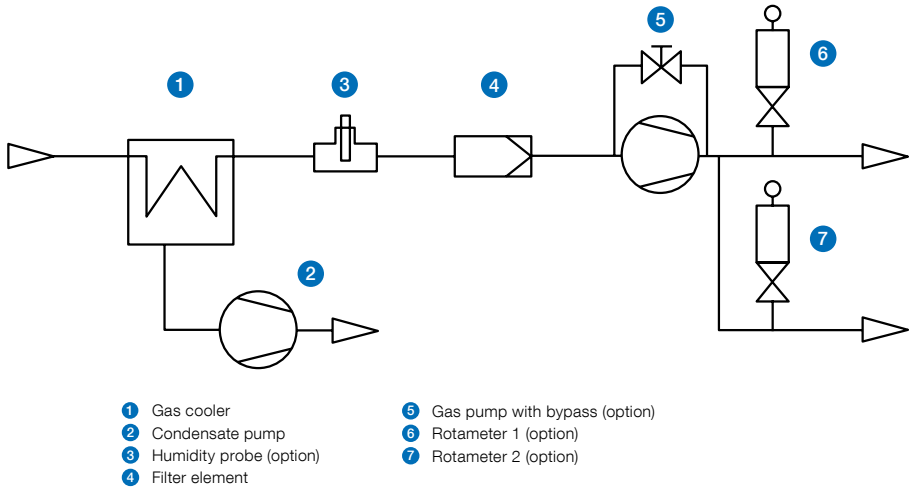
1

Application

Portable gas treatment system for performing accurate gas analyses at changing sites with different analysis devices. Especially for long-term or continuous measurements and measurements involving pollution and/or condensate. Decisive for precise and reproducible measurement results.

The base version of TMA 65 consists of a gas cooler with condensate pump and filter. Irrespective of the ambient temperature, the gas cooler cools the gas down to the adjusted dew point. A safety circuit only releases the gas pump when the cooler has reached its point of operation. The gas cooler and the filter element are adapted to condition corrosive gases. With the optional gas pump with bypass valve and the flow meters, it is possible to supply up to two gas outlets individually. The function "cold start" enables fast use even at a storage temperature of less than 5 °C.

Gas flow chart



Technical specifications

Operating temperature range
Ambient: 5/50 °C

Gas outlet dew point:
Adjustable: 2/20 °C
Factory setting: 5 °C

Alarm thresholds
Adjustable, –3/–1 K and 1/7 K (around dew point)

Gas flow
Approx. 50/280 l/h

Operating pressure
0.2/2 bar absolute

Static dew point
0.1 K
In entire range: ±1.5 K

Input dew point
Max. 70 °C

Gas inlet temperature
Max. 140 °C
Nominal cooling capacity (at 25 °C): 80 kJ/h

Supply voltage
AC 230, 50/60 Hz

Current input
Max. 250 VA (without heated gas line)

Wetted parts
PVDF, glass, stainless steel, PTFE, Norprene, Viton, epoxy resin, sintered PTFE

Housing
W x H x D: Approx. 360 x 460 x 260 mm
Connection length low temperature connector: 2.5 m
Weight: Approx. 13.5 kg (base device)
Degree of protection: IP 20

Options
- Other connections for gas inlet/gas outlet
- Supply voltage AC 115 V, 50/60 Hz
- Gas pump with bypass valve
- Humidity probe
- Rotameter

1

PG: 4	Part no.	**Price €**
Portable gas treatment system TMA 65	69483	
Options		
Gas pump MGP 65 BV, with bypass valve	69484	
Humidity probe KFF 65	69494	
Rotameter DFM 65 SK	69489	

MULTILYZER STx not included in scope of delivery

1

GAS TREATMENT

TMA 75

- Compact version of a fully-featured gas treatment system in a robust case
- Can be used as a portable or stationary gas treatment system
- Adjustable output dew point
- With status alarm (changeover contact)
- Ready for operation after approx. 20 min
- Heated, self-controlling gas line and gas sampling probe can be connected

Application

Portable gas treatment system for performing accurate gas analyses at changing sites with different analysis devices. Especially for long-term or continuous measurements and measurements involving pollution and/or condensate. Decisive for precise and reproducible measurement results.

The base version of TMA 75 consists of a gas cooler with condensate pump and a 2 µm fine particulate filter. Irrespective of the ambient temperature, the gas cooler cools the gas down to the adjusted dew point.

Lightweight, compact gas treatment unit, ideal for portable flue gas analysers.

Technical specifications

Operating temperature range
Ambient: 5/40 °C

Gas outlet dew point:
Adjustable: 2/20 °C
Factory setting: 5 °C

Status alarm
Changeover contact

Gas flow
75 l/h, without pre-separation

Operating pressure
Max. 1 bar

Pressure loss
< 1 mbar at 60 l/h

Flow meter
7/70 l/h air, 20 °C, 1 bar absolute

Pumps
Measured gas: $V_{max.}$ = 180 l/h
Condensate: $V_{max.}$ = 1 ml/min

Input dew point
40 °C, without pre-separation

Gas inlet temperature
Max. 120 °C

Connections
Measured gas/condensate:
Compression fitting Ø 4/6 mm

Supply voltage
AC 230 V, 60 Hz

Current input
Max. 150 VA

Contact rating
1 VA/24 VDC; 0.5 VA/120 VAC

Wetted parts
PA, PTFE, Viton, Duran glass, stainless steel 316

Housing
Aluminium
W x H x D: 360 x 415 x 220 mm
Degree of protection: IP 20

Options
- Supply voltage AC 115 V, 60 Hz

1

PG: 4	Part no.	**Price €**
Portable gas treatment system TMA 75	69503	

Series S2600

Bluetooth®

Series S4600 ST

Gas detector GSP

Bluetooth®

Leak test sets DPK series

PRESSURE MEASUREMENT / TIGHTNESS TEST

Precision measuring instruments and complete sets for checks, tightness tests and leak location

Leak test sets DPK for professional pressure tests

		 DPK 60-6 ST	 DPK 60-7 ST	 CAPBs®-Set DPK 60-6 sens	 CAPBs®-Set DPK 60-7 sens	 CAPBs® set PT 70-FBH
Load test as per TRGI	Gas	•	•	•		
Tightness test as per TRGI		•	•	•		
Evaluation of serviceability/ determination of amount of gas leakage TRGI			•		•	
Tightness test as per TRF 86		•	•	•		
Pressure measurement		•	•	•		
Strength test as per ZVSHK	Drinking water	•	•*	•		•**
Tightness test as per ZVSHK		•	•	•		•**
Pressure measurement		•	•	•		
Tightness test as per EN 1610	Waste water	•	•*	•		
Pressure measurement		•	•*	•		
Pressure measurement	Heating systems	•	•	•		•
Tightness test surface heating/cooling systems						•
0/200 mbar	Pressure ranges	•	•	•		
-0.5/+1.5 bar		•	•	•		
-1/+5 bar		•	•*	•		
0/2 bar		•	•*	•	•	
0/3 bar		•	•*	•		
0/20 bar			•*	•*		
0/25 bar						•
Air	Test medium	•	•	•	•	•
Inert gas		•	•	•	•	
Water			•*	•*		•
Mechanical determination of measured values						
Digital determination of measured values		•	•	•	•	•
Freely adjustable measurement times		•	•	•	•	•
IR interface	Specifications	•	•			
Bluetooth® Low Energy interface		•	•	•	•	•
MicroSD/SDHC card		•	•			
Data logger function		•**	•**	•***	•***	•***
Barometric pressure sensor		•	•		•	
Hose coupling system		•	•	•	•	•
Connection temperature sensor (type K)			•			
Connection pressure sensor			•			
		Page 38	Page 40	Page 78	Page 79	Page 80

* Possible with external pressure sensor (optional).
** Optional.
*** Via app EuroSoft live.

The compact pressure measuring instrument

Product highlight: Series S4600 ST

All-in-one

Measurement of pressure, vacuum and differential pressure and, depending on the version, Pitot measurement (air velocity).

Innovative

Bluetooth® Low Energy interface on board: Power-saving data transmission to all AFRISO CAPBs® or to the AFRISO apps.

Bluetooth®

Proven

Infrared interface for IR printer.

Ergonomic

Extremely compact and light-weight design for convenient handling, including hands-free operation thanks to the magnet integrated in the protective housing.

Smart

Optional data logger function (1–999 seconds, interval freely selectable) for long-term measurement or diagnostics. Data output in XML format for flexible further processing with standard software applications such as MS Excel.

Comprehensive

Six (differential) pressure measuring ranges

Full coverage

Covers the entire range of measuring requirements: From measuring instrument for ultra-low pressure (20 mbar) to version for very high pressure (18 bar).

Independent

microSD card for system-independent storage of measurement logs (HTML format) and fast software updates.

Perseverant

Powerful lithium-ion battery for up to 38 hours of operation.

Energy-saving

The ECO mode for energy-saving operation ensures long battery life.

Mobile

Measurement logs as QR codes for smartphones, tablets or management software.

EuroSoft connect app

connect

GET IT ON Google Play

Download on the App Store

Reliable

Fully automatic device check, manual and automatic zero calibration during program start.

Accurate

Highly accurate measurements due to integrated barometric pressure sensor and temperature compensation. Measured values are displayed in nine units: mbar, Pa, hPa, kPa, mmWC, mmHg, inHg, psi, bar.

Striking

More convenience: The large TFT colour display (W x H: 45 x 60 mm) shows four measured values simultaneously and lets you clearly see the results, even in dark rooms.

PRESSURE MEASURING INSTRUMENT

S4600 ST

- For measuring pressure, vacuum and differential pressure
- Six (differential) pressure measuring ranges from measuring instrument for ultra-low pressure (20 mbar) to version for very high pressure (18 bar)
- Barometric pressure sensor and temperature compensation for highly accurate measured value
- Large TFT colour display (W x H: 45 x 60 mm) for simultaneous display of 4 measured values
- Measured values displayed in 9 units:
  mbar, Pa, hPa, kPa, mmWC, mmHg, inWC, psi, bar
- Fully automatic device check, manual and automatic zero calibration during program start
- MicroSD card for system-independent storage of measurement logs (HTML format) and fast software updates
- Optional data logger function for long-term measurement or diagnostics (data in XML format)
- Pitot measurement (air velocity) for measuring range up to 20 mbar or 150 mbar

EuroSoft connect app

connect

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Download on the App Store

Bluetooth®

TÜV SÜD

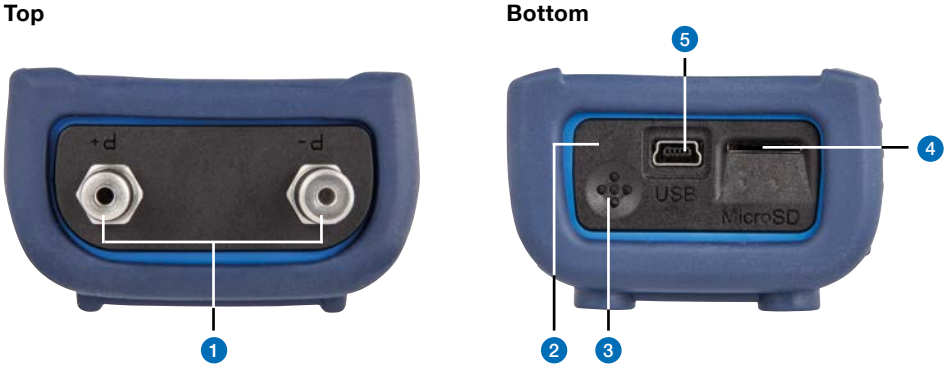
Also as CAPBs®

Application

For measuring pressure, vacuum and differential pressure. For non-corrosive gaseous, dry media. Ideal for industrial, medical and air conditioning technology applications. Other typical application areas: Measurement of chimney draft, measurement of inlet pressure, flow pressure and nozzle pressure, pressure loss in flowing gases, filter inspection, ventilation systems or ducts, production and extraction facilities, vacuum measurement (laboratory), check of the connection pressure (natural gas supply pipes), burner pressure check, inspection of tanks for liquids (inlet and outlet pressure). Minimum and maximum values can be set before the measurement; if these values are reached, visual or audible alarms are triggered. The free Android app "EuroSoft connect" allows for transfer of measurement results to smartphones and tablets via QR code and for the visualisation of such results. Measurement logs can also be sent via e-mail.

Top

Bottom



1. Pressure/differential pressure measurement
2. Infrared printer interface
3. Signal unit (speaker)
4. microSD card slot
5. USB connection for power supply unit/charger

Technical specifications

Model	Measuring range (mbar)	Pitot (m/s)	Max. over-pressure (bar)	Resolution (mbar)	Accuracy (% of measured value)
S4601 ST	± 150	2–50	1.35	0.01 (< 99.99) / 0.1 (> 100); Pitot (m/s): 0.1	± 0.03 mbar or 0.5 %; Pitot: 0.8 m/s
S4602 ST	± 20	0.5–50	0.25	0.001 Pitot (m/s): 0.1	± 0.003 mbar or 0.5 %; Pitot: 0.3 m/s
S4610 ST	± 1,000	–	3.5	0.1 (< 999.9) or 1.0 (> 1,000)	± 0.03 mbar or 0.5 %
S4650 ST (-F)	± 5,000	–	16	0.1 (< 999.9) or 1.0 (> 1,000)	± 0.07 mbar or 0.5 %
S4680 ST (-F)	± 8,000	–	16	0.1 (< 999.9) or 1.0 (> 1,000)	± 1.2 mbar or 0.5 %
S4699 ST-F	± 18,000	–	28	1	± 3 mbar or 0.5 %

Operating temperature range
Ambient: 0/40 °C
Storage: -20/+50 °C

Hours of operation (eco mode)
Max. 38 hours

Weight
Approx. 220 g

Dimensions
W x H x D: 66 x 143 x 37 mm

Display
TFT colour display, 2.8"
W x H: 45 x 60 mm

Hose connection
S4601 ST, S4602 ST, S4610 ST, S4650 ST, S4680 ST: 2 x Ø 8 mm
S4650 ST-F, S4680 ST-F, S4699 ST-F: 2 x Ø 3 mm (Festo)

Supply voltage
Lithium-ion battery (3.6 V/1,800 mAh), power supply unit (mini USB), battery or mains operation

Data memory
microSD card, max. 16 GB

Interfaces
Infrared, Bluetooth®, QR code generator, microSD card slot

Approvals
Draft measurement, EN 50379-2

2

i See chapter 6 for options and accessories.

DG: H, PG: 4	Part no.	**Price €**
Pressure measuring instrument S4601 ST (150 mbar)	571301	
Pressure measuring instrument S4602 ST (20 mbar)	571300	
Pressure measuring instrument S4610 ST (1,000 mbar)	571302	
Pressure measuring instrument S4650 ST (5,000 mbar)	571303	
Pressure measuring instrument S4650 ST-F (5,000 mbar), with Festo connection ø 3 mm	571304	
Pressure measuring instrument S4680 ST (8,000 mbar)	571305	
Pressure measuring instrument S4680 ST-F (8,000 mbar), with Festo connection ø 3 mm	571306	
Pressure measuring instrument S4699 ST-F (18,000 mbar), with Festo connection ø 3 mm	571307	

PRESSURE MEASURING INSTRUMENT

S2600

- Four (differential) pressure measuring ranges
- Measured values displayed in 8 units: mbar, Pa, hPa, kPa, mmHg, inHg, psi, bar
- Hold function for short-term freezing of measured value
- Fully automatic device check, manual and automatic zero calibration during program start
- Hose connection via 8 mm plug in connection or 3 mm Festo clamp connection

2

Application

For measuring pressure, vacuum and differential pressure. For non-corrosive gaseous, dry media. Ideal for industrial, medical and air conditioning technology applications.
Other typical application areas: Measurement of chimney draft, measurement of inlet pressure, flow pressure and nozzle pressure, pressure loss in flowing gases, filter inspection, ventilation systems or ducts, production and extraction facilities, vacuum measurement (laboratory), check of the connection pressure (natural gas supply pipes), burner pressure check, inspection of tanks for liquids (inlet and outlet pressure).

Technical specifications

Device model	Measuring range (mbar)	Max. overpressure (bar)	Resolution (mbar)	Accuracy (% of measured value)
S2601 (FZM 30)	-20/+150	1.35	0.01 (< 19.99) or 0.1 (> 20)	1.0 ± 1 digit (< 130.0 mbar)
S2610 (DMG 15)	-50/+1,000	3	0.1 (< 199.9) or 1.0 (> 200)	1.0 ± 1 digit (< 1,000 mbar)
S2650-F (DMG 25)	-100/+5,000	10	0.1 (< 199.9) or 1.0 (> 200)	1.0 ± 1 digit (< 5,000 mbar)
S2680-F (DMG 35)	-100/+8,000	10.5	0.1 (< 199.9) or 1.0 (> 200)	1.0 ± 1 digit (< 8,000 mbar)

Operating temperature range
Ambient: 0/40 °C
Storage: -20/+50 °C

Hours of operation (eco mode)
Max. 100 hours

Weight (housing)
Approx. 250 g

Dimensions
W x H x D: 66 x 143 x 37 mm

Display
LCD, transflective
W x H: 46 x 48 mm

Hose connection
S2601, S2610: Ø 8 mm
S2650-F, S2680-F: Ø 3 mm (Festo)

Supply voltage
2 x 1.5 V Mignon (AA) batteries

Approvals
1st German Federal Immission Act (1. BImSchV), EN 50379-2

Scope of delivery
Measuring instrument with batteries, calibration report, protective sleeve with magnet

i See chapter 6 for options and accessories.

DG: H, PG: 4	Part no.	**Price €**
Draft measuring instrument S2601 (FZM 30)	569680	
Pressure measuring instrument S2610 (DMG 15)	569681	
Pressure measuring instrument S2650-F (DMG 25)	569682	
Pressure measuring instrument S2680-F (DMG 35)	569684	

Test procedures at gas, oil, solar and water installations

All gas, oil, solar and water pipe installations are subject to a mandatory pressure test after installation. The specialised company certifies the tightness of the system or parts of the system in the test report and confirms proper installation with a signature.

Test of heating systems

Tightness test

Time of test	New installations prior to closing of wall chases, wall or ceiling openings and prior to screeding or installation of panelling
Pipe parts to be tested	Freely accessible pipes with fittings
Test medium	Air or inert gas (N_2, CO_2)
Test pressure	2.5/3 (response pressure of safety valve)

Test of solar systems

Solar systems are subject to a mandatory pressure test prior to flushing according to the manufacturer's instructions. It is not advisable to perform a test with water.

Time of test	New installations prior to filling and flushing of the solar circuit	
Pipe parts to be tested	Pipes with connection points and fittings	
Test medium	Air or inert gas (N_2, CO_2)	
	1. Pressure test	**2. Strength test**
Test pressure	110 mbar to 1 bar	≤ DN 50: 3 bar > DN 50: 1 bar
Test duration	10 min	System ≤ 100 l: 30 min Each additional 100 l: +10 min

Test of oil pipes

The pressure test must be performed as per TRÖL (German Technical Rules for Oil Systems); it can be extended by a tightness test. Requirements concerning the measuring instruments:

- Accuracy class at least 1.0
- Measuring uncertainty ≤ 5 % (with reference to measured value)
- A pressure drop of 0.1 mbar must be detectable

Time of test	Prior to initial commissioning, in the case of underground oil pipes prior to covering and after all types of work on the oil pipe (except for oil filter change)	
Pipe parts to be tested	Pipes with connection points and fittings	
	1. Pressure test	
Test medium	Air/inert gas (N_2, CO_2)	Liquid
Test pressure	Max. operating pressure x 1.1	Max. operating pressure x 1.3, at least 5 bar
Temperature compensation	10 min	10 min
Test duration	Aboveground pipes: 10 min Underground pipes: 30 min	Aboveground pipes: 10 min Underground pipes: 30 min
	2. Tightness test	
Test pressure	110 mbar (overpressure)	300 mbar (vacuum)
Temperature compensation	10 min	10 min
Test duration	10 min	10 min

Test of gas pipes

DVGW (German Technical and Scientific Association for Gas and Water) TRGI (German Technical Rules for Gas Installations) defines the rules for all pressure tests on gas pipes (underground pipes, aboveground outdoor pipes, indoor pipes). Affected pipe sections must be isolated from the gas-carrying pipe. After the test has been performed and gas admitted, the final test is carried out using leak detectors (e.g. GSP or CAPBs® GS 10). All connection points, for example at the gas meter, the pressure controller or the gas-consuming equipment, are tested for leaks.

Load test

Time of test	New installations prior to painting, insulation, plastering or other types of covering
Pipe parts to be tested	Pipes without fittings or with fittings if the nominal pressure rating of such fittings is at least as high as the test pressure. Pipe openings must be closed with metallic components; connection of gas-carrying pipes is not permitted. Connection points without corrosion protection
Test medium	Air or inert gas (N_2, CO_2)
Test pressure	1 bar
Test duration	10 min

Pressure test

Time of test	New installations immediately prior to blowing in of the gas if the tightness test or the evaluation of serviceability has not been performed immediately before
Pipe parts to be tested	Pipes with fittings
Test medium	Air or inert gas (N_2, CO_2)
Test pressure	Max. 50 mbar
Temperature compensation	System < 100 l: 10 min System > 100/200 l: 30 min System > 200 l: 60 min
Test duration	Approx. 5 minutes

Evaluation of serviceability/ Determination of amount of gas leakage

2

Pipe parts to be tested	Pipes including fittings, but without gas-consuming equipment, control and safety-related equipment
Test medium	Air or inert gas (N_2, CO_2)
Test pressure	Operating pressure, usually 23 mbar
Test duration	Min. 1 min, max. 10 min

Test result	Amount of leakage	Serviceability
	0 l/h	Tight
	< 1 l/h	Unlimited
	≥ 1 l/h and < 5 l/h	Reduced
	≥ 5 l/h	None

Tightness test

Time of test	New installations prior to painting, insulation, plastering or other types of covering, decommissioned pipes prior to re-commissioning, decommissioned pipes
Pipe parts to be tested	Freely accessible pipes with fittings, however, without gas-consuming equipment, control and safety-related equipment. Connection points without corrosion protection
Test medium	Air or inert gas (N_2, CO_2)
Test pressure	150 mbar
Temperature compensation	System < 100 l: 10 min System > 100/200 l: 30 min System > 200 l: 60 min
Test duration	System < 100 l: 10 min System > 100/200 l: 20 min System > 200 l: 30 min

Test of underfloor/surface heating systems

Time of test	Prior to applying the screed
Pipe parts to be tested	All heating circuits
Test medium	Water or compressed air
	Tightness test
Test pressure	Water: 6 bar Compressed air: 3 bar
Test duration	Recommendation 1 hour

The tightness of the heating circuits must be verified immediately before the screed or plaster work. This tightness test is performed section by section and after the individual heating circuits have been flushed. The test pressure must be maintained during the screed work or other construction work.

Test of drinking water systems

Pipe parts to be tested	Newly laid pipes with fittings	
Test medium	Air, inert gas (N_2, CO_2) or water	
	1. Tightness test*	**2. Strength test***
Test pressure	150 mbar	≤ DN 50: 3 bar > DN 50: 1 bar
Temperature compensation	30 min	-
Test duration	System < 100 l: 120 min Each additional 100 l: +20 min	10 min

* Specifications for test medium air.

The tightness test with water may only be performed by means of hygienic components and with filtered drinking water. In the case of an extended duration between the pressure test and commissioning, a dry tightness test must be performed to avoid pollution/microbial contamination of the system. The test is carried out as per ZVSHK (German Central Association of the HVAC Industry) specifications.

LEAK TEST SETS

CAPBs®-enabled set DPK 60-6 ST

- Ready-to-use test set for professional tightness tests
- Can be modularly extended for other tests
- With CAPBs®-enabled digital pressure measuring instrument (S4600 ST) with Bluetooth® Low Energy technology, high measuring accuracy and barometric pressure determination for compensation of atmospheric pressure fluctuations during measurements and temperature compensation
- Extended measuring range 0/5,000 bar
- Integrated timer function for long-term measurements, measuring duration freely selectable in increments of one minute (up to 900 min)
- Pressure test valve with high-precision adjustment for easy adjustment of the filling pressure
- MicroSD card for data management and documentation on the PC
- Large TFT colour display (W x H: 45 x 60 mm)
- Convenient quick-action coupling system for easy and fast adaptation to the task at hand
- Option data logger: Data logging once per second during measurements (XML format)
- Measurement logs as QR codes

Application

For pressure tests as per DVGW worksheet G600. Suitable for tightness tests (150 mbar) and load tests (1 bar) on gas pipes and for checking the connection/flow pressure and the pressure loss. Can also be used for tightness tests (150 mbar) and strength tests (3 bar) on drinking water pipes as per ZVSHK (German Central Association of the HVAC Industry). Ideal for acceptance tests of heating system pipes, solar system pipes, underfloor heating systems, liquid gas pipes and oil pipes. The enclosed digital pressure measuring instrument meets the current DVGW (German Technical and Scientific Association for Gas and Water) requirements as per TRGI (German Technical Rules for Gas Installations) and the required reading accuracy (0.1 mbar).

Technical specifications

Measuring range
±5,000 mbar

Resolution
0.1 mbar

Operating temperature range
Ambient: 0/40 °C
Storage: -20/+50 °C

Hours of operation (eco mode)
Max. 38 hours

Weight
2.65 kg

Dimensions (W x H x D)
S4600 ST: 66 x 143 x 37 mm
Case: 450 x 136 x 365 mm

Display
TFT colour display, W x H: 45 x 60 mm

Supply voltage
Lithium-ion battery (3.6 V/1,800 mAh)
or USB power supply unit

Scope of delivery
- Digital pressure measuring instrument series S4600 ST with Bluetooth® Low Energy technology, power supply unit and charging cable
- MicroSD card
- Adapter to USB and USB 2.0 card reader
- Pressure test valve with quick-action coupling and high-precision adjustment valve
- Hand-operated bulb pump with valve and connecting hose
- 2 conical test plugs for pipe diameter ¾" to 1¼" with plug-in nipple
- Y connector (2 x quick-action coupling/1 x plug-in nipple)
- Connection hoses with plug-in nipple and quick-action coupling
- System case L "DPK"

2

i See chapter 6 for options and accessories.

DG: H, PG: 4	Part no.	**Price €**
Leak test set DPK 60-6 ST	**560006**	

LEAK TEST SETS

CAPBs®-enabled set DPK 60-7 ST

EuroSoft connect app

connect

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Download on the App Store

Also as CAPBs®

- Ready-to-use set for all tightness tests, fully integrated in robust system case
- Can be modularly extended for other pressure tests
- Digital, CAPBs®-enabled pressure measuring instrument (DPK 60-7 ST) with Bluetooth® Low Energy technology, high measuring accuracy and barometric determination of pressure for compensation of fluctuations of atmospheric pressure during measurements as well as temperature compensation
- Ideal serviceability evaluation/determination of amount of gas leakage
- Additional external sensors can be connected (temperature, pressure)
- Large TFT colour display (W x H: 45 x 60 mm)
- Integrated timer function for long-term measurements, measuring duration freely selectable in increments of one minute (up to 900 min)
- Pressure test valve with high-precision adjustment for easy adjustment of the filling pressure
- Convenient quick-action coupling system for easy and fast adaptation to the task at hand
- microSD card for data management and documentation on the PC
- Option data logger: Data logging once per second during measurements (XML format)
- Measurement logs as QR codes (QR code reader in EuroSoft connect)
- Printer connection via IR interface or Bluetooth® Low Energy

Application

For pressure tests as per DVGW worksheet G600. Suitable for tightness tests (150 mbar) and load tests (1 bar) on gas pipes and for checking the connection and flow pressure. Ideal for evaluation of serviceability as well as tightness tests and load tests. The enclosed digital pressure measuring instrument is TÜV-tested as per DVGW G5952 and meets the current DVGW (German Technical and Scientific Association for Gas and Water) requirements as per TRGI (German Technical Rules for Gas Installations) for measuring instruments of class D and the required reading accuracy for tightness tests of 0.1 mbar as per TRGI.

Technical specifications

Measuring range
±1,500 mbar

Resolution
0.1 mbar

Operating temperature range
Ambient: 0/40 °C
Storage: -20/+50 °C

Hours of operation (eco mode)
Max. 38 hours

Weight
5.85 kg

Dimensions (W x H x D)
S4600 ST: 66 x 143 x 37 mm
Case: 500 x 170 x 420 mm

Display
TFT colour display, W x H: 45 x 60 mm

Supply voltage
Lithium-ion battery (3.6 V/1,800 mAh)
or USB power supply unit

Capacity per stroke of hand-operated pump
Approx. 200 cm^3

Approval
TÜV-tested as per DVGW G5952

Scope of delivery
- Digital pressure measuring instrument DPK 60-7 ST with Bluetooth® Low Energy technology, power supply unit and charging cable
- MicroSD card
- Adapter to USB and USB 2.0 card reader
- Pressure test valve with quick-action coupling and high-precision adjustment valve
- Valve unit with shut-off fitting
- Syringe for test volume
- Hand-operated pump with check valve
- Hand-operated bulb pump with valve and connecting hose
- 2 conical test plugs for pipe diameter ¾" – 1¼" with plug-in nipple and 1 conical test plug for ½" – ¾" with plug-in nipple
- Y connector (2 x quick-action coupling/1 x plug-in nipple)
- Connection hoses with plug-in nipple and quick-action coupling
- Robust plastic system case

2

i See chapter 6 for options and accessories.

DG: H, PG: 4	Part no.	**Price €**
Leak test set DPK 60-7 ST	**560007**	

GAS DETECTOR

GSP 4

- Fast and reliable detection of flammable gases
- Sensor for a wide range of flammable gases (base calibration: methane)
- Sensor protection for long service life
- Flexible gas probe for use in spaces difficult to access
- Audible alarm if limit values are exceeded

2

Application

For detection of gas leaks (flammable gases) in gas pipes as well as connection pieces and fittings, gas meters, gas burners and gas tanks. The intensity of the escaping gas is indicated by the three LEDs. At the same time, the instrument generates an audible signal whose frequency is proportional to the gas concentration. Preset limit values.

Technical specifications

Measuring range
0/2,000 ppm

Accuracy
±500 ppm

Sensitivity (methane)
±50 ppm

Operating temperature range
Ambient: 0/40 °C
Storage: -20/+50 °C

Hours of operation (eco mode)
10 hours

Weight (with battery)
158 g

Dimensions
W x H x D: 392 x 45 x 39 mm (with probe)

Indication
3 LEDs

Supply voltage
2 x AAA alkaline battery or
2 x AAA rechargeable battery

DG: H, PG: 4	Part no.	**Price €**
Gas detector GSP4	**503502**	


BlueLine®
Favourites
Temperature Measurement
Settings
Memory
AFRISO

TMD 9


DRY
MEDIUM
WET
4.2 %
ON OFF
Material
Temp
Mode Menu
Material
Store
AFRISO

MFM 22

TEMPERATURE/HUMIDITY MEASUREMENT

Handheld measuring instruments for moisture and temperature

TÜV-tested measurement of moisture in solid matter

Product highlight: MFM 22

All-rounder

Probes for the assessment of a great variety of materials such as pellets, wood chips, log wood, plaster, concrete, screed, straw, textiles, etc. turn MFM 22 into an all-purpose handheld measuring instrument for chimney sweeps, experts, surveyors, architects, companies specialised in removing water damage or wood-processing companies.

Ergonomic

Compact and light-weight design for convenient handling

Knowledgeable

400 wood characteristics and 28 construction material characteristics as well as special characteristics for the determination of the moisture content in wood are stored in the device and can be selected by simply pressing a button.

User-friendly

Ready in no time: Assignment of favourites "Sort" with frequently measured firewood types and wood chips as per 1st German Federal Immission Act.

Accurate

Temperature-compensated evaluation of the residual moisture content of materials in compliance with directives and standards (1st German Federal Immission Act).

Intuitive

Menu-guided three-point mean value measurement for split logs.

Reliable

Fully automatic Hold function for stable measurements even in the case of variations caused by, for example, electrostatic charges.

Fast

Fast evaluation of the condition of the material via indication of a reference value "DRY" to "WET".

Approved

TÜV-approval as per VDI 4206-4. First TÜV-tested standalone wood moisture measuring instrument as per 1st German Federal Immission Act.

MOISTURE MEASURING INSTRUMENT

MFM 22

- TÜV-approval as per VDI 4206-4. First TÜV-tested standalone wood moisture measuring instrument as per 1st German Federal Immission Act
- Device comes with characteristics for 400 wood types and 28 construction materials stored in the software – no complex conversion tables for construction material required
- Ready in no time: Assignment of favourites "Sort" with frequently measured firewood types and wood chips as per 1st German Federal Immission Act
- Menu-guided three-point mean value measurement for split logs
- Auto-hold function: Fully automatic for determination of an accurate measured value in the case of electrostatic charge (e.g. dry wood)
- Visual range alarm: The characteristic flashes if the u value is < 8 % or > 40 %
- Special electrode with temperature probe, TÜV-tested according to test report M 1167-01/15, as per VDI 4206-4 for wood chips and pellets
- Insertion probe for wood chips and pellets with improved ergonomics and optimised cable routing for superior handling
- Versatile application due to special probes for pellets, wood chips, log wood, screed, plaster, concrete, brick-work, paper, etc.

Application For precise and standards-compliant evaluation of the residual moisture content and the temperature of pellets and wood. The integrated three-point mean value function (measured value as a result of the mean value of measurements at three reference points of the split log) also complies with the requirements of the 1st German Federal Immission Act. MFM 22 is also suitable for measurements of moisture in buildings (e.g. plaster, concrete, screed). Water content and material moisture are determined by means of a resistance method directly at the sample. The correct measured value is calculated on the basis of material-specific characteristics. The integrated temperature compensation is an essential feature in obtaining correct measurements at wood fuels and the corresponding wood chips or pellets. MFM 22 is the ideal general purpose measuring instrument for residual moisture.

Technical specifications

Measuring range
Moisture u: 0/100 %
Temperature: -40/+200 °C
Resolution u: 0.1 %

Accuracy
± 0.2 % u
± 0.5 % of measured value ± 0.3 °C

Operating temperature range
Ambient: -25/+50 °C
Storage: -25/+70 °C

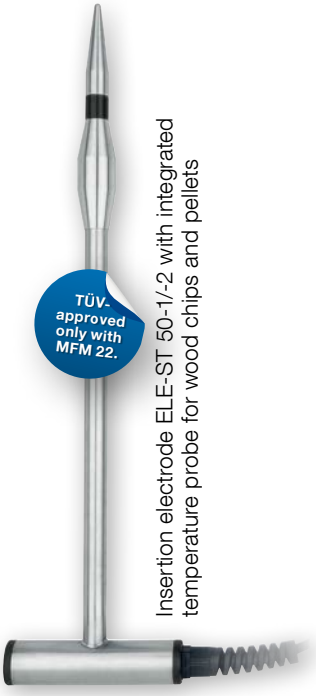
Weight
Approx. 175 g

Dimensions
W x H x D: 71 x 142 x 26 mm

Display
LCD, W x H: 38 x 25 mm

Supply voltage
1 x 9 V monobloc battery

Approval
TÜV approval as per VDI 4206-4



Insertion electrode ELE-ST 50-1/-2 with integrated temperature probe for wood chips and pellets

Deep electrodes ELE-MS 110 for straw, plaster, brickwork

Hammer electrode ELE-HE 20 for log wood

Brush electrode ELE-BE for moisture in construction materials (screed, concrete)

Ram electrode ELE-SE 10 for log wood and moisture in construction materials

3

MFM 22 sets

DG: H, PG: 4

	Measuring instrument MFM 22	Measurement cable 1 m with connector, 9 V battery, steel pins 40 mm, case	Hammer electrode ELE-HE 20 With TÜV approval	Ram electrode ELE-SE 10	Part no.	Price €
Moisture measurement instrument MFM 22	•				569087	
Moisture measuring instrument MFM 22, set 1	•	•	•		P569087-1	
Moisture measuring instrument MFM 22, set 2	•	•		•	P569087-2	

i See chapter 6 for options and accessories.

Temperature measuring instrument TM 7 / TMD 7

Also as CAPBs®

- Short response time for measurements at cycles of a second
- Large, lit LC display for simultaneous indication of two measured values
- Hold function for measured values
- Fast determination of differential temperature (TMD 7)
- Automatic segment test when program starts
- Three magnets in protective housing for hands-free operation
- Robust protective housing against dirt, impact and shock

3

Application

For temperature measurement on surfaces, liquids, soft plastic media or in air and gases.

Technical specifications

Device model	Measuring range	Resolution	Accuracy (% of measured value)
TM 7	-50/+1,100 °C	0.1 °C (-50.0/+99.9 °C)	3.0 % ± 2.0 K (-50.0 to 0 °C) 0.5 % ± 0.5 K (0 to 99.9 °C) 0.5 % ± 1 K (100 to 1,100 °C)
		1 °C (100/1,100 °C)	
TMD 7	-50/+1,100 °C	0.1 °C (-50.0/+99.9 °C)	3.0 % ± 2.0 K (-50.0 to 0 °C) 0.5 % ± 0.5 K (0 to 99.9 °C) 0.5 % ± 1 K (100 to 1,100 °C)
		1 °C (100/1,100 °C)	

Operating temperature range
Ambient: 0/45 °C
Storage: -20/+50 °C

Hours of operation (eco mode)
100 hours (without display backlight)

Weight
Approx. 250 g

Dimensions
W x H x D: 66 x 143 x 37 mm

Display
LCD, transflective
W x H: 46 x 48 mm

Indication of measured values
°C or °F

Probe connection
TM 7: 1 x socket type K
TMD 7: 2 x socket type K

Supply voltage
2 x 1.5 V Mignon (AA) batteries

Approvals
EN 50379-2

Scope of delivery
- Measuring instrument with batteries
- Protective sleeve with magnet

i
See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	**Price €**
Temperature measuring instrument TM 7	570056	
Temperature measuring instrument TMD 7	570057	

Temperature measuring instrument TMD 9

- Short response time for measurements at cycles of a second
- Large TFT colour display (W x H: 45 x 60 mm) for simultaneous display of four measured values
- microSD card for system-independent storage of measurement logs (HTML format)
- Data logger function for long-term measurement
- Multifunctional use of temperature probes via type K socket
- Three magnets in protective housing for hands-free operation

Bluetooth®

Application

For temperature measurement on surfaces, liquids, soft plastic media or in air and gases. Ideal also for differential temperature measurements, for example, flow and return temperature.

Technical specifications

Device model	Measuring range	Resolution	Accuracy (% of measured value)	Thermocouple
TMD 9	-50/+1,150 °C	0.1 °C	± 1 °C + 1 digit (up to 300 °C) ± 1 % of meas. value (> 300 °C)	Type K (NiCr-Ni)

Operating temperature range
Ambient: 0/40 °C
Storage: -20/+50 °C

Hours of operation (eco mode)
Up to 38 hours

Weight
Approx. 154 g

Dimensions
W x H x D: 66 x 143 x 37 mm

Display
2.8 " TFT colour display
W x H: 45 x 60 mm

Indication of measured values
°C or °F

Probe connection
2 x type K socket

Supply voltage
Lithium-ion battery (3.6 V/1800 mAh)
or power supply unit (mini USB)

Interfaces
Infrared, Bluetooth® Low Energy, QR code generator, microSD card slot

Data memory
MicroSD card (incl. data logger function)

Data logger
1-999 seconds, interval freely selectable

Approvals
EN 50379-1

Scope of delivery
- Measuring instrument with power supply unit and charging cable
- Mini USB and microSD card including USB 2.0 SD card reader

i
See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	**Price €**
Temperature measuring instrument TMD 9	**P071000916**	

Infrared temperature measuring instrument TM 8-IR

- Non-contact temperature measurement
- Backlit LC display
- Hold function for measured values
- Short response time (< 1 s) for measurements at cycles of a second
- Ratio distance to Ø measuring point 11:1

3

Application

For temperature measurements of surfaces and for measurements of moving parts (e.g. paper reels, tyres) or live parts (e.g. electrical assemblies, transformers). Ideal for applications in the food industry.

Technical specifications

Measuring range
Infrared: -33/+500 °C (ratio 11:1)
Thermocouple: -64/+1400 °C

Accuracy
Infrared: ± 2 °C
Thermocouple: ± 1 °C

Operating temperature range
Ambient: 0/50 °C
Storage: -20/+65 °C

Hours of operation (eco mode)
140 hours

Weight
180 g

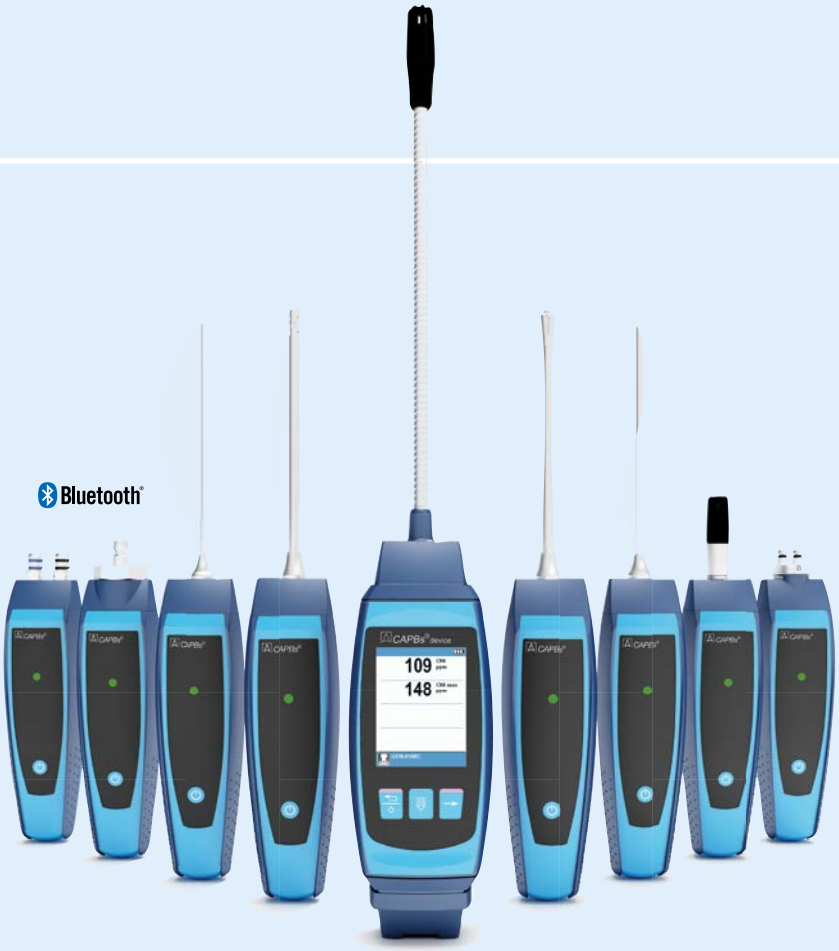
Dimensions
W x H x D: 39 x 175 x 80 mm

Display
LC display, W x H: 25 x 24 mm

Supply voltage
2 x 1.5 V AAA batteries

Scope of delivery
- Measuring instrument with protective pocket and batteries

DG: H, PG: 4	Part no.	**Price €**
Temperature measuring instrument TM 8-IR	**570039**	



CAPBs® measuring units

CAPBs® application sets

FlowTemp® STx

AFRISO CAPBs®

Universal sensor module system with Bluetooth® technology

OVERVIEW

SENSOR MODULES

SETS

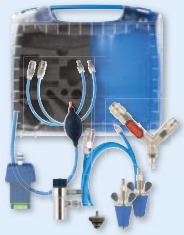
CAPBs® sensor modules for pressure measurement and tightness test






		Pressure measurement	Pressure measurement	Pressure measurement	Pressure measurement	Pressure measurement	Pressure transmitter
CAPBs®		PS 10 (20 mbar)	PS 20 (180 mbar)	PS 33 (2 bar)	PS 40/41 (6 bar)	PS 60/61 (20 bar)	PT 70 (25 bar)
Application examples		Measurement of ultra-fine pressure (Pitot measurement)	Check of connection and flow pressure in gas-fired heating systems	Evaluation of serviceability (TRGI)	Tightness and load test of gas lines	Stress pressure test at pipe systems	Test of water pipes (test medium water) as per ZVSHK
Temperature	Parameters/measured values						
Pressure	Parameters/measured values	•	•	•	•	•	•
Dew point	Parameters/measured values						
Volume flow	Parameters/measured values	•*	•*				
Measurements of filters, ventilation systems, ducts	Typical applications areas		•	•	•	•	
Measurements of production facilities, tanks, gas pipes	Typical applications areas		•	•	•	•	•
Burner adjustment/servicing (gas, oil, solid fuel systems)	Typical applications areas	•	•	•	•		
Pressure measurement	Typical applications areas	•	•	•	•	•	•
Tightness test (gas)	Typical applications areas		•	•	•		
Load test (gas)	Typical applications areas			•	•		
Serviceability test (gas)	Typical applications areas			•			
Tightness test (ZVSHK)	Typical applications areas		•**	•	•**		•***
Strength test (ZVSHK)	Typical applications areas			•	•**		•***
Stress pressure test	Typical applications areas					•	•
Measurement of inlet pressure, flow pressure, static pressure, nozzle pressure	Typical applications areas		•		•		
Pressure / vacuum measurement	Typical applications areas	•	•		•	•	•
Differential pressure measurement	Typical applications areas	•	•				
Vacuum measurement	Typical applications areas	•	•		•	•	
Surface temperature measurement	Typical applications areas						
Draft/chimney draft measurement	Typical applications areas	•	•				
Ventilation loss measurement	Typical applications areas						
Heating system check	Typical applications areas						
4 Pa test	Typical applications areas						
Air velocity	Typical applications areas	•*	•*				
		Page 66	Page 66	Page 66	Page 66	Page 66	Page 66

* Accessories required, see catalogue page.
** With test medium air.
*** With test medium water.




Pressure/ temperature	Tightness test	Evaluation of serviceability	Tightness test underfloor heating system	Tightness test water pipe	Test set	Test set
FP 10	DPK 60-6 sens	DPK 60-7 sens	PT 70 - FBH	ADS-WS	Heating system check 2.0	4 Pa test
Determination of ventilation loss (heating system check), 4 Pa test	Leak test set for gas, heating, oil or water pipes	Evaluation of service-ability of gas lines TRGI	Leak test set for underfloor systems for heating/cooling	Pressure tests at (drinking) water pipes	Determination of ventilation loss	Check of under-pressure values in buildings
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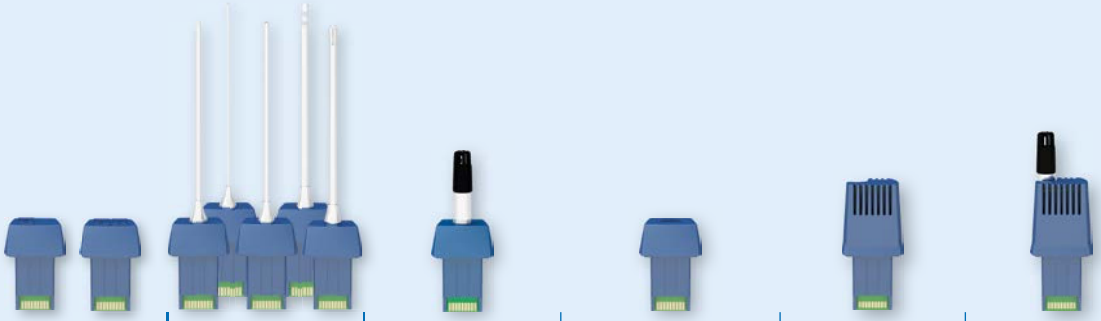
4

CAPBs® sensor modules – further application areas



		Temperature	Temperature	Humidity/air temperature	Air quality	Air quality	Air quality
CAPBs®		TK 10/11 type K	TK 20 – TK 50	RH 80	AQ 20	AQ 35	AQ 36
Application examples		Determination of temperatures on surfaces, in liquids and in gases	Determination of temperatures on surfaces, in liquids and in gases	Monitoring or humidity in closed rooms	Fast and reliable detection of VOCs (volatile organic compounds) and CO_2	Assessment of ambient air quality in rooms, detection of CO_2	Assessment of ambient air quality in rooms, detection of CO_2, humidity and temperature
Methane	Parameters/measured values						
Propane (liquefied gas)							
Butane							
Temperature		•	•	•			•
Pressure							
Humidity in %				•			•
CO							
CO_2					•	•	•
VOC					•		
Volume flow							
TDS value in mg/l							
Salinity							
Electrical conductivity							
pH value							
Flow rate measurement (water)	Typical applications areas						
Thermal disinfection							
Measurements of filters, ventilation systems, ducts					•	•	•
Adjustment of ventilation/air conditioning systems (EN 16798/ TRGS 900)				•	•	•	•
Measurements of production facilities, tanks, gas pipes							
Heating water analysis (VDI 2035)							
Drinking water analysis (rapid test)							
Burner adjustment/servicing (gas, oil, solid fuel systems)							
Hydraulic Balancing							
Servicing of water heaters		•	•				
Temperature measurement (flue gas, air, external wall)		•	•				
Temperature measurement (water)		•	•				
Surface temperature measurement							
Gas leak detection							
Gas concentration measurement							
Moisture measurement (material/ moisture/indoor climate/mould)				•			
Air velocity							
		Page 70	Page 71	Page 72	Page 72	Page 73	Page 73

* Accessories required, see catalogue page.
** With test medium air.
*** With test medium water.

4






Gas leak detection	CO detection	Flow rate/ temperature	Water quality	Hydraulic Balancing	
GS 10	CO 30	FlowTemp® STx	WQ 10	PT 85	PT 86
Detection of leaking flammable gases (e.g. methane)	CO concentration measurement in boiler rooms	Function tests of drinking water heaters and connected pipe systems	On-site check of drinking water quality or quality of system water in heating systems	Balancing of radiator valves and lockshield valves with measurement function (AFRISO VarioQ)	Balancing of line fittings and control valves
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4

Welcome to the future.

Cutting edge measuring technology – AFRISO CAPBs® measuring units.

Comprehensive

Easy extension of BlueLine measuring instruments by a great variety of applications such as pressure measurement, temperature measurement, humidity measurement, volume flow or Pitot measurement as well as gas leak detection, flow measurement, hydraulic balancing, etc.

Wireless

Wireless, immediate transmission of the measurement data to your AFRISO measuring instrument, smartphone or tablet with Bluetooth® technology.

Flexible

Base handle BG 10 with multi-purpose key with customisable function assignment for ease of use and consistent operation of the CAPBs®, regardless of site.

Accurate

Position-independent, temperature-compensated sensor technology for maximum precision in all measuring scenarios.

Modular

Numerous, versatile applications thanks to modular design with universal base handle for all sensor modules.

Universal

Compatible with our proven BlueLine measuring instruments or your smartphone and tablet.

Quality

100 % made in Germany.

Proven

Easy documentation of measurement results on site via IR or Bluetooth® interface of the BlueLine measuring instrument.

Focused

Measurement data centre for saving the measurement results in the BlueLine measuring instrument or the app. Optional data logger function for data output in XML format for flexible further processing with standard software applications such as MS Excel.

Error-free

Simultaneous storage of all measured data to the measuring instrument or the mobile devices helps to avoid errors, for example caused by incorrect readings.

Bluetooth®

GET IT ON Google Play

Download on the App Store

Available for Windows

Ergonomic

Light-weight, ergonomic handle made of robust, high-quality plastic with three integrated magnet for hands-free operation.

Ready for measurement

Free firmware updates for BlueLine measuring instruments with pre-installed measurement menus for all available CAPBs® – can be done by the user at any time via the microSD card.

EuroSoft® live app

live

Independent

Free app for EuroSoft® live for operation of all CAPBs® via smartphone and tablet. With pre-installed measurement menus for special applications (for example, gas line checks) and graphical representation of the measurement results.

AFRISO TOOLBOX App

TOOLBOX

Safety

Reliable documentation of the measurement results in conjunction with apps: Easy creation, export and sharing of measurement records via e-mail or messengers

Energy-saving

Automatic switching off of the CAPBs® when the Bluetooth® connection is closed ensures low energy consumption.

Revolutionary

Continuous, simultaneous flow and temperature measurement in water applications with the new, TÜV-tested flow rate/temperature measuring instrument FlowTemp® STx.

Further information:

www.capbs.info

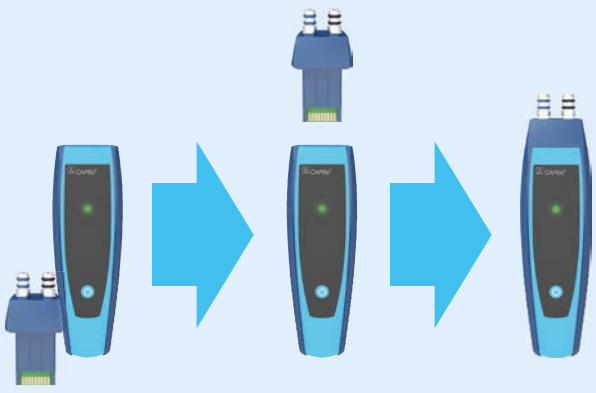
Universal. Accurate. Flexible.

Modular system

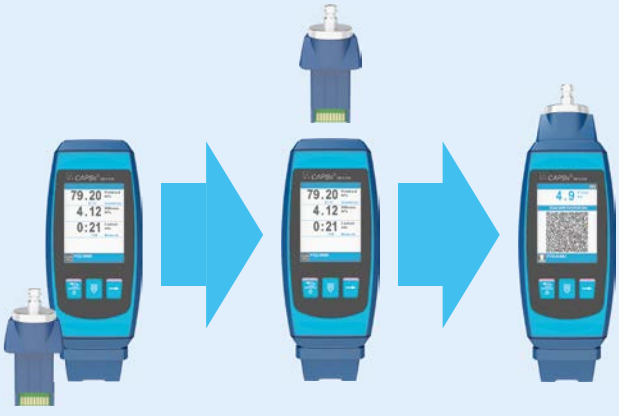
The AFRISO CAPBs® constitute a modular measuring system which provides a wire range of physical measurands thanks to versatile combinations of application-specific sensors. The CAPBs® sensors measure pressure, temperature, humidity or flow rate, but they can just as well be used for evaluating water quality or ambient air and to facility complex function tests. Whether with the CAPBs® base handle BG 10 or the CAPBs® device, the sensor modules can be combined to create a measuring unit perfectly adapted to the task at hand. This results in numerous advantages for the HVAC specialist, chimney sweep or service technician when dealing with a various measured variables.

The ergonomically designed handles with magnets at the rear allow for convenient hands-free operation. The CAPBs® base handle BG 10 is supplied via two standard AAA batteries (it is advisable to use rechargeable batteries). The CAPBs® device features an integrated lithium-ion battery. The snap-in mechanism for connecting the sensor modules is standardised and identical in the case of both handle systems. Operation is simple and user-friendly: For example, depending on the model, settings such as zero point, data logger or start of the measurement can be made via the multi-purpose key or the adjustment keys.

Modular replacement system



Base handle BG 10 with sensor module



CAPBs® device with sensor module

From easy data management all the way to automatic PDF records

The CAPBs® potential

Measured value = added value! The increasing demands with regard to traceability and verifiability of measurements places more and more importance on treatment and processing of measurements data. Benefit from a multitude of options for processing the measurement results. Simply snap the required sensor into the handle, select the type of measurement or the measurement program and start the measurement. The measurement data can then be output in the AFRISO apps EuroSoft® live in PDF format that meets practically all requirements.

CAPBs® base handle BG 10:

- Direct transmission of measurement data to the AFRISO apps and BlueLine measuring instrument via Bluetooth®
- Specific measurement programs
- Compliant documentation of the measurement results including diagrams in PDF format (app)
- Individual configuration via multi-purpose key

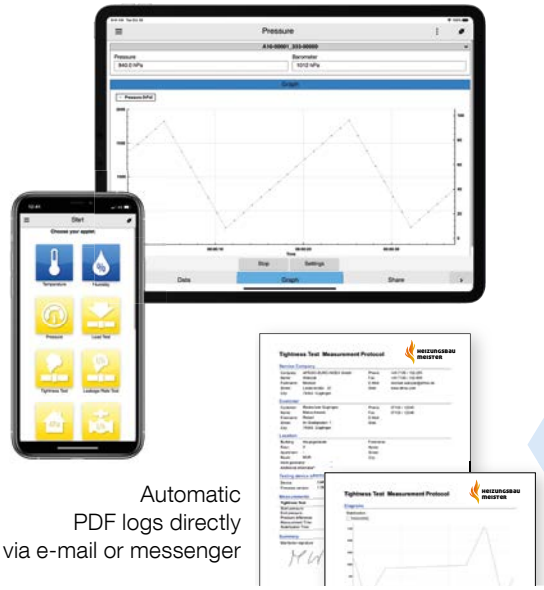
CAPBs® device:

- Transmission of measurement data via Bluetooth or QR code to AFRISO apps
- Live indication of measured values
- User-friendly measurement programs such as pressure drop test, gas leak measurement, differential pressure
- Documentation of the measurement results in PDF format (app)
- Mean value for adjustable measurement duration
- Charging during measurements thanks to mains connection via interface modules
- Professional data logger interface IF 20 for long-term error analyses, for example

Transmission of measurement data

Bluetooth®

live



Automatic PDF logs directly via e-mail or messenger

Transmission of measurement data

Bluetooth® and QR-Code

live

Bluetooth®

CAPBs®

Base handle

Description

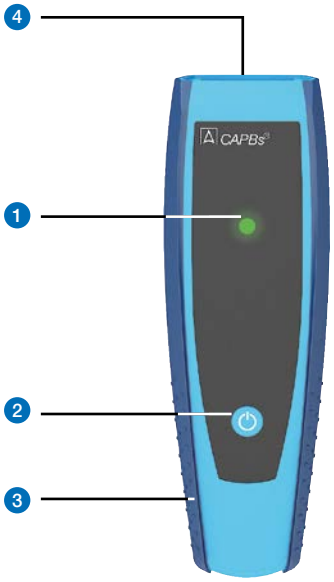
Universal base handle for all CAPBs® sensor modules. Ergonomic handle with three magnets and battery compartment at the rear of the housing. Multi-colour LED and multi-purpose key on the front. With integrated device for audible signals and Bluetooth® module.

Technical specifications

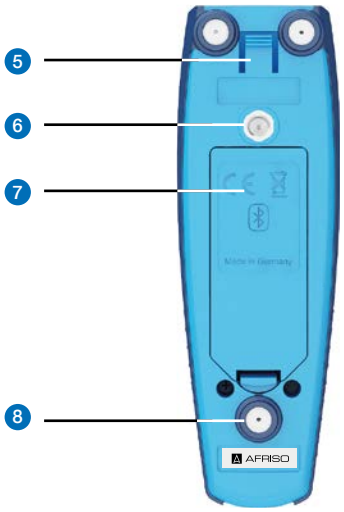
Dimensions (W x H x D):	45 x 140 x 39 mm
Weight:	113 g
Supply voltage:	2 x 1.5 V AAA alkaline battery or 2 x AAA-NiMH battery
Interface:	Bluetooth®
Scope of delivery:	Base handle BG 10, 2 x 1.5 V AAA alkaline battery

4

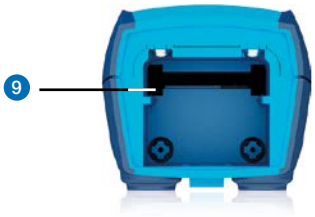
Front



Rear



Top



1. LED
2. Multi-purpose key
3. Protective sleeve
4. Slot for CAPBs® sensor modules
5. Unlocking mechanism for removing CAPBs® sens
6. Tripod socket (1/4" UNC) for mounting to camera tripods or selfie sticks
7. Battery compartment
8. Magnet
9. Snap-in mechanism for CAPBs® sens

DG: H, PG: 4	Part no.	**Price €**
CAPBs® base handle BG 10	M091000017	
CAPBs® water protection sleeve WSH-BG for BG 10	524259	

AFRISO

CAPBs®

Modular base handle with display

Modular display and control unit for all CAPBs® sensors. The TFT colour display shows the measured values of the installed CAPBs® sensor in real-time. The CAPBs® device is equipped with navigation key, magnets at the rear and a sounder for signals specific to certain measured values. The CAPBs® device can be extended by additional functions such as a professional data logger (IF 20) using replaceable interface modules.

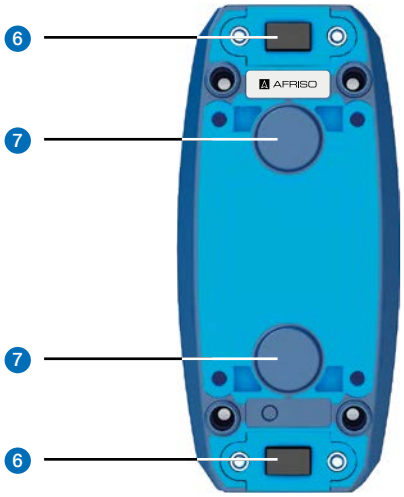
Technical specifications

Dimensions (W x H x D):	62 x 155 x 42 mm
Display:	2.4" TFT colour display, W x H: 38 x 50 mm
Weight:	300 g
Supply voltage:	Lithium-ion battery /mains operation (USB-C)
Interface:	Bluetooth®, QR code (iOS, Android), USB-C (Windows)
Scope of delivery:	CAPBs® device, CAPBs® interface basic IF 10, power supply unit NTE 5, charging cable USB-A to USB-C (1 m)

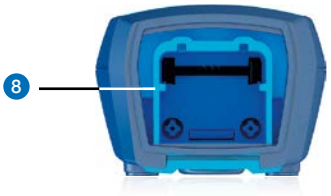
4

Front

Rear



Top/bottom



1. Large 2.4" TFT colour display
2. Key with status LEDs
3. Protective rubber coat
4. Slot for CAPBs® sensor modules or CAPBs® interface modules
5. Interface module with USB connection for charging
6. Unlocking mechanism for removing the sensor module or the interface module
7. Magnet
8. Snap-in mechanism for sensor module or interface modules

DG: H, PG: 4	Part no.	Price €
Modular base handle CAPBs® device with interface basic IF 10	P00052	
Modular base handle CAPBs® device with interface logger IF 20	P00100	On request
CAPBs interface logger IF 20	M094003911	On request

CAPBs®


Pressure CAPBs® sens PS 10, 20 mbar, 2 x Ø 8 mm


Pressure CAPBs® sens PS 20, 180 mbar, 2 x Ø 8 mm


Pressure CAPBs® sens PS 33, 2 bar, 1 x Ø 8 mm


Pressure CAPBs® sens PS 40, 6 bar, 1 x Ø 8 mm


Pressure CAPBs® sens PS 41, 6 bar, 1 x Ø 3 mm (Festo)


Pressure CAPBs® sens PS 60, 20 bar, 1 x Ø 8 mm


Pressure CAPBs® sens PS 61, 20 bar, 1 x Ø 3 mm (Festo)

Pressure PS

- Measurement of ultra-fine pressure (PS 10)
- Check of connection and flow pressure in gas-fired heating systems (PS 20)
- Evaluation of serviceability/determination of amount of gas leakage at gas lines according to TRGI. The sensor module features barometric pressure determination and is DVGW-certified (CAPBs® sens PS 33)
- Tightness and load test of gas lines (PS 40/41)
- Stress pressure test at pipe systems (PS 60/61)

4

Description Sensor module for measurement of pressure, vacuum and differential pressure of non-corrosive, gaseous, dry media. The pressure sensors are available with two connections in the five measuring ranges 20 mbar , 180 mbar, 2 bar, 6 bar and 20 bar. Manual shifting of the zero point allows you to double the measuring range. The high-quality sensors are extremely accurate, orientation-independent and temperature-compensated.





Application	PS 10 (20 mbar)	PS 20 (180 mbar)	PS 33 (2 bar)	PS 40 / PS 41 (6 bar)	PS 60 / PS 61 (20 bar)
Differential pressure	•	•			
Pressure loss	•	•	•	•	•
Connection pressure/flow pressure		•		•	
Flow rate	•	•			
Stress pressure test					•
Test of gas pipes as per TRGI					
Tightness test		•	•	•	
Load test			•	•	•
Combined tightness and load test				•	•
Serviceability test			•		
Test of drinking water systems as per ZVSHK					
Tightness test		•	•	•	
Strength test				•	•
Test of heating systems					
Tightness test				•	•
Test of solar systems					
Pressure test		•	•	•	•
Strength test				•	•
Test of oil pipes					
Tightness test		•	•	•	
Pressure test				•	•
Technical specifications					
Dimensions (H x W x D):	74 x 42 x 35 mm	74 x 42 x 35 mm	74 x 42 x 35 mm	74 x 42 x 35 mm	74 x 42 x 35 mm
Weight:	34 g	34 g	34 g	34 g / 30 g	34 g / 30 g
Measuring range:	-20 / +20 mbar 0.5 / 50 m/s	-180 / +180 mbar 0.5 / 50 m/s	-1 / +2 bar	-1 / +6 bar	-1 / +20 bar
Accuracy:	±0.003 mbar 0.5 % displayed value ±1 digit	±0.03 mbar 0.5 % displayed value ±1 digit	±0.3 mbar 0.5 % displayed value ±1 digit	±0.3 mbar 0.5 % displayed value ±1 digit	±1 mbar 0.5 % displayed value ±1 digit
Resolution:	0.001 mbar 0.1 m/s	0.01 mbar (< 99.99) 0.1 mbar (> 100.0) 0.1 m/s	0.1 mbar (< 999.99) 1 mbar (> 1,000)	0.1 mbar (< 999.99) 1 mbar (> 1,000)	0.1 mbar (< 999.99) 1 mbar (> 1,000)
Hose connection:	Ø 8 mm	Ø 8 mm	Ø 8 mm	Ø 8 mm or Ø 3 mm (Festo)	Ø 8 mm or Ø 3 mm (Festo)

DG: H, PG: 4	Part no.	Price €
Base handle CAPBs® BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
Pressure CAPBs® sens PS 10, 20 mbar, 2 x Ø 8 mm	M090050110	
Pressure CAPBs® sens PS 20, 180 mbar, 2 x Ø 8 mm	M090010110	
Pressure CAPBs® sens PS 33, 2 bar, 1 x Ø 8 mm, DVGW	M090192910	
Pressure CAPBs® sens PS 40, 6 bar, 1 x Ø 8 mm	M090082910	
Pressure CAPBs® sens PS 41, 6 bar, 1 x Ø 3 mm (Festo)	M090083010	
Pressure CAPBs® sens PS 60, 20 bar, 1 x Ø 8 mm	M090102910	
Pressure CAPBs® sens PS 61, 20 bar, 1 x Ø 3 mm (Festo)	M090103010	

i

See chapter 6 for accessories and ISO calibration.

CAPBs®

Pressure transmitter PT

Pressure transmitter CAPBs® sens PT 70, 25 bar, DN 5

Pressure transmitter CAPBs® sens PT 85, 7 bar, DN 2.7

Pressure transmitter CAPBs® sens PT 86, 20 bar, DN 2.7

Application

- Pressure tests of oil pipes
- Pressure tests at surface heating systems
- Tightness tests/strength tests of drinking water installations as per ZVSHK
- Pressure loss test
- Pressure test at pipe systems
- Stress pressure test at pipe systems

Description

Pressure transmitter for measurements in liquids and corrosive media (PT 70) as well and non-corrosive media and liquids (PT 85/86).

4

Technical specifications	Pressure transmitter PT 70	Pressure transmitter PT 85	Pressure transmitter PT 86
Dimensions (W x H x D):	42 x 76 x 35 mm	42 x 80 x 35 mm	42 x 99 x 35 mm
Weight:	55 g	95 g	107 g
Measuring ranges:	-1 / +25 bar	7 bar	20 bar
Accuracy:	0.5 % of full scale ±1 digit	±10 hPa 1 % displayed value	±25 hPa 1 % displayed value
Resolution:	0.1 bar	0.1 hPa (< 999.99) 1 hPa (> 1.000)	1 hPa
Hose connection:	1 x DN 5	2 x DN 2.7	2 x DN 2.7

i

See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	**Price €**
CAPBs® base handle BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
Pressure transmitter CAPBs® sens PT 70, 25 bar	M090142810	
Pressure transmitter CAPBs® sens PT 85, 7 bar	M090223510	
Pressure transmitter CAPBs® sens PT 86, 20 bar	M090273510	

CAPBs®

Pressure/temperature CAPBs® sens FP 10

Pressure and temperature FP 10

Application

- Flow rate measurement (Pitot tube)

With base handle BG 10:
- Surface loss
- Ventilation loss (Pitot tube)
- 4 Pa measurement (hose kit)
- Heating system check 2.0 (Pitot tube)

4

Description

Sensor module for simultaneous, continuous measurement of temperature and pressure. The CAPBs® allows for convenient flow rate measurement with a stable zero point.

Technical specifications

Dimensions
W x H x D: 42 x 74 x 35 mm

Weight
33 g

Measuring ranges

Pressure:	-20 / +20 mbar
Temperature:	-50 / +600 °C
Pitot:	0.2 / 20 m/s

Accuracy

Pressure:	±0.003 mbar (< 0.6 bar) 0.5 % of measured value ±1 digit (> 0.6 mbar)
Temperature:	±1.5 °C
Pitot:	±0.1 m/s (< 2 m/s) ±5% of measured value (> 2 m/s)

Resolution

Pressure:	0.001 mbar
Temperature:	0.1 °C
Pitot:	0.01 m/s

i See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	Price €
CAPBs® base handle BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
Pressure/temperature CAPBs® sens FP 10	M090053210	

CAPBs® temperature TK 10 type K

Application

- Temperature measurement

Description

Temperature transmitter with standardised temperature socket type K. This allows for the connection of all type K two-pole thermocouples and temperature probes (for example, the complete AFRISO temperature probe range).

Technical specifications

Dimensions
W x H x D: 42 x 58 x 35 mm

Weight
22 g

Measuring ranges
-50 / +1,150 °C
(depends on thermocouple used)

Accuracy
±1.5 °C

Resolution
0.1 °C

Connection
Probe: 1 x type K

CAPBs® temperature TK 11 type K

Application

- Differential temperature measurement
- Determination of the temperatures of flow and return

Description

Temperature transmitter with two standardised temperature sockets type K. This allows for the connection of all type K two-pole thermocouples and temperature probes (for example, the complete AFRISO temperature probe range). In conjunction with BLUELYZER ST, it is, for example, possible to measure up to four temperature values.

Technical specifications

Dimensions
W x H x D: 42 x 58 x 35 mm

Weight
22 g

Measuring ranges
-50 / +1,150 °C
(depends on thermocouple used)

Accuracy
±1.5 °C

Resolution
0.1 °C

Connection
Probe: 2 x type K

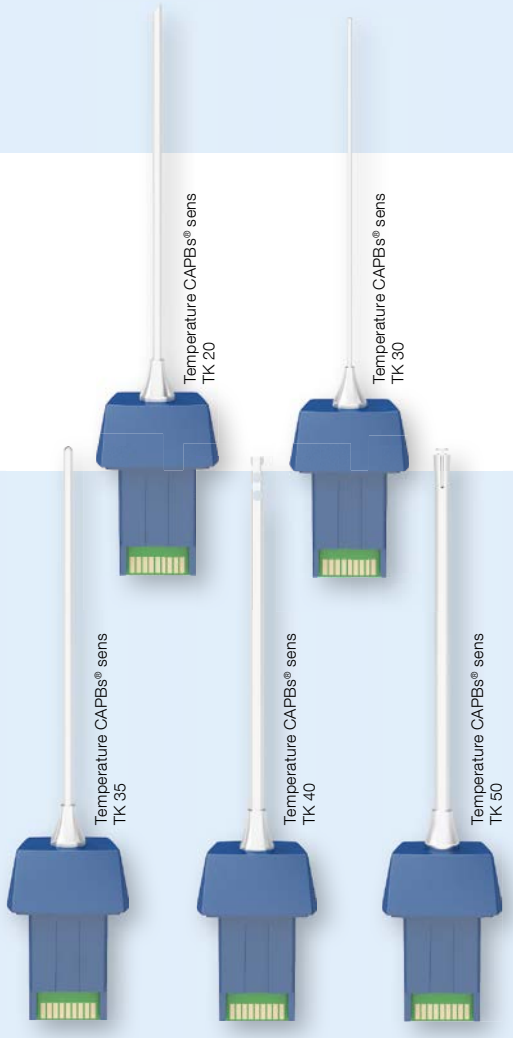
4

DG: H, PG: 4	Part no.	Price €
CAPBs® base handle BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
Temperature CAPBs® sens TK 10 type K	M090000810	
Temperature CAPBs® sens TK 11 type K (2 x)	M090000910	

i See chapter 6 for accessories and ISO calibration.

CAPBs®

Temperature TK



Application

- Temperature measurement

Description

Sensor module for measurement of the temperature on surfaces, in liquids, soft plastic media or in air and gases with different, application-specific temperature probes.

4

Technical specifications	Spike probe TK 20	Liquid probe TK 30	Liquid probe TK 35	Air probe TK 40	Surface probe TK 50
Dimensions (W x H x D):	42 x 186 x 35 mm	42 x 187 x 35 mm	42 x 190 x 35 mm	42 x 187 x 35 mm	42 x 187 x 35 mm
Probe diameter:	3 mm	1.5 mm	3 mm	4.7 mm	4 mm
Weight:	32 g	28 g	32 g	32 g	34 g
Measuring ranges:	-50 / +400 °C	-50 / +400 °C	-50 / +400 °C	-50 / +400 °C	-50 / +400 °C
Accuracy:	±1.5 °C 1 % displayed value	±1.5 °C 1 % displayed value	±1.5 °C 1 % displayed value	±1.5 °C 1 % displayed value	±1.5 °C 1 % displayed value
Resolution:	0.1 °C	0.1 °C	0.1 °C	0.1 °C	0.1 °C

i

See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	**Price €**
CAPBs® base handle BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
Spike probe CAPBs® sens TK 20, Ø 3 mm	M090002210	
Liquid probe CAPBs® sens TK 30, Ø 1.5 mm	M090002310	
Liquid probe CAPBs® sens TK 35, Ø 3 mm	M090002410	
Air probe CAPBs® sens TK 40, Ø 4.7 mm	M090002510	
Surface probe CAPBs® sens TK 50, Ø 4 mm	M090002610	

CAPBs® humidity/ temperature RH 80

CAPBs® air quality AQ 20

Application

- Indoor climate checking, e.g. in archives and warehouses, greenhouses or residential buildings
- Mould prevention

- Evaluation of the air quality in rooms
- Inspection of filters
- Detection of leaks in conjunction with hazardous substances
- For redundant measurement in conjunction with PID measurements
- Evaluation of the air quality in closed rooms (for example, in schools, offices, conference rooms, libraries, etc.)

Description

Sensor module for measurement of temperature and relative humidity in ambient air as well as calculation of absolute humidity and dew point.

Sensor module for fast and reliable detection of VOCs (volatile organic compounds) and CO_2 in ambient air. The gas concentration is displayed by the evaluation unit as CO_2 (ppm) and TVOC (ppb); the CAPBs® measurement unit provides an audible signal.

4

Technical specifications

Dimensions
W x H x D: 42 x 82 x 35 mm

Weight
51 g

Measuring ranges
0 / 100 % r.h.
-40 / +80 °C

Accuracy
±2 % rH ±1 digit
±0.5 °C ±1 digit

Resolution
0.1 % rH
0.1 °C

Dimensions
W x H x D: 42 x 58 x 35 mm

Weight
20 g

Measuring ranges
450 / 2,000 ppm CO_2 equivalent (relative)
125 / 600 ppb TVOC equivalent

Resolution
1 ppm / 1 ppb

DG: H, PG: 4	Part no.	Price €
CAPBs® base handle BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
Humidity CAPBs® sens RH 80	M090111210	
Air quality CAPBs® sens AQ 20	M090120010	

CAPBs®
CO_2 determination AQ 35

CAPBs®
determination of CO_2, humidity and temperature AQ 36

Application

- CO_2 concentration measurement and professional assessment of ambient air quality in rooms
- Adjustment of ventilation and air conditioning systems as per EN 16798 (formerly EN 13779) or TRGS 900 (limit values for workplaces)
- Sampling tests at workplaces in offices and production facilities, in laboratories, in storage areas, in greenhouses
- Testing of stationary CO_2 measuring instruments

Description

Sensor module for detection of carbon dioxide in ambient air. The integrated, highly accurate CO_2 infrared sensor be adjusted in fresh air. Thanks to the possibility to conveniently enter the measuring time, it is possible to easily check and document given CO_2 mean values. Meets the requirements of EN 50543 concerning measurement of CO_2 in indoor air.

Multi-sensor module for detection of carbon dioxide in ambient air and measurement of humidity and temperature. The integrated, highly accurate CO_2 infrared sensor be adjusted in fresh air. Thanks to the possibility to conveniently enter the measuring time, it is possible to easily check and document given CO_2 mean values. Meets the requirements of EN 50543 concerning measurement of CO_2 in indoor air.

Technical specifications

Dimensions
W x H x D: 42 x 83 x 35 mm

Weight
50 g

Measuring range
CO_2: 0 / 10,000 ppm

Accuracy
CO_2: ±70 ppm (+3 % displayed value)

Resolution
CO_2: 1 ppm

Dimensions
W x H x D: 42 x 115 x 35 mm

Weight
58 g

Measuring ranges
CO_2: 0 / 10,000 ppm
Relative humidity: 0 / 100 % r.h.
Temperature: -40 / +125 °C

Accuracy
CO_2: ±70 ppm (+3 % displayed value)
Relative humidity: ±3 % r.h. (at 25 °C)
Temperature: ±2 °C

Resolution
CO_2: 1 ppm
Relative humidity: 0.1 % r.h.
Temperature: 0.1 °C

DG: H, PG: 4	Part no.	Price €
Base handle CAPBs® BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
Air quality / CO_2 CAPBs® sens AQ 35	M090230010	
Humidity/ temperature CAPBs® sens AQ 36	M090260010	

Gas leak detection CAPBs® sens GS 10

CO detection CAPBs® sens CO 30

CAPBs® gas leak detection GS 10

Application

- Gas leak detection
- Detection of gas leaks (flammable gases) in gas pipes as well as connection pieces and fittings, gas meters, gas burners and gas tanks

Description

Sensor module for fast and reliable gas leak detection. The flexible probe allows for use in spaces difficult to access. The gas concentration is displayed by the evaluation unit in "ppm"; the CAPBs® measurement unit provides an audible signal. The alarm threshold can be adjusted as required. Due to the base calibration for methane, a wide range of flammable gases is detectable. The anti-poisoning protection function for the sensor ensures a long service life.

Technical specifications

Dimensions
W x H x D: 42 x 290 x 35 mm

Weight
51 g

Measuring range (methane)
0 / 2,000 ppm

Accuracy
±500 ppm

Sensitivity (methane)
±50 ppm

Resolution
10 ppm

CAPBs® CO detection CO 30

- CO detection and concentration measurement
- Application in boiler rooms or at flue gas pipes, for example, for self-protection during flue gas line tests

Sensor module with electro-chemical sensor for fast and reliable detection of CO (carbon monoxide) in ambient air. The CO concentration is displayed by the evaluation unit as CO value in ppm; the CAPBs® measurement unit provides an audible signal when the alarm threshold is exceeded.

Dimensions
W x H x D: 42 x 64 x 35 mm

Weight
27 g

Measuring ranges
0 / 2,000 ppm CO

Resolution
1 ppm

DG: H, PG: 4	Part no.	Price €
CAPBs® base handle BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
Gas leak detection CAPBs® sens GS 10	M090131410	
CO detection CAPBs® sens CO 30	M090163310	

i See chapter 6 for accessories and ISO calibration.

NEW

Flow rate and temperature measurement FlowTemp® STx

Application

- Verification and documentation of thermal disinfection and the temperature profile in conjunction with the AFRISO TOOLBOX app
- Documentation of water exchange as a part of the intended operation of drinking water installations in conjunction with the AFRISO TOOLBOX app
- Function checks of decentralised drinking water heaters
- Checking the output capacity of heat exchangers
- Function tests of circulation lines
- Inspection of fittings (minimum volume flow)
- Determination of the water temperature at water taps
- Inspection of thermostatic mixing valves
- Acceptance tests of newly installed drinking water installations

EuroSoft® live app

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AFRISO TOOLBOX app

4

Description

Sensor module for continuous, simultaneous determination of flow rate (l/min) and temperature (°C) in water applications. The flow rate is measured with a high-precision capacitance flow sensor, the temperature with a thermocouple with a low response time. Both sensors are integrated in a robust housing made of high-quality plastic with degree of protection IP 67. Thanks to the compact design, measurements at low water fittings are very convenient. The device is tested as per TÜV report S1217-00/15. The measured data is transmitted to the BlueLine measuring instruments or to a mobile device via the integrated Bluetooth® interface.

Technical specifications

Dimensions
W x H x D: 71 x 158 x 97 mm

Weight
370 g

Interface
Bluetooth® Low Energy

Measuring ranges
Temperature: 5 / 80 °C
Flow rate: 1.5 / 17.5 l/min

Accuracy
Temperature: ±1 °C
Flow rate: ±0.3 l/min

Resolution
Flow rate: 0.1 l/min
Temperature: 0.1 °C

T_{90}
Temperature: 5 s
Flow rate: 10 s

Supply voltage
2 x AAA alkaline battery

Further information:

www.capbs.info

i See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	Price €
Flow rate/temperature measuring instrument FlowTemp® STx	502002	

CAPBs®

pH/conductivity sensor CAPBs® sens WQ 10

pH value/determination of conductivity WQ 10

Application

- Measurement of:
  - pH value
  - Electrical conductivity
  - Salinity
  - Temperature
- Checking and assessing the drinking water quality
- Determination of German hardness and the TDS value (total dissolved solids in mg/l)
- Assessing the system water in heating systems
- Professional PDF measurement report with the following parameters: total hardness, conductivity and pH value as per new German VDI 2035

4

Description

Simultaneous determination of the pH value, the electrical conductivity and the water hardness (German hardness) with a single measurement. Determination of the total hardness is not possible in the case of chemically treated water or water softened by means of ion exchange. In addition, the TDS value (total dissolved solids in the water), salinity and temperature can be output. Thanks to automatic temperature compensation and measuring range switching, the conductivity can be measured with a high measuring accuracy.

Technical specifications

Dimensions
W x H x D: 43 x 130 x 36

Weight
56 g

Measuring ranges

Conductivity:	0 / 50,000 µS/cm
Salinity:	0 / 25,000 ppm
TDS:	0 / 50,000 mg/l
pH value:	0 / 14 pH
Temperature:	-5 / +60 °C

Resolution

Conductivity:	1 µS/cm; 0.1 mS/cm
Salinity:	0.1 ppm / 0.01 ppt
TDS:	1 mg/l
pH value:	0.01 pH
Temperature:	0.1 °C; 0.1 °F

Accuracy

Conductivity:	±2 µS/cm (< 199 µS/cm) ±5 µS/cm (200 > 499 µS/cm) ±20 µS/cm (500 > 1,999 µS/cm) ±0.2 mS/cm (2.00 > 19.99 mS/cm) ±0.5 mS/cm (20.00 > 50.00 mS/cm)
TDS:	0.01 g/l
pH value:	±0.01 pH
Temperature:	±0.5 °C

DG: H, PG: 4	Part no.	Price €
CAPBs® base handle BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
pH/conductivity sensor CAPBs® sens WQ 10	M090251310	
Sensor head pH, CON, SAL, TDS, TEMP	524353	

CAPBs® set for determination of water quality WQ 10

NEW

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pH/conductivity sensor CAPBs® sens WQ 10

- Checking and assessing the drinking water quality
- Assessing the system water in heating systems, for example, heating system water analysis as per VDI 2035
- Modular extension kit for fast on-site analysis of the water quality like laboratory analyses
- Multi-purpose sensor for pH value, electrical conductivity, German hardness, salinity and temperature
- With titrating solution for °dH for chemically treated water or water softened by means of ion exchange
- Robust, modular system case M, suitable for box and shelf system Sortimo-Boxx
- Can be used in conjunction with AFRISO BlueLine measuring instruments, smartphones or tablets as evaluation units
- Easy and fast documentation of measured values by means of evaluation app EuroSoft® live or BlueLine measuring instrument
- Professional PDF measurement report with the following parameters: total hardness, conductivity and pH value as per new German VDI 2035

4

Application
- Measurement of pH value, electrical conductivity, salinity and temperature
- Determination of German hardness and the TDS value (total dissolved solids in mg/l)

Description
Complete test set in convenient system case with sensor module CAPBs® sens WQ 10 and all corresponding calibration solutions and sample containers.

Scope of delivery
- Sensor module CAPBs® sens WQ 10
- Calibration solutions for pH value, electrical conductivity and titrating solution for total hardness
- 1 x sample container, cleaning and storage liquid each
- Modular system case M

DG: H, PG: 4	Part no.	Price €
Base handle CAPBs® BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
CAPBs® set water quality WQ 10	560017	
Spare parts		
pH/conductivity sensor CAPBs® sens WQ 10	M090251310	
Sensor head pH, CON, SAL, TDS, TEMP	524353	
Conductance calibration solution 1.413 mS/cm, 100 ml	524407	
Conductance calibration solution 12.88 mS/cm, 100 ml	524408	
Buffer solution pH 4.00 +/- 0.020 (20 °C), 100 ml, red	524410	
Buffer solution pH 7,00 +/- 0.015 (20 °C), 100 ml, green	524411	
Cleaning water**,** 100 ml, screw cover blue	524412	
Electrolyte potassium chloride (KCl) 3 mol/l, 50 ml	524405	
Titrating solution and test beaker for total hardness (0–21 °dH)	524683	

CAPBs® set for tightness test DPK 60-6 sens

- Starter set for professional tightness tests with the wireless CAPBs® sensor modules
- CAPBs® sensor module pressure (-1 / +6 bar)
- Robust, modular system case M "DPK", suitable for box and shelf system Sortimo-Boxx
- Can be used in conjunction with AFRISO BlueLine measuring instruments, smartphones or tablets as evaluation units

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Application

- Pressure tests as per DVGW worksheet G600
- Tightness tests (150 mbar) and load tests (1 bar) on gas pipes
- Check of connection and flow pressure as well as pressure loss in gas pipes
- Tightness tests (150 mbar) and strength tests (3 bar) on drinking water pipes as per ZVSHK (German Central Association of the HVAC Industry)
- Acceptance tests of heating system pipes, solar system pipes, underfloor heating systems, liquid gas pipes and oil pipes

Description

Ready-to-be-used set in system case with sensor module CAPBs® PS 40, connection accessories and suitable test plugs for typical tightness tests and pressure measuring tasks in the HVAC industry.

Scope of delivery

- Sensor module pressure CAPBs® sens PS 40, 6 bar, connection Ø 8 mm
- Pressure test valve with quick-action coupling and high-precision adjustment valve
- Hand-operated bulb pump with valve and connecting hose
- 2 conical test plugs for pipe diameter ¾" – 1¼" with plug-in nipple
- Multiple connection plug 1/2" and 1" with plug-in nipple
- Y connector (2 x quick-action coupling/1 x plug-in nipple)
- Connection hoses with plug-in nipple and quick-action coupling
- Modular system case M "DPK"

DG: H, PG: 4	Part no.	**Price €**
Base handle CAPBs® BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
Leak test set DPK 60-6 sens with sensor module Pressure in system case M "DPK", optional base handle, prepared for CAPBs®-enabled BlueLine measuring instruments	560005	

i See chapter 6 for accessories and ISO calibration.

CAPBs® set evaluation of serviceability DPK 60-7 sens

- Modular extension kit for DPK 60-6 ST and DPK 60-6 sens
- DVGW-certified sensor module PS 33 (-1/+2 bar)
- Can be used in conjunction with AFRISO BlueLine measuring instruments, smartphones or tablets as evaluation units
- Robust system case S , suitable for box and shelf system Sortimo-Boxx
- Barometric pressure determination for highly accurate measured values

EuroSoft® live app

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4

Application

- Evaluation of serviceability (determination of amount of leakage) on gas pipes as per TRGI

Description

Extension set in system case S with DVGW-certified sensor module pressure CAPBs® sens PS 33 (2 bar), connection hose, syringe for determining the volume, in system case S. With barometric pressure determination for compensation of fluctuating barometric pressure during measurements and with temperature compensation. Certified for measuring tasks as per DVGW TRGI.

Scope of delivery

- Sensor module pressure CAPBs® sens PS 33, 2 bar, connection 8 mm
- Syringe for test volume
- System case S

i See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	**Price €**
Base handle CAPBs® BG 10	M091000017	
CAPBs® set evaluation of serviceability DPK 60-7 sens	560012	

CAPBs® set tightness test underfloor heating system PT 70-FBH

NEW

- Set for pressure tests as per BTGA und DIN EN 1264-4 of underfloor systems for heating and cooling
- Test media water or air
- Test adapter (¾" female) for direct connection to the manifold system
- Standardised quick-action coupling system for easy test setup
- Can be modularly extended for DPK 60 sens series
- Pressure transmitter PT 70 (0 / 25 bar)
- Easy test and PDF documentation via applet "Tightness test" in the EuroSoft® live app

EuroSoft® live app

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4

Application

- Tightness tests at underfloor systems for heating and cooling
- For liquid, gaseous and corrosive media

Description

Ready-to-be-used set in system case S pressure transmitter PT 70 (25 bar), connection accessories and suitable test adapter (connection cap) for direct connection to the manifold system. Flexible, uncomplicated connection to the pipe sections to be tested by means of standardised quick-action coupling system.

Scope of delivery

- Pressure transmitter CAPBs® sens PT 70, 0 / 25 bar
- Test adapter ¾" female thread with plug-in nipple DN 5
- Adapter for compressor connection
- Connection hose 0.3 m
- T connector (2 x quick-action coupling DN 5 / 1 x shut-off valve with plug-in nipple DN 5)
- System case S

i See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	Price €
Base handle CAPBs® BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
CAPBs® set tightness test underfloor heating system PT 70-FBH	P00040	

Modular extension sets in system case S

CAPBs® water set ADS-WS

Application

- Pressure tests at water pipes as per ZVSHK, BTGA and DIN EN 1264-4 with test medium water

Description

Ready-to-be-used set in system case S pressure transmitter PT 70 (25 bar), connection accessories and test plug ½" with plug-in nipple. Flexible, uncomplicated connection to the pipe sections to be tested by means of standardised quick-action coupling system.

Scope of delivery

- Pressure transmitter CAPBs® sens PT 70 (25 bar)
- Test plug ½" with plug-in nipple
- T connector (2 x quick-action coupling DN 5 / 1 x shut-off valve with plug-in nipple DN 5)
- Adapter for compressor connection
- System case S

CAPBs® set heating system check 2.0

Application

- Measurement of the flow rate and determination of the temperature in the residual core flow of the flue gas line

Description

Ready-to-be-used set in system case S with sensor module pressure/temperature CAPBs® sens FP 10 (20 mbar), Pitot tube and surface temperature probe. The measured data is used to calculate the ventilation loss. If the channel cross section is known, it is possible to calculate the volume flow. The measurement results of the surface temperature probe serve as the basis for calculating the surface loss of the heat generator.

Scope of delivery

- Pressure transmitter CAPBs® sens FP 10 (20 mbar)
- Pitot tube
- Surface probe
- System case S

4

i See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	Price €
Base handle CAPBs® BG 10	M091000017	
Modul base handle CAPBs® device	P00052	
CAPBs® water set ADS-WS sens	560008	
CAPBs® set heating system check sens	560009	

Modular extension sets in system case S

CAPBs® set 4 Pa test

CAPBs® combination set 4 Pa test and heating system check 2.0

Application

- Check of underpressure limit value (4 Pa / 8 Pa) in a sealed air system (building/apartment)
- Acceptance of individual heat systems with simultaneous operation with exhaust air systems

- Check of underpressure limit value (4 Pa / 8 Pa) in a sealed air system (building/apartment)
- Acceptance of individual heat systems with simultaneous operation with exhaust air systems
- Measurement of the flow rate and determination of the temperature in the residual core flow of the flue gas line

Description

If multiple heat systems using indoor intake air and ventilation systems are operated in a closed space. This can result in a hazardous low pressure. With the 4 Pa test, the underpressure limit value of 4 Pa/8 Pa can be checked and documented.

Ready-to-be-used combination set in system case S with sensor module pressure/temperature CAPBs® sens FP 10 (20 mbar), Pitot tube and surface temperature probe. For the heating system check, the measured data is used to calculate the ventilation loss and the volume flow is calculated if the duct cross section is known. Measurement of the surface temperature serves as the basis for calculating the surface loss of the energy generator. The hose kit is used to check and document the underpressure limit value of 4 Pa/8 Pa.

Scope of delivery

- Sensor module pressure/temperature CAPBs® sens FP 10 (20 mbar)
- Hose kit
- System case S

- Sensor module pressure/temperature CAPBs® sens FP 10 (20 mbar)
- Hose kit
- Pitot tube
- Surface temperature probe TFB-OF
- System case S

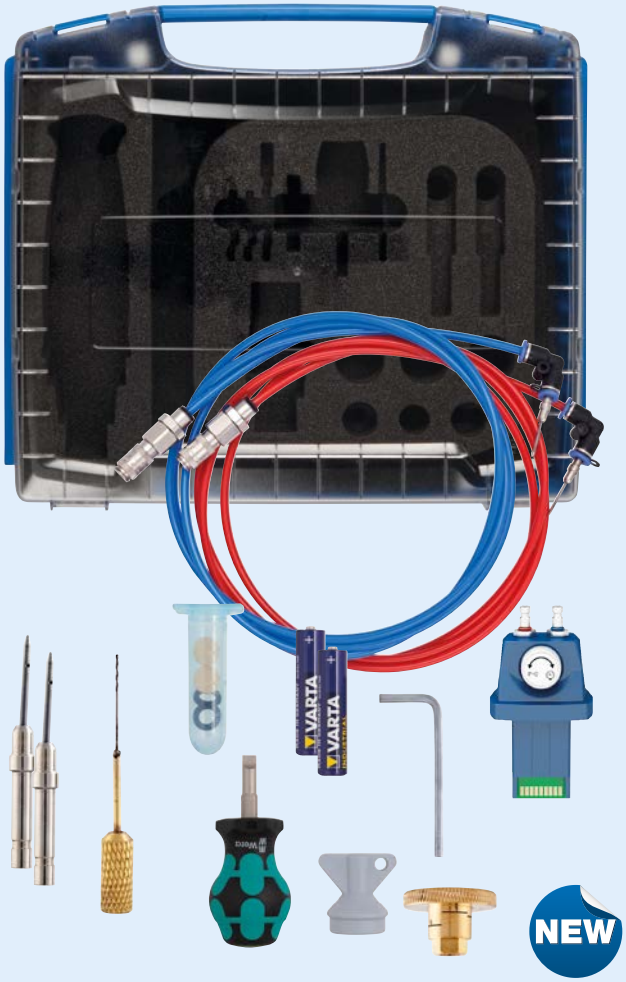
4

i

See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	Price €
Base handle CAPBs® BG 10	M091000017	
CAPBs® set 4 Pa sens	560010	
CAPBs® set 4 Pa with heating system check sens	560011	

CAPBs® set for hydraulic balancing at radiator valves



- Set for performing hydraulic balancing with the AFRISO valve ranges VarioQ and Vario-DP directly at the radiator
- Measurement and check of differential pressure and flow rate
- Can be used in conjunction with AFRISO BlueLine measuring instruments, smartphones or tablets as evaluation units
- Robust, modular system case M , suitable for box and shelf system Sortimo-BOXX
- Step by step measurements in conjunction with the app Euro-Soft® live
- Quickly create PDF documentation with signatures, photographs and additional notes and send them via smartphone or tablet
- With the app AFRISO TOOLBOX: VdZ-compliant design, documentation and confirmation of hydraulic balancing according to "Procedure A"

EuroSoft® live app

live

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4

Application

- For differential pressure measurement and flow rate adjustment in heating and refrigerating systems during hydraulic balancing
- To be used in conjunction with VarioQ and Vario-DP thermostat valves, lockshield valves and combination blocks during hydraulic balancing directly at the radiator. It is neither necessary to know the pipeline system nor to perform complex calculations.

Description

CAPBs® set valve balancing is a measuring system for performing hydraulic balancing directly at the radiator or at the manifold of surface heating systems. The free app EuroSoft® live facilitates the measurement with step-by-step operation of the measuring system. All standard AFRISO VarioQ/-DP valves are stored in the app. The valve data can also be entered manually. The water volumes can be easily set at the VarioQ valve without conversion. The measured flow rate and pressure values can be displayed in various units; the measurement results can be documented and shared in a matter of seconds.

Scope of delivery

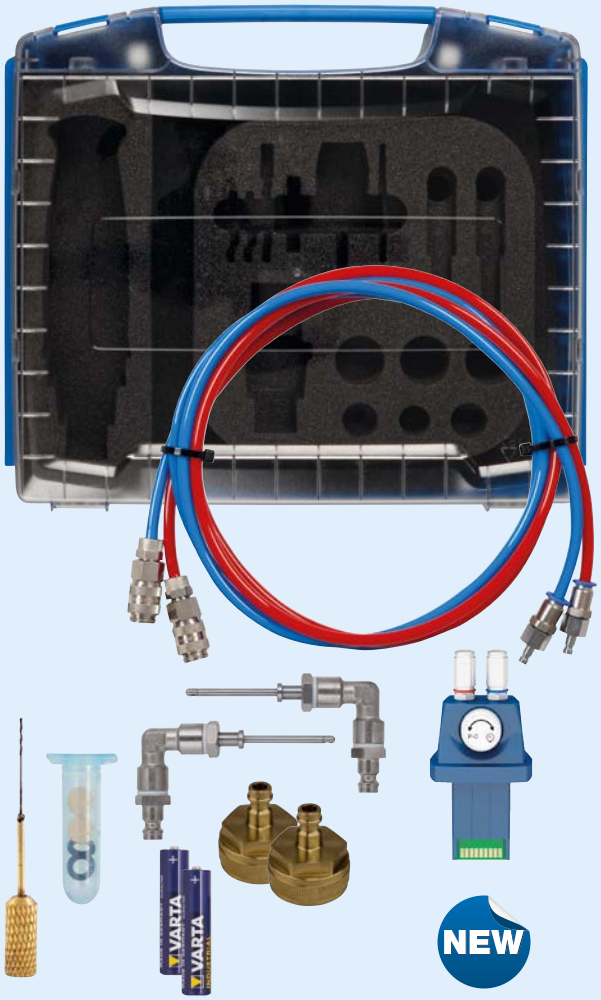
- Pressure transmitter CAPBs® sens PT 85, 7 bar, connection 2 x DN 2.7 plug-in nipple
- Adjustment key for VarioQ und VarioQ-Kombi
- Pre-adjustment key VarioQ
- Measuring hose set for VarioQ Ø 4 mm (red and blue), 2 x measuring needle Q
- Measuring needle drill, screwdriver and hex key 4 mm
- Sintered filter with O ring, reaction container 2 ml (blue), 2 x 1.5-V AAA alkaline battery
- Modular system case M "valve balancing"

DG: H, PG: 4	Part no.	**Price €**
Base handle CAPBs® BG 10	M091000017	
CAPBs® set valve balancing	P00056	
Accessories		
CAPBs® extension set line balancing	P00058	

i

See chapter 6 for accessories and ISO calibration.

CAPBs® set for hydraulic balancing at line fittings



- Set for performing hydraulic balancing at line fittings and line control valves
- Measurement and check of differential pressure and flow rate
- Can be used in conjunction with AFRISO BlueLine measuring instruments, smartphones or tablets as evaluation units
- Robust, modular system case M, suitable for box and shelf system Sortimo-Boxx obuster
- Step by step measurements in conjunction with the app Euro-Soft® live
- Quickly create PDF documentation with signatures, photographs and additional notes and send them via smartphone or tablet

EuroSoft® live app

live

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Application

- For differential pressure measurement and flow rate adjustment at line fittings and line valves during hydraulic balancing
- Can be used with all standard valves from all standard manufacturers

Description

CAPBs® set line balancing is a measuring system for performing hydraulic balancing at line fitting and line valves. The free app EuroSoft® live facilitates the measurement with step-by-step operation of the measuring system. All standard valves types can be stored in the app by entering the flow coefficient Kvs. The water volumes can be easily set at the valve without conversion. The measured flow rate and pressure values can be displayed in various units; the measurement results can be documented and shared in a matter of seconds.

Scope of delivery

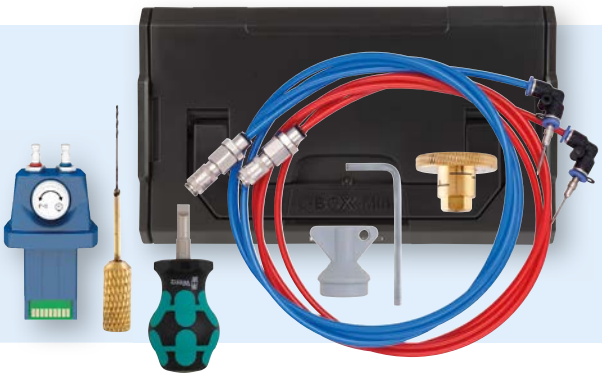
- Pressure transmitter CAPBs® sens PT 86, 20 bar, connection 2 x coupling DN 2.7
- 2 x test adapter female thread ¾" with plug-in nipple DN 5
- Measuring hose set Ø 6 mm (red and blue) with 2 x angled measuring needle Ø 3.3 mm for line control valves
- Measurement needle drill
- Sintered filter with O ring, reaction container 2 ml (blue), 2 x 1.5-V AAA alkaline battery
- Modular system case M "Line balancing"

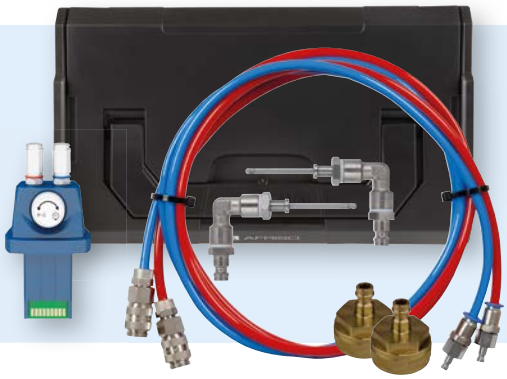
DG: H, PG: 4	Part no.	Price €
Base handle CAPBs® BG 10	M091000017	
CAPBs® set line balancing	P00057	
Accessories		
CAPBs®- extension set valve balancing	P00059	

i See chapter 6 for accessories and ISO calibration.

Modular extension sets in system case S

NEW





CAPBs® extension set for hydraulic balancing at radiator valves

Application

- Extension of CAPBs® sets line balancing to measure the differential pressure and the flow rate at radiator valves
- To be used in conjunction with VarioQ and Vario-DP thermostat valves and combination blocks during hydraulic balancing directly at the radiator

Description

Extension set in system case S to extend the CAPBs® set line balancing to measure the differential pressure of VarioQ valves and lockshield valves to adjust the flow rate at radiators during hydraulic balancing.
The free app EuroSoft® live facilitates the measurement with step-by-step operation of the measuring system. All standard AFRISO VarioQ/-DP valves are stored in the app. The valve data can also be entered manually. The water volumes can be easily set at the VarioQ valve without conversion.

Scope of delivery

- Pressure transmitter CAPBs® sens PT 85, 7 bar, connection 2 x plug-in nipple DN 2.7
- Adjustment key for VarioQ und VarioQ-Kombi
- Pre-adjustment key VarioQ
- Measuring hose set Ø 4 mm (red and blue), 2 x measuring needle Q
- Measuring needle drill, screwdriver and hex key 4 mm
- Modular system case S "valve balancing"

CAPBs® extension set for hydraulic balancing at line fittings

Application

- Extension of CAPBs® sets valve balancing to measure the differential pressure and the flow rate at line fittings and line control valves
- Can be used with all standard valves from all standard manufacturers

Description

Extension set in system case S to extend the CAPBs® set valve balancing to measure the differential pressure to adjust the flow rate at line fittings or line control valves during hydraulic balancing.
The free app EuroSoft® live facilitates the measurement with step-by-step operation of the measuring system. All standard valves types can be stored in the app by entering the flow coefficient Kvs. The water volumes can be easily set at the valve without conversion.

Scope of delivery

- Pressure transmitter CAPBs® sens PT 86, 20 bar, connection 2 x coupling DN 2.7
- Test adapter ¾" female thread with plug-in nipple DN 5
- Measuring hose set Ø 6 mm (red and blue) with 2 x angled measuring needle Ø 3.3 mm
- Modular system case S "Line balancing"

4

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See chapter 6 for accessories and ISO calibration.

DG: H, PG: 4	Part no.	Price €
CAPBs®- extension set valve balancing	**P00059**	
CAPBs® extension set line balancing	**P00058**	

Hydraulic balancing: Highest efficiency, maximum energy saving and comfort

Has your heating system been balanced?

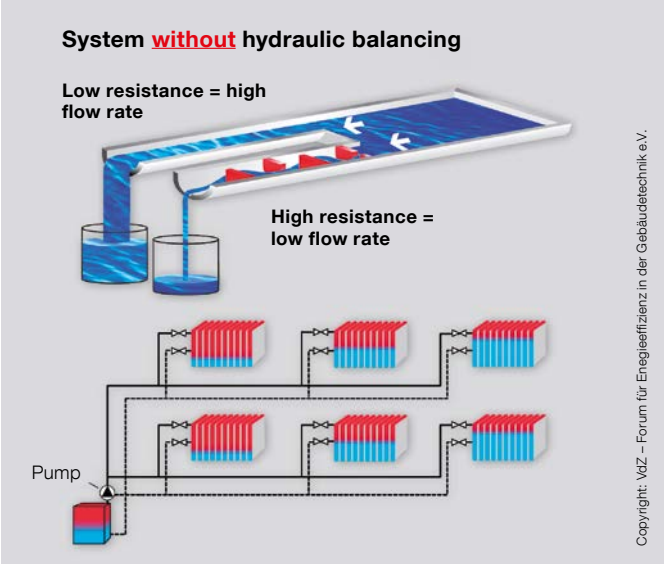
On its way to the radiators and back to the boiler, the hot water flow always chooses the path of least resistance. Due to this natural law, in heating systems without hydraulic balancing radiators further away from the pump are supplied with insufficient amounts of hot water while radiators close to the pump receive too much hot water. Typical countermeasures such as increased pump capacities or higher flow temperatures do not improve this situation, but rather amplify the negative effects. Such systems consume much more energy than necessary without providing the expected convenience.

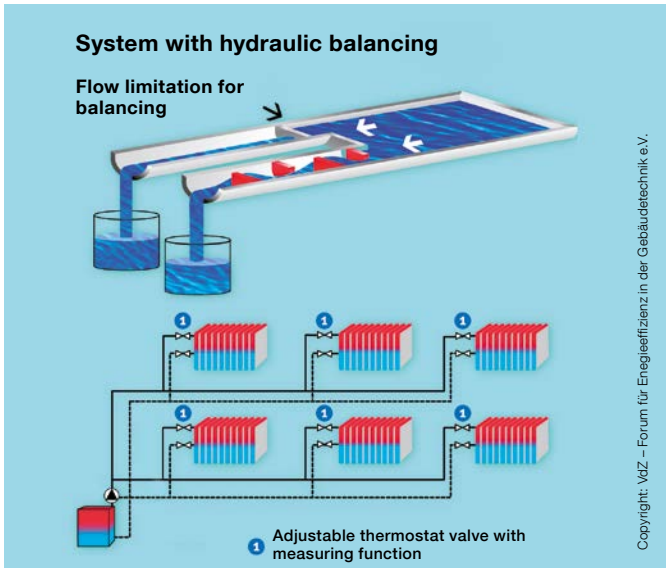
Consequences of lack of hydraulic balancing:

- Uneven heat release
- Heating times of rooms/apartments differ
- Thermostat valves cannot properly control the room temperature
- Limited frost protection
- Disturbing flow noise in valves and pipes
- Excessive power consumption due to oversized and/or incorrectly set circulation pumps
- High losses when the heating system starts or is not used
- Low efficiency of condensing systems: Excessive flow through radiators close to the pump leads to high return temperatures and reduces the condensation effect (energy recovery during condensation of the flue gas)

What is hydraulic balancing?

Hydraulic balancing ensures optimum distribution of the water in the heating system. Based on the actual heat requirements of the building, the circulation pump, the control (flow temperature), the fittings and the valves are adjusted to change the volume flow in the pipes in such a way as to obtain the required flow resistance for all radiators. This forces the hot water to flow through the system exactly as required. The right method and suitable components allow for considerable savings. In individual cases, this may amount to as much as 15% and more of the annual heating capacity.





Advantages – your benefits

- Convenience: Rooms are heated evenly
- Radiators respond quickly to new thermostat valve settings
- Maximum frost protection safety
- No flow noise in the heating system
- Heating system/pump operate with maximum efficiency to save energy
- Increased system reliability
- Improved energetic quality of the building
- Reduced energy consumption saves money and protects the environment due to less emission

Legal obligations hydraulic balancing

In Germany, hydraulic balancing is mandatory, as stipulated by the German VOB, part C (German Construction Contract Procedures), and DIN 18380. The German EnEV (Energy Savings Ordinance) also requires hydraulic balancing for all new and renovated heating systems.

Fast and easy hydraulic balancing with AFRISO components

In existing buildings, hydraulic balancing often involves a lot of estimating and approximation since precise information on the pipe system is unavailable. In old buildings, the lengths and diameters of pipes are often not sufficiently documented, the pipe systems have been changed or there are different levels of renovation. In such cases, a fundament prerequisite is missing.

AFRISO offers two systems for hydraulic balancing. In both cases, the heating system expert adjusts the heat distribution directly at each radiator by limiting the amount of hot water at the adjustable thermostat valves - without additional adjustment fittings. The decision as to which system is most suitable for a given building depends on a variety of factors and requirements:

Automatic hydraulic balancing for the HVAC professional

The system Vario-DP

Pre-adjustable thermostat valves Vario-DP with patented dynamic valve insert for automatic limitation of the water volume set at the valve. Vario-DP controls the water volume independent of pressure variation in the heating system. This means that Vario-DP always supplied the right water volume to the radiator, regardless of the number of open or closed thermostat valves in the system.

Your benefits:

- Automatic control of water volume
- Adjusted flow rate is not exceeded
- Building type: Primarily for single-/two-family homes, residential buildings
- Fast hydraulic balancing without measuring instrument
- Wide range of products, easy planning
- High reserve due to very wide adjustment range up to 340 l/h
- Geometry of valve insert provides protection against unwanted pollution, failure due to blocking is practically impossible

Valve range Vario-DP

The control membrane is installed directly in the valve insert and the valve spindle is used as the pressure sensor – therefore, there are no additional control components which might be subject to pollution. The valve operates with a standard valve gasket and does not require additional dirt filters.

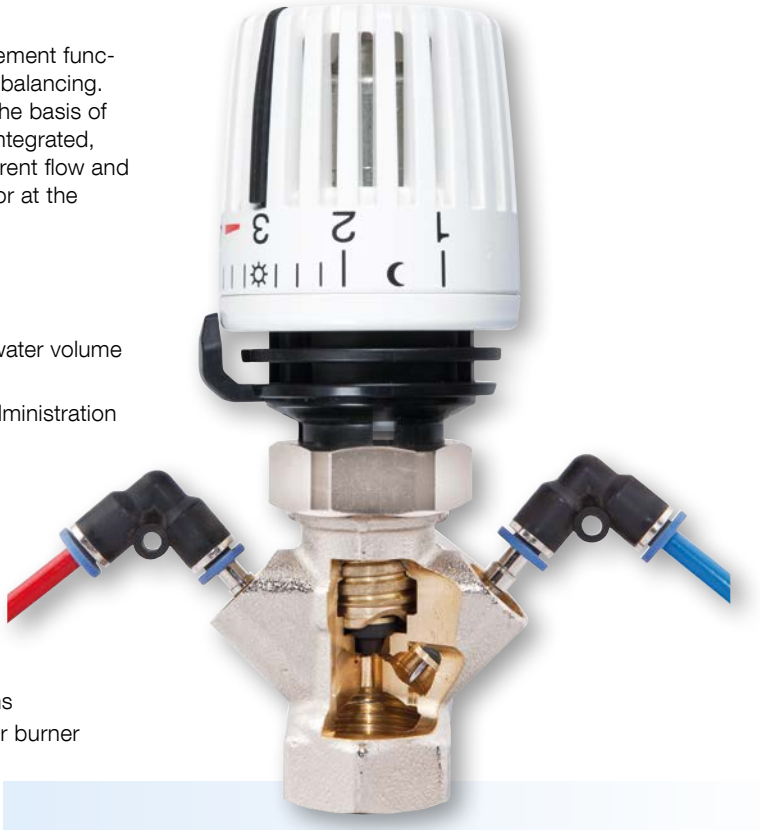
Hydraulic balancing with measurement function for the HVAC system planner

The triple-stage VarioQ system

The pre-adjustable VarioQ thermostat valves with measurement function allow for an even more precise approach to hydraulic balancing. The triple-stage system optimises the heating system on the basis of calculation, measurement and adjustment. Thanks to an integrated, fixed orifice plate, it is possible to directly measure the current flow and adjust the calculated water volume at each radiator valve or at the lockshield valve.

Your benefits:

- Precise measurement and adjustment of the required water volume per radiator
- Building type: Primarily for public buildings, schools, administration buildings and generally for larger heating systems
- Reliable procedure for larger and complex heating systems
- Measurement option at the valve for documentable and verifiable adjustment
- Time and cost savings: Neither dynamic valves nor line fittings are required
- Up to 80 % savings with regard to pump capacity as compared to automatically balanced heating systems
- Further optimisation potential due to, for example, fewer burner starts or increased condensing effect



Valve range VarioQ

The fixed orifice plate of VarioQ allows for the precise adjustment of the water volume at the valve of the radiator.
The pre-adjustable thermostat valves feature a fixed, calibrated orifice plate for adjustment of the volume flow directly at the valve.

Measuring instrument
CAPBs® set PT 85

PT 85 measures the flow rate in litres per hour and the required water volume can be easily set at the valve without conversion.

Compatible with your measuring instrument.

BlueLine measuring instruments for CAPBs® sensor modules

Bluetooth® TÜV SÜD

Bluetooth® TÜV SÜD

4

		Flue gas analyser **BLUELYZER ST**	Flue gas analyser **EUROLYZER STx**
		Flue gas analysis, pressure measurement 150 mbar, 70 mbar (draft) and (differential) temperature measurement	All-in-one: Flue gas analysis, (differential) pressure measurement 150 mbar and (differential) temperature measurement
	microSD card	Max. 16 GB	Max. 16 GB
Application	Flue gas measurement	•	•
	Draft/chimney draft measurement	•	•
	Pressure measurement	•	•
	Differential pressure measurement		•
	Vacuum measurement	•	•
	Temperature measurement	•	•
	Pitot measurement		•
	Particulate matter measurement		

- The world's smallest, fully-featured HVAC all-rounder with TFT colour display
- CO ambient measurement with two freely adjustable alarm thresholds
- Fully-fledged temperature measurement program, differential temperatures (e.g. flow/return) can also be determined

- ECO sensor: Lead-free O_2 sensor with long service life and optimised calibration phase, short response time, resistant to biogenous fuels
- 5 years warranty on O_2 measuring cell
- H_2-compensated CO cell (measuring range up to 10,000 ppm)
- NO cell can be retrofitted

Bluetooth® TÜV SÜD

Flue gas analyser **MULTILYZER STx**

All-in-one: Flue gas analysis, (differential) pressure measurement 150 mbar and (differential) temperature measurement

Max. 16 GB

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(in conjunction with STM 225)

- ECO sensor: Lead-free O2 sensor with long service life and optimised calibration phase, short response time, resistant to biogenous fuels
- 7 years full warranty in connection with a service contract
- Sensor equipment with a combination of up to six measuring cells: O_2, CO/H_2, NO, SO_2, NO_2 und $CO_{40,000}$

Bluetooth® TÜV SÜD

Pressure measuring instrument **S4600 ST**

For measuring pressure, vacuum and differential pressure

Max. 16 GB

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Max. 150 mbar

- 6 (differential) pressure measuring ranges
- Barometric pressure sensor and temperature compensation for highly accurate measured value
- Also available as measuring instrument for ultra-low pressure (20 mbar) and version for very high pressure (18 bar)

Bluetooth® TÜV SÜD

Temperature measuring instrument **TMD 9**

For temperature measurement on surfaces, in liquids, soft plastic media or in air and gases

Max. 16 GB

•

- Short response time for measurements at cycles of a second
- Multifunctional use of temperature probes with type K connection
- Very long battery life due to lithium-ion battery (up to 35 h)
- Data logger included
- Suitable for differential temperature measurements

Tester for expansion vessels

BlueAir-STx

Level sensor tester

Inspection and testing equipment for maintenance and service

TESTERS

TESTERS

Air velocity and air mass flow meter

Product highlight BlueAir-STx

Universal

Measuring and adjusting ventilation systems: air velocity, air flow, temperature and humidity.

Accurate

High-performance probes for accurate measurements in daily use.

Intuitive

Intuitive operation, large TFT colour display (W x H: 45 x 60 mm) and well-structured measurement programs.

Individual

Measurement of current value or interval measurement.

Perseverant

Powerful lithium-ion battery for up to 40 hours of operation.

Proven

Infrared interface for IR printer.

Reliable

Fully automatic device check, manual and automatic zero calibration during program start.

Interoperable

App EuroSoft® connect for visualisation of the measurement results, transmission of values to smartphones/tablets and as e-mails (HTML format).

Independent

microSD card for system-independent storage of measurement logs (HTML format).

User-friendly

Automatic probe detection when probe is connected, ergonomic, modern design.

Clear

Simultaneous display of 3 or 4 measured values.

5

Innovative

Bluetooth® on board: Power-saving data transmission to Bluetooth® printers and mobile devices.

EuroSoft® connect app

Bluetooth®

connect

Smart

Optional data logger function (1–999 seconds, interval freely selectable) for long-term measurement or diagnostics. Data output in XML format for flexible further processing with standard software applications such as MS Excel.

AIR VELOCITY

BlueAir STx

Picture shows original size

- Clearly structured measurement programs, simultaneous display of 4 measured values
- Measurement of current value
- Automatic probe detection when probe is connected
- Range of high-performance probes for accurate measurements in daily use
- Evaluation function displays minimum, maximum and mean values
- Calculation of air volume after you have entered the channel cross section
- Large TFT colour display (W x H: 45 x 60 mm)
- Fully automatic device check, manual and automatic zero calibration during program start

EuroSoft connect app

connect

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Download on the App Store

Bluetooth®

Application Modular, multi-channel instrument for, flow rate, temperature and relative humidity. Ideal for checking and setting the air velocity of ventilation and air conditioning systems and fans and for measurements in ventilation and exhaust ducts.

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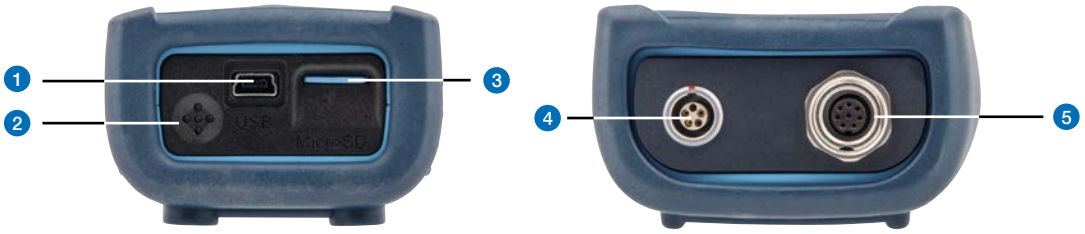

1 Mini USB connection for power supply/charger
2 Signal unit (speaker)
3 microSD card slot
4 Connection vane probes
5 Connection temperature and humidity sensor TFS-BA 2

Technical specifications probe range	Vane probe **BlueAir STx Junior Micro**	Vane probe **BlueAir STx Junior Mini**	Vane probe **BlueAir STx Junior Macro**	Temperature and humidity sensor TFS-BA 2 **BlueAir ST / BlueAir STx**
Air velocity	0.6 to 20 m/s	0.4 to 20 m/s	0.3 to 20 m/s	-
Humidity	-	-	-	10 to 90 % r.h.
Temperature	-	-	-	-20 / +80 °C
Resolution	0.01 m/s	0.01 m/s	0.01 m/s	Humidity: 0.1 % r.h. Temperature: 0.1 °C
Accuracy	± 2.0 % fs ± 5.0 % rdg	± 1.0 % fs ± 3.0 % rdg	± 1.0 % fs ± 3.0 % rdg	Humidity: ±2.3 % r.h. at 10 to 90 % r.h. temperature: ± 0.8 °C at 0 / 40 °C
Reproducibility	-	-	-	Humidity: ± 0.2% r.h. Temperature: ± 0.2 °C
Operating temperature range medium	-20 / +140 °C	-20 / +140 °C	-20 / +140 °C	-40 / +80 °C
Sensor size	Ø 11 x 15 mm	Ø 22 x 28 mm	Ø 85 x 80 mm	Ø 15 x 48 mm
Probe length	165 mm	175 mm	235 mm	30 mm
Cable length	1.5 m	1.5 m	1.5 m	-

Technical specifications

Operating temperature range
Operation: 0 / 40 °C
Storage: -20 / +50 °C

Dimensions
W x H x D: 66 x 143 x 37 mm, with protective sleeve

Weight
Approx. 220 g

Degree of protection
IP 40

Display
TFT colour display: 2.8", B x H: 45 x 60 mm
Resolution: 240 x 320 pixels

Supply voltage
Lithium-ion battery (3.6 V/1,800 mAh)

Hours of operation (eco mode)
Up to 20 hours in normal mode
Up to 30 hours in auto mode
Up to 40 hours in eco mode

Data memory
1–999 seconds, interval freely selectable

Data logger
microSD card

Interfaces
Infrared, Bluetooth®, QR code generator, mircoSD card slot

5

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See chapter 6 for options and accessories.

BlueAir STx Sets

DG: H, PG: 4

	BlueAir-STx, power supply unit NTE 5, charging cable USB-A to mini USB (1 m), microSD card with USB card reader	Case BlueAir STx	Vane probe Junior Micro	Vane probe Junior Mini	Vane probe Junior Macro	Part no.	Price €
BlueAir STx measuring instrument (without TFS-BA 2)	•					560013	
BlueAir STx set 1	•	•	•			560014	
BlueAir STx set 2	•	•		•		560015	
BlueAir STx set 3	•	•			•	560016	
Temperature and humidity sensor TFS-BA 2 8-pin connector	to be ordered for part no. 560013					511179	

Pressure gauge RF 50 PPS for pump test set

RF 50 PPS D 101 – without glycerine filling

Application
For checking the pressure and suction capacity at oil burner pumps.

Description
Bourdon tube pressure gauge Ø 50 mm in plastic housing. Connection G1/8 for standard pump test valve.

Technical specifications

Housing diameter
50 mm

Connection
G$^{1}/_{8}$B bottom without sealing plug

Housing
Plastic

Window
Plastic

Accuracy class (EN837-1/6)
1.6

RF 50 PPS D 601 – with glycerine filling

For checking the pressure and suction capacity at oil burner pumps.

Bourdon tube pressure gauge Ø 50 mm with glycerine filling in robust plastic housing. Connection G1/8 for standard pump test valve.

Housing diameter
50 mm

Connection
G$^{1}/_{8}$B bottom without sealing plug

Housing
Plastic with crimped bezel

Window
Plastic

Accuracy class (EN837-1/6)
1.6

5

DG: M, PG: 2	Range	Part no.	**Price €**
RF 50 PPS D 101 – without glycerine filling	-1/0 bar	**63991**	
RF 50 PPS D 101 – without glycerine filling	0/25 bar	**63995**	
RF 50 PPS D 601 – with glycerine filling	-1/0 bar	**67165**	
RF 50 PPS D 601 – with glycerine filling	0/25 bar	**67166**	

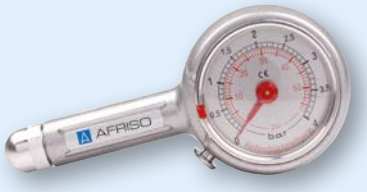
Test and refill set PNG, vessel filler

	PNG-1 / PNG-3	PNG-2	Vessel filler
Application	For testing and adjusting the pressure cushion of diaphragm expansion vessels of heating systems and oil supply systems.	For testing and adjusting the pressure cushion of diaphragm expansion vessels of heating and oil supply systems, specially for systems with test valves which are not easily accessible.	Vessel filler for increasing the pressure cushion in expansion vessels.
Description	The test and refill set consisting of a 60 cm long, flexible filling hose with union nut Vg8 for the test valve at the expansion vessel and a ball valve with 7/16-28 UNEF thread for vessel filler cylinder and a test pressure gauge Ø 40 mm. The vessel filler cylinder is not included.	Test and refill set consisting of a rigid, 200 mm long test lance with test head for pressing against the test valve of the expansion vessel and a ball valve with 7/16-28 UNEF thread for vessel filler cylinder and a test pressure gauge Ø 40 mm, 0/4 bar. During testing and refilling, the fitting is pressed against the test valve.	Suitable for PNG-1, PNG-2 and PNG-3. With corrosion protection component, not flammable.
Technical specifications	**Ranges** PNG-1: 0/4 bar PNG-3: 0/10 bar **Accuracy class** 1.6	**Ranges** 0/4 bar **Accuracy class** 1.6 **Scope of delivery** ▪ Tester PNG-2 ▪ Vessel filler cylinder ▪ Plastic case	**Connection thread** 7/16-28 UNEF **Table of Contents** 400 ml

5

DG: H	PG	Part no.	Price €
Test and refill set PNG-1, 0/4 bar	2	39616	
Test and refill set PNG-3, 0/10 bar	2	39637	
Vessel filler cylinder, 400 ml	1	39633	
Test and refill set PNG-2	2	39634	
Spare case of PNG-2	1	39635	

Testers PGA



Tester PGA

Application

For pressure tests of expansion vessels, tanks and tyres.

Description

Robust, very accurate pressure gauge in aluminium housing with ring for zero correction. Measuring range 0/4 bar. With 45° adapter for use even if space is limited.

Test set PGA-4-Set

For pressure tests of expansion vessels, tanks and tyres.

Robust, very accurate pressure gauge in aluminium housing with ring for zero correction. Measuring range 0/4 bar. With three adapters for car valves which are also used for expansion vessels. The three adapters (straight, 45°, 90°) allow for usage even if space is limited. Plastic case with insert included in scope of delivery.

5

DG: H, PG: 3	Part no.	**Price €**
Tester PGA, 0/4 bar	39615	
Test set PGA-4-Set	39614	

Testers PGW

Tester PGW

Application For measuring the tyre pressure.

Description Robust pressure gauge in aluminium housing with ring for zero correction.
Measuring range 0/10 bar, with adapter for car valves. Also suitable for testing water pressure when used in conjunction with adapters from PGW-10-Set.

Test set PGW-10-Set

For pressure tests of water pipes, tanks and tyres.

Robust, very accurate pressure gauge in aluminium housing with ring for zero correction.
Measuring range 0/10 bar, with adapter for hose tap ½" (thread G¾), aerator M 24 x 1 female thread and M 22 x 1 male thread.
Scope of delivery includes plastic case with insert and a connector piece for car valves.

5

DG: H, PG: 3	Part no.	**Price €**
Tester PGW, 0/10 bar	**39618**	
Test set PGW-10-Set	**39617**	

Volume flow/temperature measuring instrument FlowTemp® M

- Fast, easy determination of the temperature per water volume
- Selection of measuring range for the volume flow by means of a disc with different holes

Application

For checking and adjusting water heaters. FlowTemp® M is held under an open water tap and indicates the water temperature reached at the corresponding flow rate.

5

Technical specifications

Measuring ranges
1.6 up to 4 l/min
4 up to 8 l/min
8 up to 16 l/min

Scope of delivery
- Measuring instrument
- Robust plastic enclosure against dirt, impact and shock

DG: H, PG: 4	Part no.	**Price €**
Measuring instrument for volume flow and temperature **FlowTemp® M**	**569790**	

Level sensor tester GPG 01

- **Intuitive operation by means of step by step instructions**
- **For all level sensors as per EN 13616:2004 design B1 or TRbF 511**
- **For liquids with a flash point of > 55 °C such as fuel oil, diesel and other liquid fuels or oils**
- **High-resolution TFT colour display and powerful lithium-ion battery for optimum readings and many measurements**
- **Robust protective sleeve with magnet for convenient, hands-free operation**

Application

For full testing of level sensors which are not used in hazardous areas/potentially explosive atmospheres. It is possible to perform a simple electrical function test with the level sensor installed as well as a wet test with the level sensor uninstalled.

Description

Modern, robust housing with high-resolution TFT colour display and foil keypad with four keys and On/Off button. A 1.2 m connection cable with a coupling socket 903 for plugging in the level sensor is mounted at the top. A mini USB port for the power supply unit/battery charger is located at the bottom.
The electrical function test displays the heat-up time in seconds and filling release. When a wet test is performed, the switch off time in seconds after submersion in liquid is indicated. At the end of the test, the full test result is displayed in the form of a summary. In the case of error messages and malfunctions, the display colour changes to red and a corresponding text is shown. If the device is not in use, it is switched off automatically; the charging function remains active.

Technical specifications

Operating temperature range
Ambient: 0/40 °C
Storage: -20/+50 °C

Hours of operation (eco mode)
Max. 38 hours

Weight
Approx. 360 g (device)

Dimensions
W x H x D: 66 x 143 x 37 mm
(without connection cable)

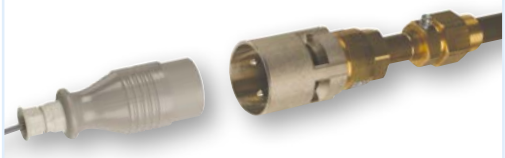
Connection level sensor
1.2 m connection cable with coupling socket 903

Display
TFT colour display, 2.8"
W x H: 45 x 60 mm

Supply voltage
Lithium-ion battery (3.6 V/2,350 mAh)
or power supply unit (USB)

Scope of delivery
- Tester with coupling socket 903
- USB power supply unit
- Mini USB cable
- Protective sleeve with magnet
- Case
- Operating instructions

Level sensor testers
with connector 903 – suitable for all level sensor fittings.



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i

See the catalogue DOMESTIC TECHNOLOGY for the complete level sensor range.

DG: H, PG: 4	Part no.	**Price €**
Level sensor tester GPG 01	**46200**	

Level sensor tester GPR 4, Anode tester AT1

Level sensor tester GPR 4

Application

For fast and easy electrical function tests of level sensors. For use with storage tanks for fuel oils and diesel fuels. Not permitted for use in hazardous areas and not for level sensors which are installed in tanks containing hazardous media.

Description

Simple level sensor tester with connector, suitable for all level sensor fittings. A signal lamp indicates function or error. Battery operation. Delivery with battery and level sensor connection fitting, also suitable for level sensor with brass fitting.

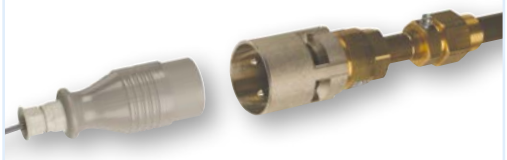
Anode tester AT1

Tester for consumption check of anode I or isolated standard sacrificial anodes.

- Handheld tester with 4-level LED indication
- Fast and easy indication of the condition of the anode
- Reliability of the water heater due to preventive maintenance – consumed anodes are replaced in good time

5

Level sensor testers with connector 903 – suitable for all level sensor fittings.



i

See the catalogue DOMESTIC TECHNOLOGY for the complete range of level sensors and anodes.

DG: H, PG: 4	Part no.	**Price €**
Level sensor tester GPR 4	62301	
Anode tester AT1 for anode I	69842	

Options and accessories for BlueAir-STx

Vane probes

Junior Macro
Part no. 524320

Junior Micro
Part no. 524318

Junior Mini
Part no. 524319

Thermal printer EUROprinter II
Compact printer with a magnet at the back for hands-free operation. Infrared interface for easy connection of all BlueLine series measuring instruments. Documents all measured results also on paper for official purposes - anywhere
Part no. 524340

Flue gas probes

Printer

live

connect

GET IT ON Google Play

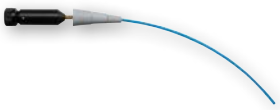
Download on the App Store

Mobile apps

Modular system cases

Accessories and options for the BlueLine series

Probes for flue gas analysers

DG: H, PG: 4	Part	Description	Suitable for BLUELYZER ST	Suitable for EUROLYZER STx	Suitable for MULTILYZER STe/STx	Part no.	Price €
Modular probe system							
	**Base handle AWS/B for interchangeable probes**	Compensation line: 2.4 m, with condensate filter cartridge KFP, with draft		•	•	**510921**	
		Compensation line: 5 m, with condensate filter cartridge KFP, with draft		•	•	510931	
	**Interchangeable probe AWS-S** suitable for base handle	100 mm, Ø 8 mm		•	•	**570084**	
		180 mm, Ø 8 mm		•	•	**570073**	
		300 mm, Ø 8 mm		•	•	**570074**	
		500 mm, Ø 8 mm		•	•	570075	
		750 mm, Ø 8 mm		•	•	570076	
		1,000 mm, Ø 8 mm		•	•	570077	
		1,500 mm, Ø 8 mm		•	•	570078	
	**Protective cap AWS-SK** for interchangeable probe					570085	
	**Multi-hole probe AWS-M** suitable for base handle	Length-adjustable 60–170 mm, Ø 8 mm		•	•	**570080**	
	**Annular gap probe AWS-R** Suitable for base handle	For measurement of CO and O_2 concentrations in the annular gap of double-walled chimney chimneys of gas furnaces		•	•	**570083**	
	**Flexible probe AWS-F** Suitable for base handle	400 mm, Ø 9 mm		•	•	**570079**	
	**Probe test kit SPS-A**	For checking probe systems for leaks	•	•	•	**511017**	
Flue gas probe plug-in units							
	**Annular gap probe RSO-UG**	2 m hose length with connection piece	•	•	•	**500236**	
	**Annular gap probe RSO-UA**	Universal, can be plugged onto all flue gas probes	•	•	•	**570082**	
	**Multi-hole probe MSO-U** with connection fitting	Length-adjustable 60–250 mm	•	•	•	**569580A**	

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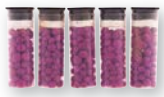
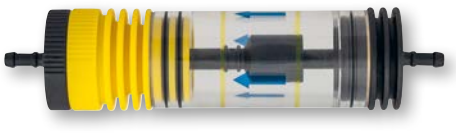
DG: H, PG: 4	Part	Description	Suitable for: BLUELYZER ST	EUROLYZER STx	MULTILYZER STe/STx	S4600 ST	STM 225	MAXISYSTEM ST	Part no.	Price €
Filter										
	**Intermediate filter NO_x/SO_x** for connection Ø 8 mm	With 1 refilling	•	•	•				511064	
	**Refilling for intermediate filter**	5 pieces							511066	
Flue gas probes, analysis lines, Pitot tubes										
	**Flue gas probe compact AKS-K**	240 mm, with draft connection, without condensate filter cartridge KFP 2P	•						500246.5	
	**High-temperature flue gas combination probe AKS-HT**	Up to 1,000 °C Length 1,500 mm Hose length 2.4 m	•	•	•				500273.1	
	**Gas sampling probe PSP 4000**				•				568900	
	**Analysis line HL 4-3, heated**	Length: 3 m			•				569478	
	Analysis line HL 4-5, heated	Length: 5 m			•				569476	
 NEW	**Sampling line ENL-MS heated**	Length: 3 m						•	524437	
	**Sampling line ENL-H 2 A, heated**	Length: 2 m, with compensation line and connection possibility for MULTILYZER NG, STe/STx					•		570205A	
	**Sampling probe ENS-G**	280 mm, straight					•		570202	
	Sampling probe ENS-G	400 mm, straight					•		570211	
	**Sampling probe ENS-W**	300 mm, bent					•		570203	
	**Connection kit ASS-STM**	Connection line sampling line ENL-H2 and MULTILYZER STe/STx, with KFP					•		500296	
	**Pitot tube**	**PTR-360,** Probe immersion depth 360 mm		•	•	•			500238	
		PTR-460, Probe immersion depth 460 mm		•	•	•			500238.1	

6

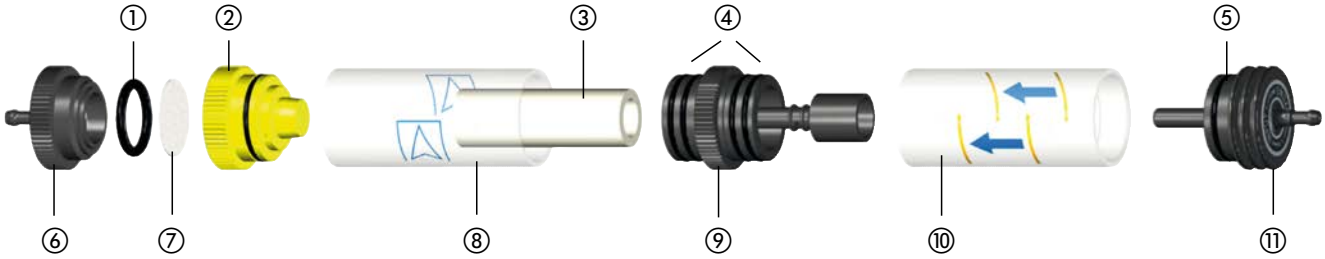
Condensate filter cartridges KFP for flue gas analysers

KFP

KFP 2P

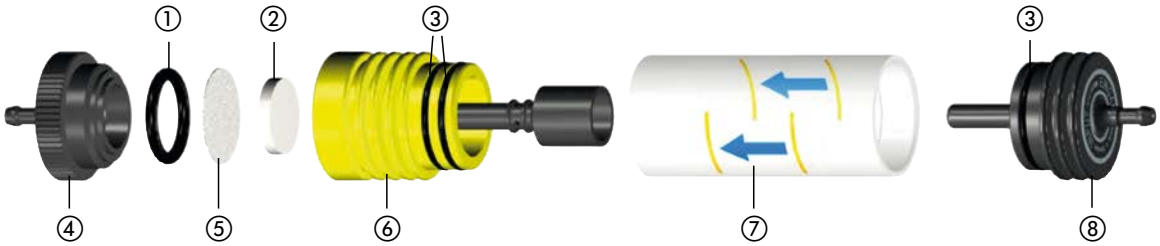


Condensate filter cartridge KFP (EUROLYZER STx, MULTILYZER STe/STx)



① O ring 18 x 3
② Intermediate piece KFP-Z
③ Infiltec fine filter
④ O ring 23 x 2
⑤ O ring 23 x 2
⑥ Outlet piece KFP-A
⑦ Teflon membrane
⑧ Glass piston KFP-GL with logo
⑨ Centre piece KFP-MZ
⑩ Glass piston KFP-GP with arrow
⑪ Inlet piece KFP-E

Condensate filter cartridge KFP 2P (BLUELYZER ST)



① O ring 18 x 3
② Particle filter
③ O ring 23 x 2
④ Outlet piece KFP-A
⑤ Teflon membrane
⑥ Insert KFP-ESZ
⑦ Glass piston KFP-GP with arrow
⑧ Inlet piece KFP-E

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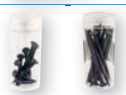
DG: H, PG: 4			Part no.	**Price €**
Condensate filter cartridge KFP			**500190**	
Condensate filter cartridge KFP 2P			**500192**	
Spare parts package gas treatment KFP: 5 x Infiltec fine filter, 5 x Teflon membrane			**500208**	
Spare parts package gas treatment KFP 2P: 5 x Infiltec fine filter, 5 x Teflon membrane			**500214**	
	Spare parts use			
	KFP	**KFP 2P**		
Assortment of O rings for KFP, sorted	•	•	**511002**	
Inlet piece KFP-E	•	•	**520594**	
Glass piston KFP-GP with arrow	•	•	**520596**	
Centre piece KFP-MZ with cylinder	•		**521990**	
Intermediate piece KFP-Z	•		**520592**	
Outlet piece KFP-A	•	•	**520591**	
Glass piston KFP-GL with logo	•		**521778**	
Teflon membrane, 10 pieces	•	•	**511004**	
Infiltec fine filter, 5 pieces	•		**511003**	
Particle filter, 5 pieces		•	**511009**	
Insert KFP-ESZ with cylinder		•	**522183**	

Probes for BlueAir STx and MFM 22

DG: H, PG: 4			Suitable for: BlueAir ST®/STx	Suitable for: MFM 22	Part no.	Price €
Probes for air velocity meter BlueAir						
	**Temperature and humidity sensor TFS-BA 2**	8-pin connector	•		511179	
	**Sensor cable for TFS-BA**	Length: 1.8 m	•		523511	
	**Vane probe Junior Micro**	Total length: 165 mm Diameter (vane): 11 mm	•		524318	
	**Vane probe Junior Mini**	Total length: 175 mm Diameter (vane): 22 mm	•		524319	
	**Vane probe Junior Macro**	Total length: 325 mm Diameter (vane): 85 mm	•		524320	
	**Snap-on head Junio Micro**	Measuring range: 0.6 / 20 m/s	•		524360	
	**Snap-on head Junior Mini**	Measuring range: 0.4 / 20 m/s	•		524361	
	**Snap-on head Junior Macro**	Measuring range: 0.3 / 20 m/s	•		524362	
	**Extension rod VLS 180**	Length: 180 mm	•		523626	
	Extension rod VLS 300	Length: 300 mm	•		523627	
	Telescopic extension rod VLS-T 1000	Length: 1 m	•		523628	
Probes for moisture measuring instruments MFM 22						
	**Measuring cable MFM**	Length: 1 m, with connector		•	569083	
	**Hammer electrode ELE-HE 20**	For log wood, TÜV approval with MFM 22		•	569053	
	**Ram electrode ELE-SE 10**	For log wood and moisture in construction materials		•	569054	
	**Handle ELE-G**	For ram electrode		•	569049	
	**Spike electrode ELE-ST 50-1 TF**	Length: 430 mm, for wood chips and pellets, with integrated temperature probe , TÜV approval with MFM 22		•	569026	
	Spike electrode ELE-ST 50-2 TF	Length: 1,100 mm, for wood chips and pellets, with integrated temperature probe , TÜV approval with MFM 22		•	569027	
	**Spike probe TFB-ES 200**			•	569020	
	**Steel pins 12, 16, 23 mm**	3 pieces each		•	569081	
	Steel pins 40 mm	10 pieces		•	569082	
	**Deep electrode ELE-MS 110**	For ram electrode, length: 300 mm		•	569055	
	**Brush electrodes ELE-BE 110-1, 100 mm**	For moisture in construction materials		•	569079	
	Brush electrodes ELE-BE 110-2, 300 mm	For moisture in construction materials		•	569058	
	**Conductive paste for brush electrode ELE-BE**			•	569078	

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Temperature probes for BlueLine series

DG: H, PG: 4	Part	Description	Suitable for: BLUELYZER ST	EUROLYZER STx	MULTILYZER STe/STx	MFM 22	TM 6 / TM 7 / TMD 7 / TMD 9	CAPBs®	Part no.	Price €
Temperature probe TFB										
	**Spike probe TFB-ES 600**		•	•	•	•	•	•	**569868**	
	**Air, gas, liquid probe TFB-LGF 900**		•	•	•	•	•	•	**569867**	
	**Surface probe TFB-OF 450**		•	•	•	•	•	•	**569866**	
	**HT probe TFB-HT 1150-1**	700 mm	•	•	•	•	•	•	569853	
	HT probe TFB-HT 1150-2	1,000 mm	•	•	•	•	•	•	569854	
	**Combustion air probe**	**TFB-VL 600-1,** 200 mm	•	•	•	•	•	•	**500147**	
		TFB-VL 600-2, 280 mm	•	•	•	•	•	•	**500147.2**	
	**Combustion air probe TFB-VL 100 M**	With magnetic holder	•	•	•	•	•	•	**500141**	
	**Combustion air probe TFB-VL 100 MG**	With magnetic holder and rubber cone	•	•	•	•	•	•	**500141.1**	
	**Surface temperature probe TBF-OF 120**	Operating temperature range: -20/+120 °C						•	**522991**	
	**Ambient air probe**	**TFB-UL 50-1**	•	•	•	•	•	•	**521844**	
		TFB-UL 50-2 for MAXILYZER							**500129**	
	**Clamp probe TFB-ZF 120**	Operating temperature range: -40/+120 °C	•	•	•	•	•	•	**511098**	
	**Socket**	Yellow, 8 mm	•	•	•				**522171**	
	**Socket**	Blue, 7 mm	•	•	•				**522172**	

Clamping cones for probes

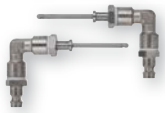
DG: H, PG: 4		Part	Description	Part no.	Price €
	Cones for probes	**Clamping cone KLK-P 50**	Made of PDM, hole Ø 5.0 mm, suitable for combustion air probe	522221	
		**Clamping cone KLK-T 80**	Made of Teflon, hole Ø 8.0 mm, suitable for flue gas combination probe	521637	
		**Clamping cone KLK-E 80**	Made of stainless steel, hole Ø 8.0 mm, suitable for flue gas combination probe	520588	
		Clamping cone KLK-E 88	Made of stainless steel, hole Ø 8.8 mm, suitable for EP-Check	522918	
		**Clamping cone KLK-E 100**	Hole: Ø 100 mm, suitable for sampling probe ENS	523780	
		**Rubber cones KLK-G**	Made of rubber, set of 3, Ø 5.0 mm, suitable for combustion air probe	568981	

Options and accessories for the BlueLine series

DG: H, PG: 4		Suitable for: BLUELYZER ST	EUROLYZER STx	MULTILYZER STe/STx	S4600 ST	STM 225	STM 225 BLACK EDITION	DPK 60-6 ST / DPK 60-7 ST	BlueAir ST®/STx	Part no.	Price €
Dust measuring instruments											
Cleaning kit	10 cleaning swabs, 10 cleaning cloths, 2 cleaning brushes					•	•			570210	
O ring kit	9 parts					•	•			511028	
Zero point filter						•				523564	
Flushing air filter						•	•			523565	
Infiltec fine filter	5 pieces					•	•			511003	
Spring clip KP	For STM 225					•	•			523947	
Options											
Device function MGF DL-S, data logger		•	•	•	•			•	•	511010	
Database memory	Extension of memory function, customer database, customer information	•	•*	•*	•			•	•	511030	
Measuring instruments BlueLine series											
microSD HC card	With USB 2.0 card reader	•	•	•	•			•	•	511035	
Module USB-A "BT-STM 225" MULTILYZER STe	USB dongle for MULTILYZER STe For communication with STM 225			•						500854	
Module USB-A For PC	Bluetooth® dongle for PC application EuroSoft® mobile	•	•	•	•			•	•	500856	
Charging cable USB-A / mini USB		•	•	•	•			•	•	523506	
Power supply unit NTE 5 mini USB for car	Car adapter for charging cablet USB-A to mini USB	•	•	•	•			•	•	523476	
Power supply unit NTE 5 USB-A		•	•	•	•			•	•	523493	

* Included in scope of delivery of measuring instrument.

Accessories and spare parts
CAPBs® sets for hydraulic balancing

DG: H, PG: 4	Part	Description	Part no.	Price €
	**Battery micro AAA LR03 1.5 V**	Power supply for CAPBs® BG 10 Packing unit = 1 piece	523472	
	**Measurement needle drill**	For cleaning the measuring needles	524783	
	**Sintered filter with O ring**	For protection against pollution in the measuring hose and the measuring instrument Packing unit = 2 piece	524784	
	**Reaction container 2.0 ml, blue**	For storing filters and O rings	524564	
	**Adjustment key for VarioQ and VarioQ-Kombi**		524781	
	**Screwdriver, 6.5 x 25 mm**		524775	
	**Hex key, 4 mm**		524776	
	**Measuring hose set Ø 4 mm (red and blue), with measuring needle**	For direct measurement and adjustment of VarioQ valves	511206	
	**Pre-adjustment key VarioQ**	For measurement of VarioQ valves	524792	
	**Test adapter ¾" female thread with plug-in nipple DN 5**		511173	
	**Measuring hose set Ø 6 mm (red and blue), coupling DN 2.7**	For measurement and adjustment of line control valves	511207	
	**Angled measuring needle Ø 3.3 mm**	For measurement and adjustment of line control valves packing unit = 2 pieces	511182	

Accessories for the BlueLine Series

DG: H, PG: 4	Part	Description	Part no.	Price €
Hoses				
	Connection kit ASS-DP for differential pressure measurement Length: 1 m	For handheld measuring instruments with connection Ø 7/8 mm and Festo Ø 3 mm	500237	
	**Connection kit tank protection ASS-TS** Length: 1 m	Plug connection Ø 8 mm	569843	
	**Connection kit high pressure ASS-HD** Length: 0.85 m	Plug connection hose (Ø 3 mm) to G1/8, up to 15 bar	500234	
	**Hose kit SLS 4 Pa test** Length: 4 m	Suitable for CAPBS® 4 Pa test	500664	
	**Adapter Festo connection** Adapter piece Ø 8 mm to Ø 3 mm for BlueLine series pressure measuring instruments	1 pieces	500677.1	
Thermal printer EUROprinter				
 NEW	**Thermal printer EUROprinter II**	Compact infrared printer with 4 magnets at the rear, with printer paper (1 roll) and batteries Interfaces: Infrared	524340	
 Bluetooth	**Thermal printer EUROprinter-IR Bluetooth® Low Energy**	Compact printer with 4 magnets at the rear. Interfaces: Infrared and Bluetooth® Low Energy	523525	
	**Printer paper for EUROprinter Thermo**	5 rolls	523374	
	Printer paper for EUROprinter	For official documentation, self-adhesive, 1 roll	522666	
Soot pumps RSP				
	**Soot pump RSP-L**	With smoke spot number comparison scale and filter paper (100 pieces)	569581	
	**Soot pump RSP-XL**	Complete kit with sampling probe (220 mm long) and plastic measuring head, smoke spot number comparison scale, threaded cone, cleaning agent, filter paper (100 pieces)	569086	
	**Filter paper for soot pumps**	200 pieces	568400	
	**Smoke spot number comparison scale**		568300	

6

DG: H, PG: 4	Part	Description	Part no.	Price €
Transport systems / cases / protective sleeve				
	**Plastic case Universal**	For EUROLYZER and MULTILYZER	**570106**	
	**Aluminium case**	For BlueAir-STx	**511001**	
	**Plastic case MFM**	For MFM 22	**569021**	
	**Transport bag**	For STM 225 and STM 225 BLACK EDITION	**570201**	
	**Hard top case**	For EUROLYZER and MULTILYZER	**523503**	
	**CAPBs® water protection sleeve WSH-BG**	For CAPBs® BG 10	**524259**	
	**Carrying bag**	For MAXISYSTEM ST	**524651**	

Modular system cases for BlueLine measuring instruments and CAPBs®

DG: H, PG: 4			Part no.	**Price €**
System case L "DPK"	1	With document compartment and high-grade foam inlay for DPK 60-6 ST Dimensions (W x H x D): 442 x 151 x 357 mm Weight: 2.2 kg	**500902**	
System case L "Gas analysis"	1	With document compartment and high-grade foam inlay for BLUELYZER ST, EUROLYZER STx, MULTILYZER STe/STx and accessories Dimensions (W x H x D): 442 x 151 x 357 mm Weight: 2.2 kg	**500900**	
System case M "DPK"	2	With high-grade foam inlay for CAPBs® set DPK 60-6 sens Dimensions (W x H x D): 367 x 72 x 316 mm Weight: 0.9 kg	**500904**	
System case M "CAPBs"	2	With high-grade foam inlay for CAPBs® base handles and sensor modules Dimensions (W x H x D): 367 x 72 x 316 mm Weight: 0.9 kg	**500905**	
System case M "WQ 10"	2	With high-grade foam inlay for CAPBs® set water quality WQ 10	**500907**	
System case M "Balancing"	2	With high-grade foam inlay for CAPBs® set valve balancing/line balancing	**511208**	
System case S	3	With foam inlay Dimensions (W x H x D): 260 x 63 x 155 mm Weight: 0.4 kg	**523976**	
Rack for system case M	4	Dimensions (W x H x D): 442 x 100 x 342 mm Weight: 1.1 kg	**523977**	

Accessories for DPK 60 series

Hand-operated pump

Description With connection for ADV and connecting hose

Technical specifications Stroke volume: 130 cm^3
Hose length: 1.5 m

Single pipe union connector

With connection for single-line gas meter.
With plug-in nipple suitable for all quick action coupling systems of the DPK series.

DG: H, PG: 3	Part no.	**Price €**
Hand-operated pump	511262	**On request**
Single pipe union connector DN 5 with plug-in connection	500693	

Accessories for DPK 60 series

Pressure test valve ADV 2

Description

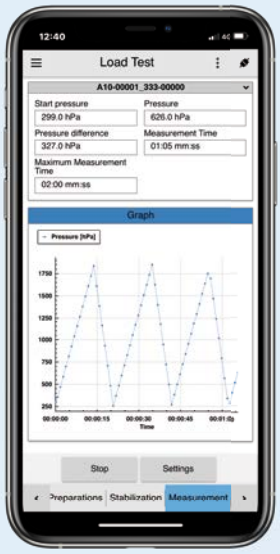
Pressure test valve with quick-action coupling and high-precision adjustment valve for easy adjustment of the filling pressure. Suitable for all BlueLine series pressure measuring instruments with hose connection Ø 8 mm.

Test plugs

Conical or cylindrical test plugs with plug-in nipple for quick-action coupling system and easy-to-handle wing screw for standard pipe diameters ½", ¾", 1" and 1¼".

DG: H, PG: 3	Part no.	Price €
Pressure test valve ADV 2 with quick-action coupling and high-precision adjustment valve	500670	
Test plug conical ½" to ¾" with plug-in nipple DN 5	500678.1	
Test plug conical ¾" to 1¼" with plug-in nipple DN 5	500678.2	
Test plug cylindrical ½" with plug-in nipple DN 5	500678.3	
Test plug cylindrical ¾" with plug-in nipple DN 5	500678.4	
Test plug cylindrical 1" with plug-in nipple DN 5	500678.5	
Test plug cylindrical 1¼" with plug-in nipple DN 5	500678.6	
Test plug ½" with plug-in nipple DN 5	500694	
Multiple connection plug ⅜" and ¾" with plug-in nipple DN 5	500679.1	
Multiple connection plug ½" and 1" with plug-in nipple DN 5	500679.2	
Multiple connection plug 1" and 1¼" with plug-in nipple DN 5	500679.3	
Test adapter ⅜" with plug-in nipple DN 5	511171	On request
Test adapter ½" with plug-in nipple DN 5	511172	On request
Test adapter ¾" female thread with plug-in nipple DN 5	511173	
Test adapter 1" with plug-in nipple DN 5	511174	On request
Connection G ⅛" to DN 5 with shut-off valve	511204	
Y connector, 2 x coupling DN 5, 1 x shut-off valve, 1 x plug-in nipple DN 5	500690	
T connector, 2 x coupling, 1 x shut-off valve, 1 x plug-in nipple DN 5	500695	
Connection hose 0.3 m with 1 x plug-in nipple DN 5, 1 x coupling DN 2.7	500687	
Connection hose 0.5 m with 2 x plug-in nipple DN 5	511112	On request
Connection hose 0.5 m with 1 x coupling DN 2.7, 1 x plug connection (hose Ø 3 mm)	511013	On request
Connection hose 1 m with plug-in nipple DN 2.7, DN 5 coupling	500685	
Connection hose 2 m with 1 x coupling DN 2.7, 1 x plug-in nipple DN 2.7	500689	
Connection hose 3 m with 2 x coupling DN 5	500686	
Connection hose for low pressure with 1 x plug-in nipple DN 5	500688	
Adapter for compressor connection**,** 1 x coupling DN 5, 1 x plug-in nipple DN 7.2	500696	
Hand-operated bulb pump with 2 x valve	523082	
Connection hose 0.34 m for hand-operated bulb pump	522952	
Hand-operated bulb pump with connection hose 0.34 m	511018	
Filling hose ADV	511111	On request

App EuroSoft® live for displaying the values measured by CAPBs® sensor modules



live

GET IT ON Google Play

Download on the App Store

www.capbs.info/app

- Free iOS and Android app for all CAPBs® sensor modules
- "Live" indication of the measured values, also as line chart
- Menu-guided programs
- Reading of measurements from CAPBs® device via QR code
- Data logger function for logging the measurement data
- Intuitive, user-friendly user interface for the measurement tasks temperature, humidity, pressure, tightness test, volume flow and valve balancing, etc.
- A picture from the media library of the mobile device can be added to each measurement
- Customer data, address and further building information can be entered
- You can add your signature to the measurement record
- Export and sharing of measurement records via e-mail or messengers

Application EuroSoft® live is the free app for operation of all CAPBs® sensor modules via smartphone or tablet.

Description The CAPBs® modules communicate with the mobile device via Bluetooth®. The app allows for smart control of the sensor modules and for "live" visualisation of the measured values (line chart) in application programs. Comprehensive measurement results can be conveniently visualised, stored in PDF measurement logs and transmitted via the standard communication capabilities of mobile devices (such as e-mail, WhatsApp, cloud services).

6

Intuitive device connection and menu-guided measurement

Selecting a measurement

Connecting to CAPBs®

Measurement starts

Notes

Notes

Notes

Evaluation software and app EuroSoft® connect

NEW

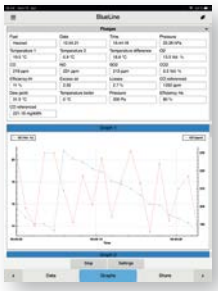
Bluetooth®

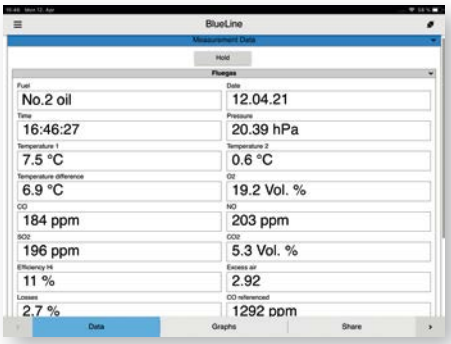
Benefits

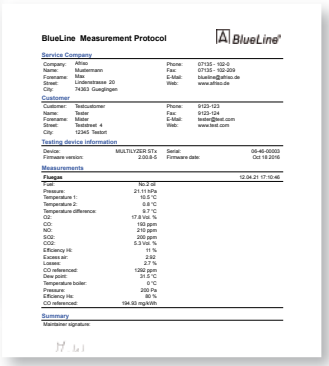
- Live transmission of measured values to smartphone, tablet or PC via Bluetooth®
- Fast transmission of final measurement results via QR code
- Creation of professional measurement records (PDF) with customer data and signature
- Free and suitable for many measuring instruments of the BlueLine series

Application

For processing and visualisation of measurement results of BlueLine measuring instruments. Ideal for long-term measurements and adjustments as well as for use of the data logger function for professional, comprehensive documentation of results for customers. The EuroSoft connect software allows you to transmit measured values to smartphones, tablets or PCs. The data can then be further processed or sent via e-mail. The evaluation software is suitable for BlueLine measuring instruments and can be used on iOS, Android or Windows operating systems.







6

EuroSoft® connect app

connect

GET IT ON Google Play

Download on the App Store

Software download

- Google Play:
- App Store:

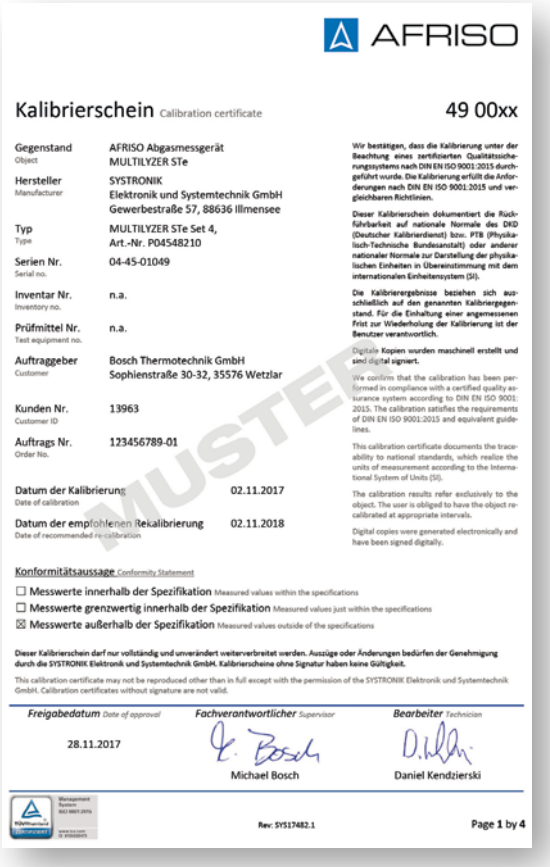
ISO calibration for the portable measuring instruments of the BlueLine series

Play it safe

Measuring instruments used in quality-related applications must be calibrated at regular intervals. Even minimum measuring errors can have a dramatic impact on the safety of plants or systems and on the quality of manufactured products. Numerous standards and directives in a vast variety of industries require quality assurance systems which include regular monitoring and calibration of portable measuring equipment. Product liability legislation also requires perfectly operating measurement equipment for quality-related measurement tasks. Only systematic monitoring, regular calibration and complete documentation helps to protect you against liability claims.

In most cases, "ISI calibration" is sufficient to meet the requirements of the standards and audits (such as ISO 9001).

During calibration, correct operation of the device is verified by a comparison measurement with a calibration agent allowing for comparison against a national standard value. Compliance with the specifications of the manufacturer is attested by means of a calibration certificate. This way, you are ready for the next audit.



AFRISO

Kalibrierschein Calibration certificate 49 00xx

Gegenstand Object	AFRISO Abgasmessgerät MULTILYZER STe
Hersteller Manufacturer	SYSTRONIK Elektronik und Systemtechnik GmbH Gewerbestraße 57, 88636 Illmensee
Typ Type	MULTILYZER STe Set 4, Art.-Nr. P04548210
Serien Nr. Serial no.	04-45-01049
Inventar Nr. Inventory no.	n.a.
Prüfmittel Nr. Test equipment no.	n.a.
Auftraggeber Customer	Bosch Thermotechnik GmbH Sophienstraße 30-32, 35576 Wetzlar
Kunden Nr. Customer ID	13963
Auftrags Nr. Order No.	123456789-01
Datum der Kalibrierung Date of calibration	02.11.2017
Datum der empfohlenen Rekalibrierung Date of recommended re-calibration	02.11.2018

Wir bestätigen, dass die Kalibrierung unter der Beachtung eines zertifizierten Qualitätssicherungssystems nach DIN EN ISO 9001:2015 durchgeführt wurde. Die Kalibrierung erfüllt die Anforderungen nach DIN EN ISO 9001:2015 und vergleichbaren Richtlinien.

Dieser Kalibrierschein dokumentiert die Rückführbarkeit auf nationale Normale des DKD (Deutscher Kalibrierdienst) bzw. PTB (Physikalisch-Technische Bundesanstalt) oder anderer nationaler Normale zur Darstellung der physikalischen Einheiten in Übereinstimmung mit dem internationalen Einheitensystem (SI).

Die Kalibrierergebnisse beziehen sich ausschließlich auf den genannten Kalibriergegenstand. Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

Digitale Kopien wurden maschinell erstellt und sind digital signiert.

We confirm that the calibration has been performed in compliance with a certified quality assurance system according to DIN EN ISO 9001:2015. The calibration satisfies the requirements of DIN EN ISO 9001:2015 and equivalent guidelines.

This calibration certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI).

The calibration results refer exclusively to the object. The user is obliged to have the object recalibrated at appropriate intervals.

Digital copies were generated electronically and have been signed digitally.

MUSTER

Konformitätsaussage Conformity Statement

☐ Messwerte innerhalb der Spezifikation Measured values within the specifications
☐ Messwerte grenzwertig innerhalb der Spezifikation Measured values just within the specifications
☒ Messwerte außerhalb der Spezifikation Measured values outside of the specifications

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung durch die SYSTRONIK Elektronik und Systemtechnik GmbH. Kalibrierscheine ohne Signatur haben keine Gültigkeit.

This calibration certificate may not be reproduced other than in full except with the permission of the SYSTRONIK Elektronik und Systemtechnik GmbH. Calibration certificates without signature are not valid.

Freigabedatum Date of approval	Fachverantwortlicher Supervisor	Bearbeiter Technician
28.11.2017	Michael Bosch	Daniel Kendzierski

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TÜVRheinland ZERTIFIZIERT
Management System ISO 9001:2015
www.tuv.com ID 9105030470

ISO calibration for the portable measuring instruments of the BlueLine series

Calibration certificates	Device series	Part no.	Price €
Pressure			
ISO calibration pressure	S4600 ST series, CAPBS® sens PS, CAPBS® sens PT, S2600-Serie	524210.01	
Temperature			
ISO calibration temperature	TM 7, TMD 7, TMD 9, CAPBs® sens TK	524210.02	
Pressure and temperature			
ISO calibration pressure and temperature	CAPBs® sens FP 10	524210.03	
Air velocity			
ISO calibration vane anemometer	BlueAir STx	524210.11	
Humidity/moisture			
ISO calibration humidity	CAPBs® sens RH 80, AQ 36, FT series, BlueAir STx	524210.14	
Gas			
ISO calibration methane	GSP 1, GSP 4, CAPBs® sens GS 10	524210.04	
ISO calibration carbon monoxide	CAPBs® sens CO	524210.05	
ISO calibration pressure, temperature and 2 gas sensors	Flue gas analysers	524210.06	
ISO calibration pressure, temperature and 3 gas sensors	Flue gas analysers	524210.07	
ISO calibration pressure, temperature and 4 or more gas sensors	Flue gas analysers	524210.08	
Volume flow and temperature			
ISO calibration volume flow	FlowTemp® ST / STx	524210.13	
ISO calibration volume flow and temperature	FlowTemp® ST / STx	524210.15	

Maintenance contracts for flue gas analysers

Get maximum reliability for your flue gas analyser

AFRISO offers comprehensive maintenance contracts with different terms for the flue gas analysers BLUELYZER, EUROLYZER, MULTILYZER and MAXILYZER as well as the dust measuring instrument. In addition to a complete function test and a device calibration, annual service includes an inspection and, if necessary, replacement of the O_2 and CO measuring cells. The basic maintenance contract can be extended to cover additional measuring cells.

Maintenance contract selection	Term		Replacement of cells								Part no.	Price € / year
	5 years	7 years	Device calibration	Function test	O_2 cell	CO cell	NO cell	NO_2 cell	CO_{high} cell	SO_2 cell		
BLUELYZER ST	•		•	•	•	•					579041	
EUROLYZER STx		•	•	•	•	•					579047	
MULTILYZER STx		•	•	•	•	•					579044	
Dust measuring instrument STM 225 BLACK EDITION	•		•	•							579046	
Additional cell NO	As device	As device					•				579000	
Additional cell NO_2								•			579001	
Additional cell SO_2										•	579003	
Additional cell CO_{high}									•		579002	

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* To be able to benefit from the full scope of the maintenance contract, you must close the maintenance contract for the complete term (5 or 7 years) with annual maintenance intervals within a period of 6 months after purchasing the flue gas analyser. Maintenance must be performed regularly at the specified intervals of max. 11 to 13 months.


Filter-/Entlüfterkombination FloCoTOP 2

APPENDIX

AFRISO service and technical information

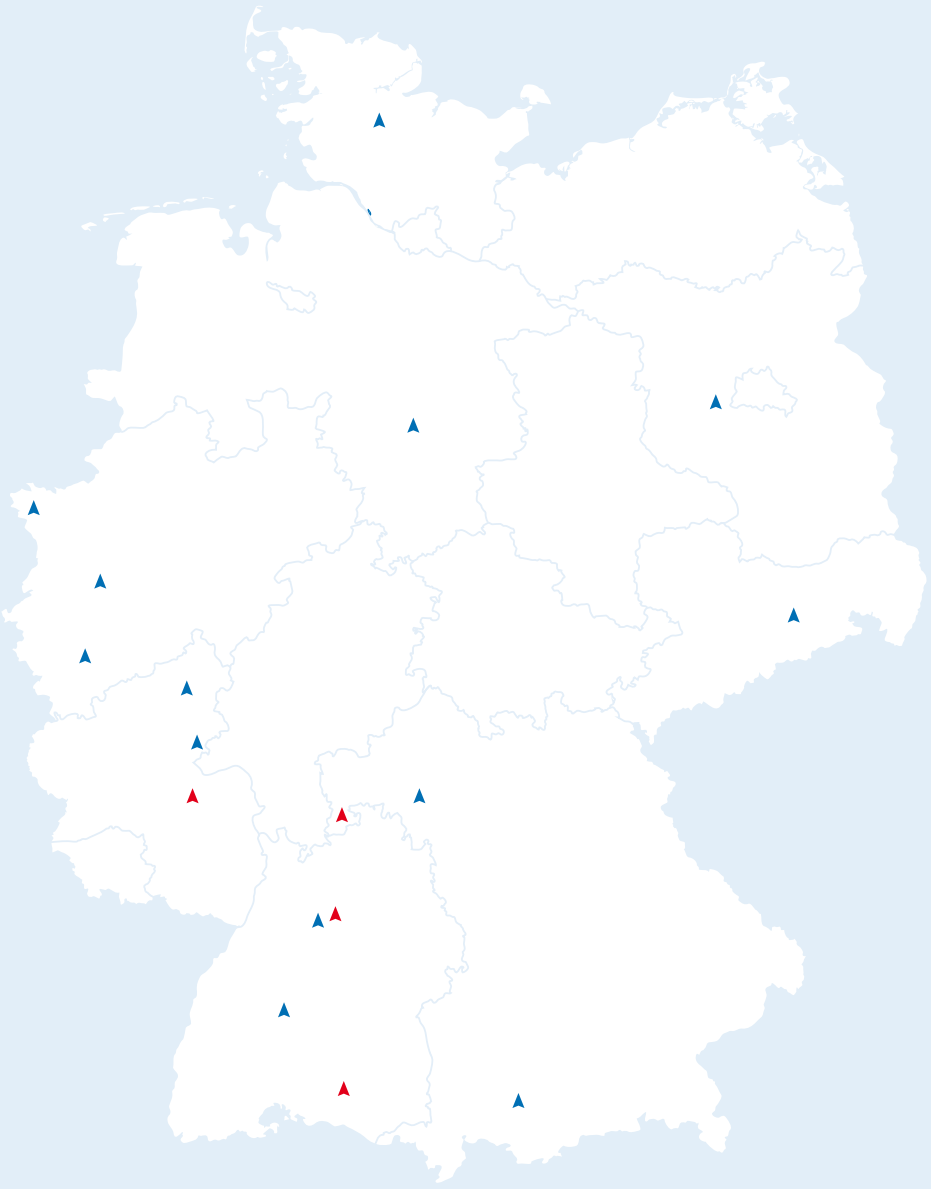
SERVICE

GENERAL INFORMATION

Powerful sales. AFRISO support centres

Sites in Germany

- AFRISO sales office/ field staff
- AFRISO production site



We ensure that you get professional, personal service.

With a staff of more than 80 field and internal experts! Please visit **www.afriso.com/contact** for further information on your specific contact person

Business hours:

Monday – Thursday:	7.30 a.m. – 12.00 a.m. and 1.00 p.m. – 4.30 p.m.
Friday:	7.30 a.m. – 12.30 p.m.

We would be pleased to help you with any questions you may have. You can reach your contact person on +49 7135 102-

Hotline sales

Information on prices/delivery periods:	-134
Offer Creation:	-159
Export	-132

Service and repairs

Hotline	-211

Notes

Our Service – Your Benefit

Flexible, cost-aware, on schedule, solution-orientated and fast – the AFRISO team always provides the decisive added value.

Information and presentation

Whether telephone support or on site: Our consultants speak your language – we provide you with personal and individual consulting worldwide. And if you have an in-house event for your customers, we will be glad to participate.

After sales service

Whether commissioning, professional maintenance, calibration or function checks – a network of service centres and our specialists in the plant support you in getting the maximum out of your AFRISO product. For safe processes, precise measurement results, compliance with legal requirements and a long service life.

Repair service

In the case of a malfunction, request a return slip at service@afriso.de and send us your AFRISO device along with a short description of the problem. We will deal with your request within a few workdays.

Renal devices

You cannot afford to do without your instrument? No problem, our rental service ensures that you remain on duty. When you send your device for maintenance or repair, you can indicate if you are interested in a rental device. We will immediately get in touch with you.

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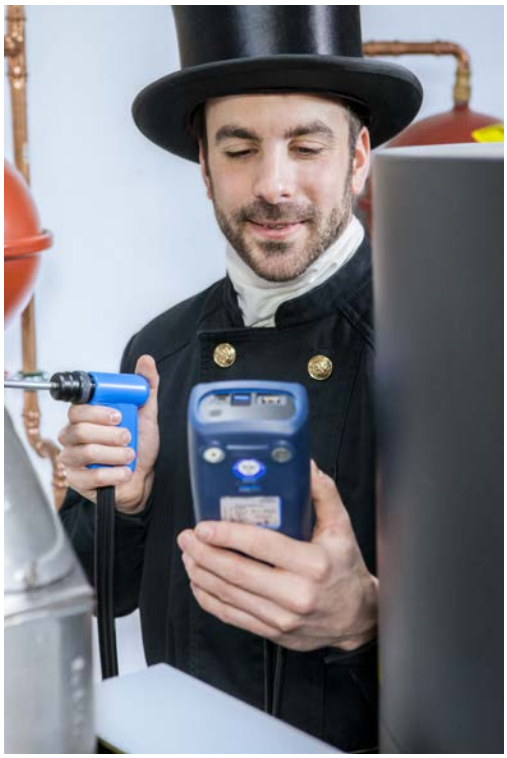
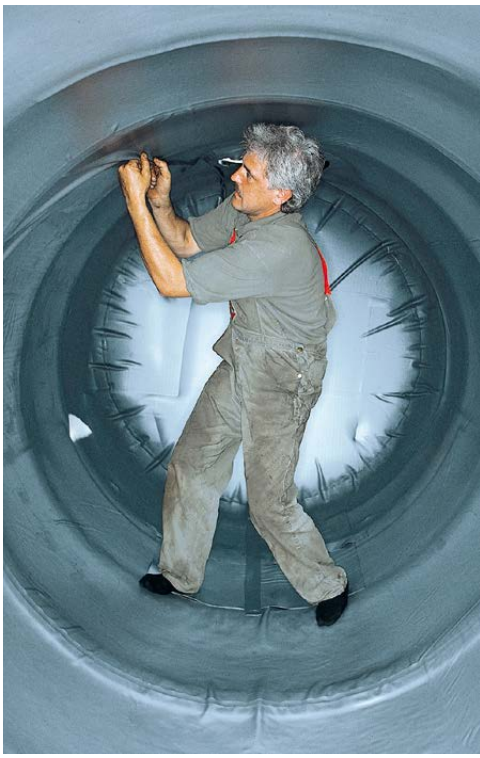
Our service and repair department will be glad to answer your questions. Please get in touch with us.
Phone: +49 7135 102-211

Courses and Training

Professional and practical. With our courses, workshops and seminars, you benefit from our many years of in-depth experience in the field of measuring and control technology. All of our offers are based on current topics and standards as well as questions from our customers. Of course, it is also possible to arrange for individual in-house courses and seminars to be provided at your site.





AFRISO training programme

Smart Home expert
One-day seminars, overview and design of an AFRISO smart home system

Tank protection and leak protection lining
Two-day seminar on the installation of leak protection linings and leak detectors (theory and practice)

Fuel oil consuming systems – what's new?
One-day seminar on planning, modernising and converting fuel oil supply systems

Hydraulic Balancing
One-day seminar on hydraulic balancing with the VarioQ valve program with measuring function

Heating system check as per EN 15378
One-day seminar on the inspection and evaluation of heating systems

HVAC service with BlueLine, CAPBs® and apps
One-day seminar covering typical HVAC measuring tasks

Dust measurement at solid-fuel systems
One-day seminar on working with the dust measuring instrument STM 225 BLACK EDITION (theory and practice)

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We will be glad to answer your questions concerning our seminars. Please get in touch with us.
E-mail: training@afriso.de
Phone: +49-7135-102-222

Visit us at www.afriso.com/training for our full training programme and additional information.

Notes

Information on EN 50379 portable measuring instruments

As of March 01, 2007, EN 50379 for portable measuring instruments went into effect. This standard covers devices used to determine the gas concentration and other combustion parameters in the installation and maintenance of domestic and industrial heating systems with standard fuels.
The standard defines the design, testing and operating requirements for portable devices which are used to determine specific flue gas parameters such as the concentration of individual gas components, the temperature and/or the pressure in combustion processes in order to ensure the compliance of the operating behaviour of combustion systems with national directives.

The standard is divided into three parts:

- **Part 1: General requirements and test procedures**
  EN 50379-1 specifies the general requirements concerning the design, testing and operating behaviour of devices used for short-term measurements to determine specific flue gas parameters such as the concentration of individual gas components, the temperature and/or the pressure in combustion processes in order to ensure the compliance of the operating behaviour of combustion systems using commercially available fuels in domestic and industrial applications with national directives.

- **Part 2: Requirements concerning the operating behaviour of devices used in statutory measurements and assessments.**
  EN 50379-2 applies to devices which are used in statutory measurements or measurements specified by regulations. National legislation covering the operating behaviour of combustion systems exists in several European countries. Authorised inspectors use such devices to measure flue gas parameters and verify the compliance of combustion systems with national directives.
  Since the results of such measurements have statutory consequences, there are stringent requirements concerning the accuracy of these devices. Therefore, EN 50379-2 specifies maximum values for measuring inaccuracy. Tests with real flue gases constitute an essential part in the proof of suitability for statutory measurements. The determination of the measuring inaccuracy must be demonstrated and confirmed with internationally approved methods for the entire measuring range.

- **Part 3: Requirements for devices in non-regulated areas in the maintenance of gas-fuelled heating facilities**
  EN 50379-3 applies to devices which are used in non-statutory applications. The requirements are less stringent because the devices are used in determining whether a gas-fuelled combustion system may require maintenance or in setting up a gas-fuelled combustion system during maintenance. The measuring inaccuracy does not need to be determined for such devices. These devices do not meet the technical measuring specifications as required in part 2. Therefore, devices certified according to EN 50379-3 are not suitable for measuring combustion systems.

All flue gas measuring instruments as well as BlueLine pressure and temperature measuring instruments meet the stringent requirements of EN 50379-2. The TÜV quality mark (OCTAGON) certifies EN 50379-2 compliance and may only be used if the production is audited by TÜV-SÜD at regular intervals. This line of measuring instruments with the TÜV-OCTAGON mark is backed by experience and competence. High quality pays off - both price/performance ratio and cost of ownership are convincing. High-quality measuring instruments also help you avoid conflicts and problems in terms of product liability.

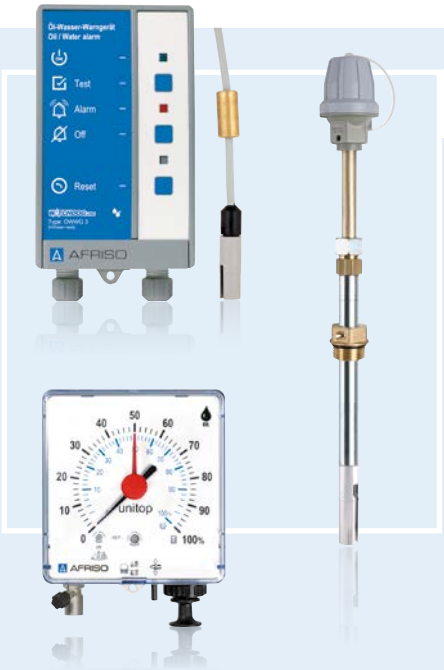
AFRISO product programme.

Technology for Environmental Protection

AFRISO monitors, controls and protects the elements fire, water, earth and air – in the broadest sense. On the one hand, these elements symbolically stand for the relief and protection of the environment – and on the other, they illustrate our fields of activity:

- Flue gas control
- Energy savings
- Groundwater protection
- Conservation of resources

Product development revolves around our motto "Technology for Environmental Protection". We strive to improve the environment, to make processes which work with greater environmental compatibility and to avoid putting a strain on the environment. With a balanced portfolio of innovations, proven products, systems and services, we offer our customers efficient solutions which are of great benefit.



Tank. Heating. Water Technology.

AFRISO provides "Safety for Heating Systems". With a comprehensive range of building technology products, AFRISO prides itself in "Making Heating Systems Safe". Irrespective of whether the heating system uses regenerative energy or fossil fuels. In addition to this extensive range, a large selection of alarm units for the fast detection of level, unwanted liquid spillage, leakage, gas or smoke is available.

- Mechanical/pneumatic level indicators
- Overfill prevention systems/overfill alarm systems
- Leak detectors/leak monitoring systems
- Inner tank linings
- Equipment for fuel oil storage tanks, oil carrying pipes, boiler rooms, boilers and heating systems
- Heating controllers
- Distribution manifolds for heating, cooling and geothermal systems
- Smart home systems for building automation
- Valves and control technology for radiators and hydraulic balancing
- Equipment for drinking water supply

Gas analysis and service instruments

The BlueLine series is the perfect solution for official measurements, adjustment, servicing, maintenance and repair work. You benefit from an optimally tuned range of measuring instruments which is continuously setting new standards: from basic devices all the way to portable all-in-one flue gas analysers. AFRISO offers gas analysers, gas sampling probes and turnkey analysis systems with data acquisition systems for continuous emission monitoring.

- Portable gas analysers
- Portable measuring instruments, analysers and testers
- Modular sensor module systems
- Gas alarm units
- Stationary gas analysers
- Emission measurement technology
- Measurement data acquisition systems

Pressure. Temperature. Level.

In addition to our comprehensive range of mechanical and electronic pressure, temperature and level instruments, we also offer suitable mounting and installation accessories as well as display, control and evaluation devices.
AFRISO measuring instruments cover the following ranges:
Pressure: 0/2.5 mbar to 0/4,000 bar
Temperature: -50 °C to +1,100 °C
Level: 0/10 cm to 0/250 m

- Pressure gauges
- Accessories for pressure gauges
- Chemical seals
- Pressure transducers
- Bimetal thermometers and gas filled thermometers
- Thermostats
- Resistance thermometers
- Electronic level indicators
- Display, evaluation and control units
- Event reporting systems/communication systems

Special designs and system solutions

In addition to our comprehensive range of standardised, proven off-the-shelf products, we also offer customised special products made exactly to your requirements. We are constantly setting new standards with innovative concepts, e.g. using plastic fittings instead of metal ones or a combination of plastic and brass materials in complex assemblies. Our range does not only cover the delivery of individual sensors, but includes suitable components for power supply and evaluation of the measurement signals. In the case of system solutions, we do the entire engineering for you, all the way to the production of the control unit - ready for operation.

Adapted to your specific requirements

- Housing geometry
- Shape and colour
- Mechanical or electrical connections
- Pre-assembled, tested, ready-to-connect assemblies

Convincing solutions for a wide variety of applications.

We know your industry

AFRISO is at home wherever there is measuring, controlling or monitoring required. As a full-range manufacturer, we offer our customers a broad product portfolio from a single source. A wealth of experience from numerous applications as well as our knowledge of the requirements in the individual markets make us a reliable partner in your industry. We know what is necessary as a result of our many years as a supplier in the OEM business and our intensive contact with standardisation commit-

Building technology

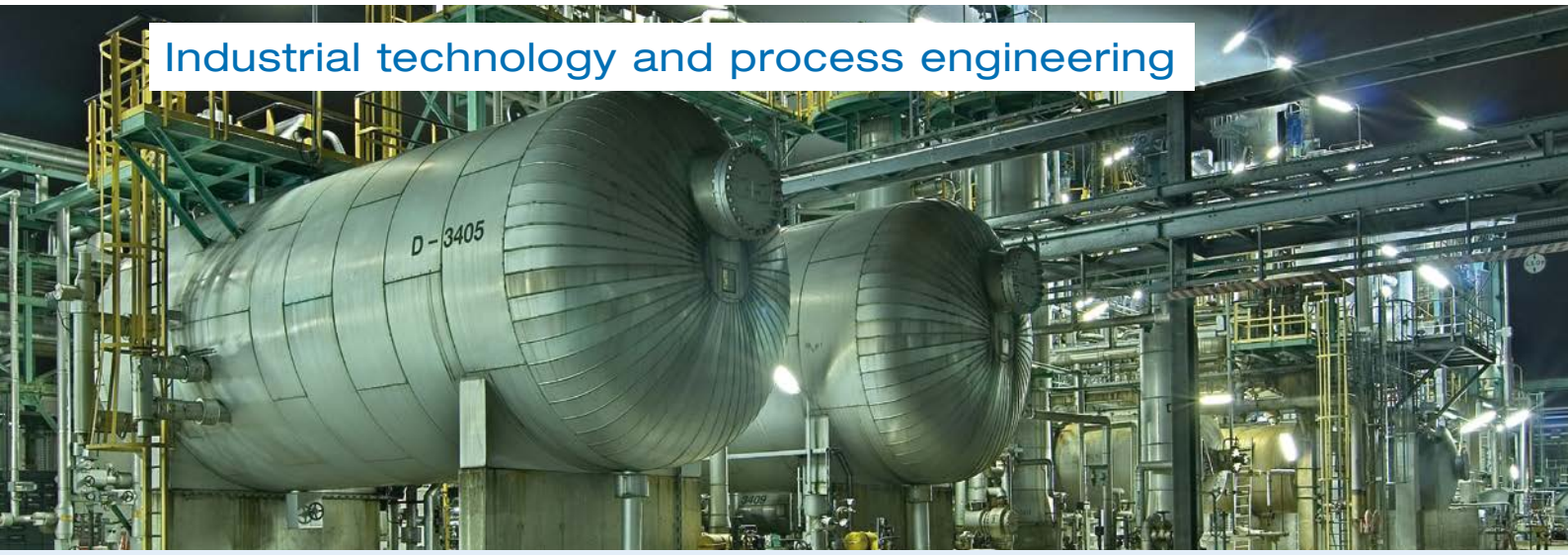
The subject of saving energy has been our focus for more than 50 years. From the start, we have supported the move towards geothermal and solar systems as well as the use of biogenous fuels by supplying professional components and assemblies.
Our range for the secure storage of fuel oil and professional equipment for heating systems reduces operating costs, helps make optimum use of fuels, provides timely warnings if hazardous situations arise and constitutes an active contribution to environmental protection. Innovative measuring instruments for flue gas analysis yield high-precision and reproducible results so that your customers can achieve their goals: the right amount of heat at the right time, low energy consumption and low emissions. And we always respond to sustainable new technologies, for example, by providing compelling sensors and systems for increasing security and convenience in smart homes.

7

Target markets

- Manufacturer of heat generators
- Manufacturers of solar thermal systems
- System suppliers of surface heating systems
- Tank protection/revision
- Tank manufacturers
- Heating and plumbing system wholesalers
- Electrical wholesalers
- Engineering and planning consultancies
- Smart home and building automation
- Manufacturers of fittings
- Chimney sweeps
- Public institutions, municipalities

tees, associations and guilds. We tap our employees' know-how and expertise in the industry to make our customers' processes simpler, safer and more competitive. In process engineering, in building technology or facilities – you benefit with a strong partner at your side.



Industrial technology and process engineering

Reliability, precision and a long service life are crucial when it comes to highly automated processes. Our robust measuring devices deliver perfect measurement results and reliably monitor and control simple to highly complex processes – even under the most adverse conditions. AFRISO solutions meet the pertinent directives and standards. Certificates, for example, for food-quality materials, explosion protection and resistance to media and temperatures attest to this.

AFRISO products meet the requirements

- Wide variety of process connections
- Large selection of materials
- Compact designs
- Hygienic and easy to clean
- Suitable for CIP and SIP
- FDA-listed materials
- Silicone-free versions
- Resistant to corrosive and abrasive media
- High overload safety
- Resistant to vibration and temperature

Target markets

- Machines and plants
- Tanks
- Food and beverages industry
- Chemical industry
- Pharmaceutical industry
- Cosmetics industry
- Biotechnology
- Refineries
- Offshore industry
- Mineral oil industry
- Raw materials industry
- Hydraulic and pneumatics (fluid engineering)
- Medical technology, safety engineering
- Energy production
- Technical trade

General Terms of Delivery

of AFRISO-EURO-INDEX GmbH · Lindenstraße 20 · 74363 Güglingen

§ 1 Validity

(1) All our deliveries, services and offers are exclusively made on the basis of the General Terms of Delivery. These General Terms of Delivery are part of all contracts with our contract partners (hereinafter referred to as "customers") we conclude pertaining to the deliveries or services provided by us. They also apply to all future deliveries, services or offers to the customer, even if they are not separately agreed again.

(2) General terms and conditions of the customer shall only become part of the contract if we expressly consent to their validity in writing. This consent requirement shall apply in any and all cases, even if, for example, we carry out deliveries to the customer without expressly rejecting the customer's general terms and conditions even though we are aware of such terms and conditions.

(3) Our General Terms of Delivery shall only apply if the customer is a business person (§ 14 BGB, German Civil Code), a legal person of public law or a public-law fund.

(4) The General Terms of Delivery shall apply in particular to contracts covering the sale and/or delivery of movable goods ("goods"), regardless of whether we manufacture the goods ourselves or purchase them from suppliers (§§ 433, 631 BGB, German Civil Code). Unless otherwise agreed, the General Terms of Sale in the version valid at the time of the customer's order shall be deemed to be an outline agreement for future contracts of the same kind; we shall not be obliged to state their validity for each and every individual case.

(5) Individual agreements with the customer (including supplementary agreements, amendments and modifications) which have been made in individual cases shall always take precedence over these General Terms of Delivery. The contents of such agreements shall be subject to a written contract and/or our written confirmation, subject to proof of the contrary.

(6) Legally relevant declarations and notifications by the customer in relation to the contract (e.g. setting of a deadline, notification of defects, withdrawal or reduction) must be made in writing (e.g. letter, e-mail, fax). Statutory formal requirements and other evidence, especially in the event of doubts about the legitimacy of the declaring party, remain unaffected.

(7) Any reference to the validity of statutory provisions is only for the purpose of clarification. Even without such a clarification, therefore, the statutory provisions shall apply if and to the extent that they have not been modified or expressly excluded in these General Terms of Delivery.

§ 2 Offer and conclusion of contract

(1) All our offers are free and non-binding, unless they are expressly marked as binding or contain a certain acceptance period. We shall have the right to accept orders within a period of fourteen days after receipt.

(2) The legal relationship between us and the customer shall be governed solely by the written purchase agreement, including these General Terms of Delivery. The written purchase agreement contains all agreements between the parties with regard to the contract. Any communication by us not made in writing prior to the conclusion of this contract is legally non-binding; any agreements of the contract parties not made in writing shall be replaced by the written contract, unless it is expressly stated that they shall be binding.

(3) Amendments and modifications to the agreements, including these General Terms of Delivery, must be made in writing in order to be effective. With the exception of managers or authorized signatories, our employees are not entitled to make any differing verbal agreements. Transmission via telecommunication systems, in particular via fax or via e-mail, shall be deemed to be a sufficient instrument in writing, provided that the copy of the signed declaration is transmitted.

(4) Any information or representation whatsoever on our part with regard to the delivery or service (such as, but not limited to weights, dimensions, performance values, loads, tolerances and technical data) shall be deemed to be approximate, unless the usability for the purpose provided by the contract requires accurate conformity. Such information or representations do not constitute guaranteed characteristics, but descriptions or markings of the delivery or service. Any standard deviations and deviations which are made according to statutory provisions or which represent technical improvements, as well as the replacement of components by equivalent parts, are permissible if they do not impair the usability for the purpose intended by the contract.

(5) We reserve the right to property or copyright to all offers and cost estimates submitted by us as well as to all drawings, illustrations, calculations, brochures, catalogues, models, tools and other documents and equipment provided to the customer. The customer shall not be permitted to disclose these objects, as such or in content, to third parties, to make them known, to use them himself or through third parties or to reproduce them. At our request, he shall be obliged to completely return such objects to us and to destroy any copies produced if they are no longer required by him in the normal course of business or if negotiations do not lead to the conclusion of a contract. Storage of data provided electronically for the purpose of standard data backup shall be the only exception to this.

§ 3 Prices and payment

(1) The prices apply to the scope of services and delivery specified in the order confirmations. Additional or special services will be charged separately. The prices are in EURO ex works plus packaging, the applicable value added tax, and, for export deliveries, customs duties as well as fees and other public charges.

(2) If the agreed prices are based on our list prices and if the delivery is to be effected more than four months after conclusion of the contract, our list prices valid at the time of delivery shall apply (minus any percentage discount or fixed discount that may have been agreed).

(3) Invoices shall be payable within 30 days from the invoice date without any deduction, unless otherwise agreed in writing. The date of unconditional credit on our business account shall be decisive for payment in due time. Payment by check shall be excluded, unless agreed separately, as the case may be. If the customer does not pay by the due date, an interest of 5 % per year shall be due on the amounts payable; we shall be entitled to claim higher interest and further damages.

(4) Any set-off with counterclaims of the customer or retention of payments due to such claims shall only be permissible if and to the extent that such counterclaims are undisputed or asserted by a court.

(5) We shall be entitled to deliver or provide outstanding deliveries or services after prepayment or provision of security if, after the conclusion of the contract, we become aware of circumstances which substantially reduce the creditworthiness of the customer and which jeopardise the payment of our outstanding claims arising from the contract against the customer (including claims from other individual contracts pursuant to the same outline agreement).

§ 4 Delivery and delivery period

(1) Deliveries are made ex works.

(2) Time limits and deadlines for deliveries and services mentioned by us

are only approximate, unless a fixed deadline or a fixed date has been explicitly assured or agreed. If shipping has been agreed, delivery periods and delivery dates refer to the date of transfer to the forwarding agent, freight carrier or to any other third party in charge of shipping.

(3) Without prejudice to our rights arising from default of the customer, we shall be entitled to demand from the customer an extension of delivery and performance periods or a postponement of delivery and performance dates for the period during which the customer does not meet his obligations pursuant to the contract.

(4) We shall not be liable for impossibility of delivery or for delays in delivery, if such impossibility or delay is caused by force majeure or other events unforeseeable at the time of the conclusion of the contract which are beyond our control or for which we cannot be held responsible or which we have not caused (e.g. disruptions of operations of any kind, difficulties in procuring materials or energy, transport delays, strikes, lawful lockouts, lack of labour, energy or raw materials, difficulties in procuring necessary regulatory approvals, governmental measures, or incorrect or delayed supply by suppliers. Insofar as such events make the delivery or service substantially more difficult or impossible and the hindrance is not only of temporary duration, we are entitled to withdraw from the contract. In the case of hindrances of a temporary nature, the delivery or performance periods shall be extended or the delivery or performance dates shall be postponed by the period of the hindrance plus a reasonable start-up period. If, as a result of the delay, the customer cannot reasonably be expected to accept the delivery or service, the customer shall be entitled to withdraw from the contract, which is to be performed immediately by an instrument in writing.

(5) We shall be entitled to deliver and provide partial deliveries and partial services only:
- if the partial delivery is reasonable for the customer and sufficient consideration is given to his legitimate interests,
- if the delivery of the remaining ordered goods is assured and
- if, as a result, the customer does not incur any substantial additional costs or additional efforts (unless we are willing to pay for such costs).

(6) If we are in default with a delivery or service or if a delivery or service is impossible for any reason whatsoever, our liability for compensation shall be limited pursuant to provision § 8 of these general Terms of Delivery.

§ 5 Place of performance, shipping, packaging, passage of risk, acceptance

(1) The place of performance for all obligations resulting from the contract shall be the registered office of our company in Güglingen, unless other agreements have been made. If the installation is part of the contract, the place of performance shall be the place at which the installation is to be performed.

(2) The type of shipping and packaging are subject to our discretion. The cost of shipping and packaging shall be borne by the customer. If the customer requires drop shipping delivery, we shall charge a processing fee of EUR 10.00 for each delivery.

(3) In cases of small orders with a net purchase value of less than EUR 100.00, we will charge a processing fee of EUR 15.00 in addition to shipping and packaging.

(4) The passage of risk to the customer shall be the point in time of the transfer of the good to be delivered (the beginning of the loading process being decisive) to the forwarding agent, freight carrier or to any other third party in charge of shipping. This shall also apply in the case of partial deliveries or if we have undertaken other obligations (e.g. shipping or installation). If the shipment or the transfer is delayed for a reason caused by the customer, the transfer of risk shall be the day on which the good to be delivered is ready for shipment and we have notified the customer to this effect.

(5) Storage costs incurred by us after transfer of risk shall be borne by the customer. If we store the goods to be delivered, the storage costs amount to 0.25% of the invoice amount of the delivered goods per completed week. We reserve the right to assert and prove further or lower storage costs.

(6) We shall provide for transportation insurance of the consignment without recognising any legal obligation to this effect.

(7) If acceptance has to take place, the purchase item shall be deemed accepted if:
- the delivery and, provided we also have to perform installation, the installation are completed,
- we have communicated this to the customer with reference to the deemed acceptance in accordance with this provision § 5 (7) and have prompted the customer to accept the delivery,
- 12 business days have passed since the delivery or installation, or the customer has begun to use the purchased item (e.g. a delivered plant has been put into operation) and, in this case, six workdays have passed since delivery or installation, and
- within this period, the customer has refused acceptance for any reason other than for a defect of which the customer has notified us and which substantially impedes or make impossible the use of the purchased item .

§ 6 Warranty, material defects, acceptance of the disposal obligation by the customer

(1) The warranty period shall be one year from the date of delivery or, if acceptance is required, from the date of acceptance. This period shall not apply to claims for damages on the part of the customer resulting from injury to life, body or health or from wilful or grossly negligent breach of duty by us or our vicarious agents, which are subject to the limitation periods according to the statutory provisions.

(2) The goods delivered must be carefully inspected immediately after delivery to the customer or to the third party designated by the customer. With regard to obvious defects or other defects which would have been recognizable in the case of an immediate, careful examination, they shall be deemed to be accepted by the customer if we do not receive written notification of defects within seven workdays after delivery. With regard to other defects, the delivery items shall be deemed to have been accepted by the customer if the notice of defect does not reach us within seven workdays after the date of detection of the defect; if the defect was already recognizable by the customer at an earlier point in time in normal use, this earlier point in time shall be decisive for the beginning of the complaint period. Upon request by us, a rejected delivery item must be returned to us free of freight charges. In the case of a justified complaint, we shall reimburse the costs of the least expensive type of shipping; this shall not apply if the costs increase because the delivery item is located at a place other than the place of the intended use.

(3) In the case of material defects of the goods delivered, we shall first be obliged and entitled to rectify or replace the goods within a reasonable time. In case of failure, i.e. impossibility, unreasonableness, refusal or unreasonable delay of the improvement or replacement delivery, the customer shall be entitled to withdraw from the contract or to reasonably reduce the purchase price.

(4) Insignificant or typical variations in colour, dimensions, weight and quality shall not be considered to be defects of the delivery items.

(5) If a defect is the result of error on our part, the customer shall be entitled to claim damages under the conditions stipulated in provision § 8 hereto.

(6) In the case of defects of components of other manufacturers, which we cannot remedy for license or actual reasons, we will, at our discretion, assert our warranty claims against the manufacturers and suppliers on behalf of the customer or assign them to the customer. In the case of such defects, there shall only be warranty claims against us subject to the other conditions and according to the provisions of these General Terms of Delivery and only if the aforementioned claims against

the manufacturer and suppliers could not be enforced or if such enforcement is futile, for example, due to insolvency. During the duration of the legal dispute, the period of limitation of the customer's warranty claims against us shall be suspended.

(7) The warranty shall be void if the customer modifies the delivery item without our consent or has it modified by a third party and such modification renders the rectification of the defect impossible or unreasonable. In any such case, the customer shall bear the additional costs arising from such modification for rectification of the defect.

(8) If, in individual cases, a delivery of used items is agreed with the customer, such delivery shall be performed under exclusion of any warranty for material defects.

(9) The customer shall be obliged to dispose of the delivered goods when they are no longer used at his own cost and in full compliance with all pertinent regulations. The customer shall indemnify us from the obligations pursuant to § 19, section 2 of the German Electronic Equipment Act (obligation of manufacturers to take back their products) and from any claims of third parties related to this. The customer shall contractually oblige any other commercial third party to which the customer transfers the delivered goods to dispose of such goods according to the pertinent regulations when such goods are no longer used. If the customer fails to contractually oblige third parties to which the customer transfers the delivered goods to take on the disposal obligation and to oblige his customers to take on such disposal obligation, the customer shall be obliged to take back the delivered goods at his own expense after the end of use and to dispose of them properly in accordance with the statutory provisions. Our claim to the above transfer of obligation/indemnification through the customer shall be extended by a period of limitation of two years after the final termination of the usage of the delivery item. The two-year period of suspension of the limitation shall not begin until we receive a written notice from the customer stating that he has ceased to use the device.

§ 7 Infringement of property laws

(1) Pursuant to this provision § 7, we shall ensure that the delivery item is free from industrial property rights or third-party copyrights. Each contract partner shall immediately notify the other contract partner in writing if claims with regard to the infringement of such rights are asserted against him.

(2) In the event that the delivery item infringes an industrial property right or copyright of a third party, we shall, at our discretion and at our expense, alter or replace the delivery item in such a way that no rights of third parties are infringed, but the delivery item continues to fulfil the contractually agreed functions; or we shall enter into a license agreement in order to obtain the right to use the delivery item for the customer. If we should not be able to succeed within a reasonable period, the customer shall be entitled to withdraw from the contract or to reasonably reduce the purchase price. Any claims for damages of the customer are subject to the restrictions of provision § 8 of these General Terms of Delivery.

(3) In the case of infringements of laws by products of other manufacturers delivered by us, we shall, at our discretion, assert our claims against the manufacturers and suppliers on behalf of the customer or assign such claims to the customer. In these cases, there shall only be claims against us subject to the provisions of this provision § 7 and only if the aforementioned claims against the manufacturer and suppliers could not be enforced or if such enforcement is futile, for example, due to insolvency.

(4) If an order is to be filled (designs, etc.) according to customer specifications, drafts or instructions, the customer shall be fully responsible for obtaining all rights of commercial exploitation of the property rights that may be contained in his specifications, drafts or instructions. If the execution of an order according to specifications, etc. of the customer violates third-party property rights or labelling obligation, the customer shall undertake to indemnify us from any resulting claims for compensation, compensation for expenses and / or reimbursement of third parties.

§ 8 Liability for damages in case of fault

(1) Our liability for damages, irrespective of the legal grounds, in particular from impossibility, delay, defective or incorrect delivery, breach of contract, breach of obligations in the case of contractual negotiations and tort, shall be limited subject to the provisions of this provision § 8.

(2) We shall not be liable in the case of simple negligence on the part of our organs, legal representatives, employees or other vicarious agents, to the extent that this is not a violation of contractual obligations. Essential with regard to the contract are the obligation to deliver and/or install the delivery item in good time, its freedom from deficiencies in law and its freedom from defects which impair its functionality or usability more than insignificantly, as well as advisory, protection and custodial obligations which allow the customer to use the delivery item as per contract, or which serve the protection of the health or life of the customer's personnel or the protection of his property against substantial damage.

(3) To the extent that we are liable for damages pursuant to provision § 8 (2) hereto, such liability shall be limited to damages which we have foreseen at the time of conclusion of the contract as a possible consequence of an infringement of the contract or which we should have foreseen applying due diligence. Indirect damages and consequential damages which are the result of defects of the delivery item shall only be subject to damages to the extent that such damage is typically to be expected when the delivery item is used as intended.

(4) In the case of liability for simple negligence, our obligation to indemnify for damage to property and consequential financial loss shall be limited to the amount covered by our liability insurance and standard in our industry, even in the case of a breach of essential contractual obligations. Upon request, we will provide the customer with a corresponding insurance confirmation stating the amount covered by the liability insurance carrier.

(5) The above exclusions and limitations of liability shall apply to the same extent on behalf of our organs, legal representatives, employees and other vicarious agents.

(6) If we provide technical information or consultancy services and such information or services are not a part of the scope of services agreed upon by contract and owed by us, this shall be free of charge and without any liability whatsoever.

(7) The limitations of this provision § 8 shall not apply to our liability for intentional conduct, for guaranteed characteristics, for injury to life, body or health or pursuant to the German Product Liability Act (Produkthaftungsgesetz).

§ 9 Retention of title

(1) We retain the title to the sold goods until we have received full payment of all our present and future receivables arising from the purchase contract and from an ongoing business relationship (secured claims).

(2) Prior to full payment of the secured claims, the goods subject to retention of title shall neither be pledged to third parties nor transferred to third parties for security. The customer shall notify us in writing immediately if an application for the opening of insolvency proceedings is filed or if third parties attempt to seize the goods under retention of title (e.g. by means of distraint or attachment).

(3) In the case of a breach of contract by the customer, in particular in the event of non-payment of the purchase price due, we shall be entitled to withdraw from the contract pursuant to the statutory provisions and to reclaim the goods as a result of retention of title and withdrawal. If the customer does not pay the purchase price due, we shall only be entitled to assert these rights

if we have previously set the customer a reasonable deadline for payment without success, or if such a deadline is not required pursuant to the statutory provisions.

(4) The customer shall be entitled to resell and/or process the goods under retention of title in the ordinary course of business, subject to revocation pursuant to (c) below. In this case, the following provisions shall apply in addition.
(a) The retention of title shall cover the full value of the products resulting from processing, mixing or combining our products; we shall be deemed the manufacturer. If, in the case of processing, mixing or combining with goods of third parties, their rights of ownership remain, we shall acquire co-ownership to the ratio of the invoice amounts of the processed, mixed or combined goods. The same provisions that apply to the goods delivered under retention of title shall apply to the resulting new product.
(b) The customer shall assign to us, as a security, the claims arising against third parties from the resale of the goods or of the product in whole or to the amount of our possible co-ownership pursuant to the preceding paragraph. We accept the assignment. The obligations of the customer pursuant to provision § 9 (2) hereto shall also apply in respect of the assigned claims.
(c) The customer shall remain entitled to collect the claim in addition to us. We undertake not to collect the claim as long as the customer meets his payment obligations, as long as the customer performs and as long as we do not assert the retention of title by exercising a right pursuant to provision § 9 (3) hereto. If any of the above conditions are not met, we shall be entitled to request the customer to notify us of the assigned claims and the corresponding debtors and provide us with any information and the appropriate documents necessary for us to collect such claims, and to notify the debtors (third parties) of such assignment. In this case, we shall also be entitled to revoke the customer's authorization to resell and process the goods subject to retention of title.
(d) If the liquidable value of the securities exceeds our claims by more than 10 %, we shall, at the customer's request, release securities at our discretion.

§ 10 Final clause

(1) If the customer is a merchant, a legal person under public law or a public-law fund or if the customer has no general court of jurisdiction in the Federal Republic of Germany, the place of jurisdiction for all disputes arising from the business relationship between us and the customer shall be our registered office in Güglingen or the registered office of the customer. However, in such cases, Güglingen shall be the exclusive place of jurisdiction for actions against us. This provision does not affect statutory provisions regarding exclusive places of jurisdiction.

(2) The relations between us and our customers are subject exclusively to the laws of the Federal Republic of Germany. The United Nations Convention on Contracts for the International Sale of Goods (CISG) of April 11, 1980 shall not apply..

(3) If and to the extent that the contract or these General Terms of Delivery contain gaps in the provisions, those statutory provisions shall be deemed to have been agreed upon which the contract parties would have agreed upon in view of the economic objectives of the contract and the purpose of these General Terms of Delivery if they had been aware of the gaps.

Note

The customer shall be deemed to have been notified that we store data relating to the contractual relationship pursuant to § 28 Bundesdatenschutzgesetz (German Federal Data Protection Act) for the purpose of processing such data and that we retain the right to disclose such data to third parties (e.g. insurance companies) if and to the extent such disclosure is required to perform the contract.

November 2020

AFRISO production sites in Germany

Headquarters
AFRISO-EURO-INDEX GmbH
Lindenstr. 20
74363 Güglingen
Baden-Württemberg

A staff of more than 550 are at work for you in our four German production sites.

Plant Amorbach
AFRISO-EURO-INDEX GmbH
Friedhofstr. 3
63916 Amorbach
Odenwald/Bavaria

Plant Amorbach – Production of linings
AFRISO-EURO-INDEX GmbH
Von-Stein-Straße 17
63916 Amorbach
Odenwald/Bavaria

Plant Illmensee
Systronik GmbH
Gewerbestr. 57
88636 Illmensee
Lake Constance/Baden-Württemberg

Alsenz plant
GAMPPER GmbH
Niedermoscheler Str. 2
67821 Alsenz
Rhineland-Palatinate

Minimum order quantities / packing units
Many products can be manufactured in small quantities – in many cases, you may even order a single piece.
However, for some items there are minimum ordering quantities or packing units. The price list sections provide the appropriate information.

The product package contains the specified number of products or can be delivered in the specified order quantity

An additional package contains the specified number of products

Small order handling fee / minimum order value
For very small orders with net values below € 100 a handling fee of € 15 will be charged. No other minimum order conditions apply.

Return of goods
Goods can only be returned with return note and only up to 3 months after delivery, minimum value of goods for return is € 100,–. Please enquire for a return note at service@afriso.de. Please note that only standard stock items can be returned; products not available from stock and devices with ATEX approval cannot be returned. For returned stock items we charge 30 % of the price for testing and handling or at least € 40. Shipping costs for returns are to be borne by the customer.

Prices / terms of delivery
Please refer to your local AFRISO representation or get in touch with the AFRISO headquarters for detailed price information and conditions. We will charge a fee of € 10,– per shipment for drop shipping. Our Terms of Delivery apply (see page 142 or www.afriso.com or appendix). This catalogue supersedes all previous versions, including previous prices. All prices subject to change; the catalogue may contain printing errors.

Technical modifications
As we are constantly improving our products, we reserve the right to technical modifications without prior notice.

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FLUE GAS ANALYSIS
PRESSURE
TEMPERATURE
HUMIDITY/MOISTURE
TIGHTNESS TEST

Technology for environmental protection
Measuring. Controlling. Monitoring.

AFRISO

AFRISO-EURO-INDEX GmbH
Lindenstraße 20
74363 Güglingen
Germany

Phone +49 7135 102-0
Fax +49 7135 102-147

info@afriso.com
www.afriso.com