



SYSTRONIK
Elektronik u. Systemtechnik GmbH
Gewerbestr. 57
D-88636 Illmensee

Tel.: +49 (0) 7558 / 9206-0
Fax: +49 (0) 7558 / 9206-20

E-Mail: info@systronik.de
Internet: www.systronik.com

Operating instructions

Dust measuring instrument STM 225 Set

570200

- + Read instructions before using product!
- + Observe all safety information!
- + Keep instructions for future use!



Table of contents

1	This instruction manual.....	4
1.1	Precautions	4
2	Safety.....	4
2.1	Intended use.....	4
2.2	Predictable incorrect application	5
2.3	Safe handling	5
2.4	Staff qualification	6
2.5	Calibration / adjustment	7
2.6	Modifications to the product	7
2.7	Usage of spare parts and accessories.....	7
2.8	Liability information	7
3	Product description.....	8
3.1	Scope of delivery.....	8
3.2	Properties	9
3.3	Counter for measurements	12
4	Technical specifications.....	13
4.1	Approvals, tests and conformities	14
5	Transport and storage	15
6	Menu structure.....	16
7	Mounting and commissioning.....	17
7.1	Mounting the support	18
7.2	Connecting MULTILYZER NG/STe (optional)	18
7.3	Performing a tightness test	19
8	Operation.....	20
8.1	Performing the measurement at STM 225.....	20
8.2	Example of a measurement with MULTILYZER NG/STe	22
8.3	Cancelling a measurement	22
8.4	Switching off STM 225	23
9	Maintenance	23
9.1	Maintenance times	23
9.2	Maintenance activities	24
10	Troubleshooting.....	30
10.1	Status messages shown by the display	32
11	Decommissioning, disposal.....	33
12	Returning the device.....	33
13	Spare parts and accessories.....	34
14	Warranty	34

15	Copyright	34
16	Customer satisfaction	35
17	Addresses	35
18	Appendix	35
18.1	EC Declaration of Conformity.....	35
18.2	Bluetooth Declaration of Conformity	36



1 This instruction manual

This instruction manual is part of the product.

- ▶ Read this manual before using the product.
- ▶ Keep this manual during the entire service life of the product and always have it readily available for reference.
- ▶ Always hand this manual over to future owners or users of the product.

1.1 Precautions

WARNING WORD



Type and source of the hazard are shown here.

- ▶ Precautions to take in order to avoid the hazard are shown here.

There are three different levels of warnings:

Warning word	Meaning
DANGER	Immediately imminent danger! Failure to observe the information will result in death or severe injuries.
WARNING	Possibly imminent danger! Failure to observe the information may result in death or severe injuries.
CAUTION	Dangerous situation! Failure to observe the information may result in minor or severe injuries as well as damage to property.

2 Safety

2.1 Intended use

The dust measuring instrument STM 225 Set may only be used to check the mass concentration of dust in the flue gas of small solid-fuel combustion systems of product classes A, B and C. The dust measuring instrument STM 225 Set may only be used for short-term measurements.

The dust measuring instrument STM 225 Set may only be used with the following fuels as per German Federal Immission Act (1. BIm-SchV):

- Untreated log wood



- Untreated wood (no logs)
- Pellets made of untreated wood
- Brown coal
- Black coal
- Peat
- Cereals
- Hay or straw pellets
- Treated wood

The Bluetooth interface may only be used for communication of STM 225 Set with products of type MULTILYZER NG/STe.

Any use other than the application explicitly permitted in this instruction manual is not permitted.

2.2 Predictable incorrect application

The dust measuring instrument STM 225 Set must never be used in the following cases:

- Hazardous area (Ex)
If the product is operated in hazardous areas, sparks may cause deflagrations, fires or explosions.
- Use as safety or alarm equipment
- Use for long-term measurements
- Applications involving persons and animals

2.3 Safe handling

This product represents state-of-the-art technology and is made according to the pertinent safety regulations. Each product is subjected to a function and safety test prior to shipping.

- ▶ Operate the product only when it is in perfect condition. Always observe the operating instructions, all pertinent local and national directives and guidelines as well as the applicable safety regulations and directives concerning the prevention of accidents.

CAUTION



Risk of poisoning from flue gases at the gas output of STM 225

- ▶ Ensure sufficient ventilation of the rooms.
 - ▶ Use a hose to evacuate flue gases outdoors.
-

**WARNING****Severe burns or death caused by mains voltage (AC 230 V, 50 Hz) in the dust measuring instrument and the sampling line**

- ▶ Disconnect the mains voltage supply before opening the dust measuring instrument or before performing maintenance and cleaning work and make sure it cannot be switched on.
- ▶ Do not expose the dust measuring instrument and the sampling line to water.
- ▶ Do not tamper with the dust measuring instrument and the sampling line in any way whatsoever.
- ▶ Do not operate damaged dust measuring instruments and sampling lines.
- ▶ Only disassemble parts if this is explicitly described in these operating instructions for maintenance work. Do not disassemble any other parts.

- ▶ Only operate the dust measuring instrument in the permissible operating position (see chapter 4, page 13).
- ▶ Do not place the dust measuring instrument on its front or rear sides.

Extreme environmental conditions have negative effects on the function of the product.

- ▶ Protect the product from shocks.
- ▶ Only use the product indoors.
- ▶ Protect the product from humidity.
- ▶ Protect the product from aggressive/corrosive substances.

2.4 Staff qualification

The product may only be mounted, commissioned, operated, maintained, decommissioned and disposed of by qualified, specially trained staff.

Electrical work may only be performed by trained electricians and in compliance with all applicable local and national directives.



2.5 Calibration / adjustment

For measurements as per German Federal Immission Act (1 BImSchV), the dust measuring instrument STM 225 must be calibrated at intervals of six months by a body approved by the authority in charge; for other measurements, it must be calibrated annually. Calibration and adjustment may only be performed by the manufacturer or by third parties authorised by the manufacturer.

Maintenance contracts can be concluded with AFRISO.

2.6 Modifications to the product

Changes or modifications made to the product by unauthorised persons may lead to malfunctions and are prohibited for safety reasons.

2.7 Usage of spare parts and accessories

Usage of unsuitable spare parts and accessories may cause damage to the product.

- ▶ Use only genuine spare parts and accessories of the manufacturer (see chapter 13, page 34).

2.8 Liability information

The manufacturer shall not be liable in any form whatsoever for direct or consequential damage resulting from failure to observe the technical instructions, guidelines and recommendations.

The manufacturer or the sales company shall not be liable for costs or damages incurred by the user or by third parties in the usage or application of this product, in particular in case of improper use of the product, misuse or malfunction of the connection, malfunction of the product or of connected products. The manufacturer or the sales company shall not be liable for damage whatsoever resulting from any use other than the use explicitly permitted in this instruction manual.

The manufacturer shall not be liable for misprints.



3 Product description

STM 225 is a dust measuring instrument for checking the mass concentration of dust of small solid-fuel combustion systems. It determines the mass concentration of particulate matter in the gas flow and generates the mean value over a period of 15 minutes (optionally 30 minutes) for assessing the combustion system as per German Federal Immission Act (1st BImSchV).

STM 225 operates on the basis of scattered light measurement, an optical measuring principle using class 1 lasers. The service life of the dust measuring instrument depends on the usage; it amounts to approx. 5000 hours of operation.

STM 225 Set consists of a dust measuring instrument STM 225 and a heated sampling line with sampling probe.

STM 225 features a colour touch display for navigation in the menu and for displaying measured values and errors.

STM 225 is equipped with a Bluetooth for wireless connection to products of type MULTILYZER NG/STe.

3.1 Scope of delivery

Scope of delivery:

- Dust measuring instrument STM 225
- Mains cable 3 m
- Transport bag for STM 225 Set
- Sampling line ENL-H 2, heated, 2 m
- Sampling probe ENS-W 300 mm, bent
- Protective sleeve for sampling line (2 pieces)
- Connection kit ASS-STM, 2 m
(for connection to MULTILYZER NG/STe)
- Zero point filter
- Particle filter (Infiltec fine filter (5 pieces)
- Cleaning cloth for optical system STM 225 (5 pieces)
- Cleaning brush with wool tip STM 225
- Cleaning swab STM 225 (5 pieces)
- Support for sampling line
- Hex screwdriver (AF 4)
- Operating instructions

3.2 Properties

Properties STM 225



Fig. 1: Front and rear view dust measuring instrument

- | | | | |
|---|--|----|--|
| 1 | Colour touch display | 7 | Connection port RS232 (only for service by manufacturer) |
| 2 | Gas inlet, connection sampling probe | 8 | Connection mains plug, supply voltage STM 225, AC 230 V, 50 Hz |
| 3 | Connection socket 7 pins, supply voltage for sampling line | 9 | Valve (condensate outlet) |
| 4 | Condensate cartridge | 10 | Gas outlet |
| 5 | Particle filter (Infiltec fine filter) | 11 | On/Off switch, operation indicator |
| 6 | USB connection (only for service by manufacturer) | 12 | Indication temperature controller sampling line |



Properties sampling line and sampling probe ENS-W 300 mm

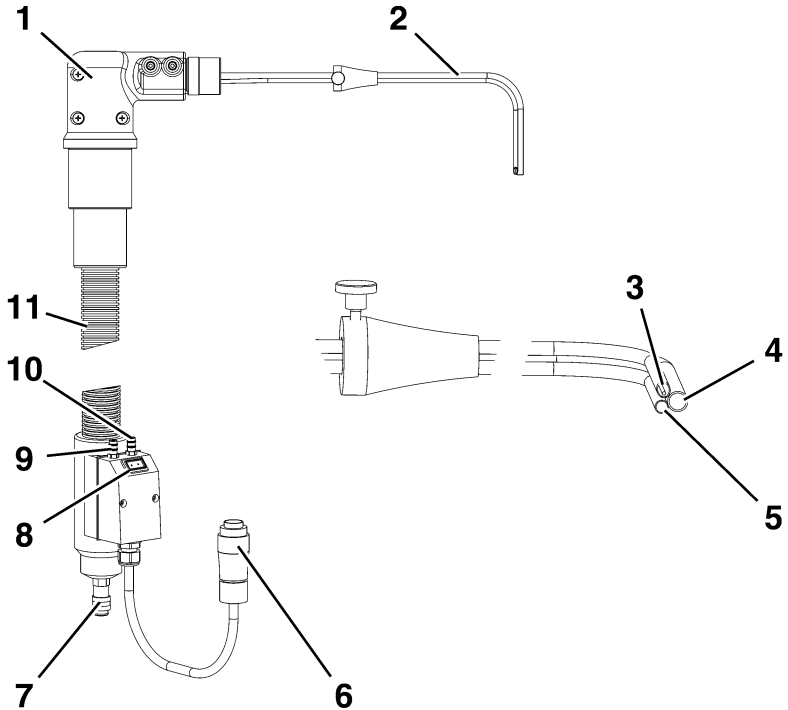


Fig. 2: Sampling probe ENS-W 300 mm, bent, with sampling line, heated

- | | | | |
|---|---|----|---|
| 1 | Handle | 7 | Connection piece DN5 |
| 2 | Sampling probe, bent | 8 | Connection socket type K |
| 3 | Temperature probe | 9 | Connector blue:
Draft \varnothing 7 mm |
| 4 | Gas inlet dust measurement | 10 | Connector yellow for
measured gas \varnothing 8 mm |
| 5 | Gas inlet gas analysis
(for MULTILYZER NG/STe) | 11 | Sampling line, heated |
| 6 | Connector PE 7 pins for
heating sampling line | | |

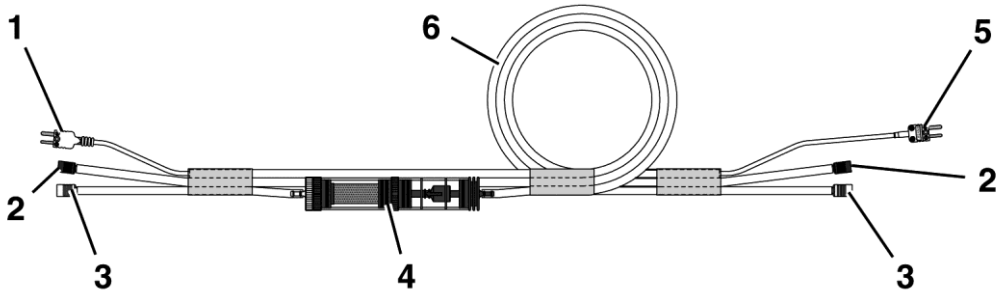
**Properties connection kit ASS-STM**

Fig. 3: Connection kit ASS-STM

- | | |
|---|--|
| 1 Connector yellow:
temperature | 4 Gas treatment with filter disc |
| 2 Connection socket blue:
Draft \varnothing 7 mm | 5 Connector type K yellow,
ASA, Euro:
Temperature |
| 3 Connection socket yellow:
Measured gas \varnothing 8 mm | 6 Hose (triple) |



Properties temperature controller sampling line

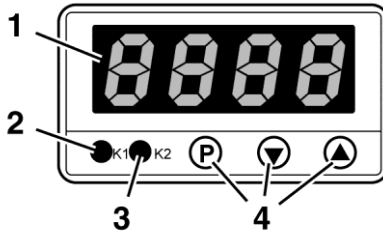


Fig. 4: Temperature controller sampling line

1	Temperature display sampling line	Shows:	Current temperature of sampling line
		Flashes:	If no sampling line is connected
2	LED K1	Solid lit:	If the sampling line has a temperature of +60 °C
3	LED K2	Solid lit:	During heating up of the sampling line
4	Keys	Function locked	Only for service by manufacturer

3.3 Counter for measurements

STM 225 features an integrated counter which counts the number of measurements performed. Only measurements with a duration of at least 3 minutes are counted. Measurements which are cancelled before this duration has elapsed are not counted. Measurements with a duration of more than 3 minutes are counted even if the measurement is cancelled. The counter cannot be reset to "0".



4 Technical specifications

Table 1: Technical specifications dust measuring instrument

Parameter	Value
General specifications	
Dimensions housing (W x H x D)	205 x 275 x 350 mm
Weight	7.6 kg
Housing material	Aluminium
Material buffer	Plastic
Operating position	Horizontal, maximum tilt 15°
Data communication	Bluetooth® interface
Measuring range	
Particulate matter mass concentration	0 to 300 mg/m ³
Operating temperature range	
Ambient	+5 °C to +40 °C
Storage	-20 °C to +50 °C, < 95 % rh non-condensing
Supply voltage	
Nominal voltage	AC 230 V, 50 Hz
Nominal power	90 VA without probe
	230 VA with probe
Mains fuse	T 2 A, 250 V
Electrical safety	
Protection class	I (EN 60730)
Degree of protection	IP 40 (EN 60529)
Electromagnetic compatibility (EMC)	
Interference	EN 50270:2006
Noise immunity	EN 61000-4-2:2009 EN 61000-4-3:2006 +A1:2008



Table 2: Technical specifications sampling system

Parameter		Value
Dimension sampling line		
Length		2 m, heated
Outside diameter		Approx. 34 mm
Operating temperature range		
Withdrawal line	Ambient	-10 °C to +90 °C
	Storage	-10 °C to +90 °C
	Operating temperature	Max. +60 °C
Probe	Medium (gas)	Max. +400 °C
Supply voltage		
Nominal voltage		AC 230 V via STM 225
Spec. heating capacity		Approx. 80 W/m

Table 3: Periods during measurements

Parameter	Value
Heat-up time	10 minutes
Zero correction	10 seconds
Ready to operate	Approx. 11 minutes
Measuring duration	15 minutes / 30 minutes
Total time measurement	Approx. 26 minutes

4.1 Approvals, tests and conformities

STM 225 Set complies with the EMC Directive 2004/108/EC, Low Voltage Directive (2006/95/EC) and the Radio and Telecommunication Terminal Equipment Directive (1999/5/EC).

STM 225 Set is TÜV-tested as per VDI 4206, has the TÜV approval TÜV By RgG 299 and is suitable for measurements as per German Federal Immission Act (1st BImSchV) .

STM 225 Set uses a class 3B laser as per EN 60825-1:2007.



5 Transport and storage

CAUTION**Damage to the product due to improper transport.**

- ▶ Remove the line support before transport/shipping.
 - ▶ Do not throw or drop the product.
 - ▶ Transport the product in the transport bag.
 - ▶ Do not bend the sampling line. Maximum bend radius 20°cm.
 - ▶ Do not subject the sampling line to shocks or squeeze it.
 - ▶ Remove the condensate before transporting the device (see chapter 9.2, page 24).
-

CAUTION**Damage to the product due to improper storage.**

- ▶ Protect the product from shock when storing it.
 - ▶ Store the product in a clean and dry environment.
 - ▶ Only store the product within the permissible temperature range.
 - ▶ Do not store the product along with other substances which may damage the product.
-



6 Menu structure

The operation of the dust measuring instrument STM 225 follows the requirements concerning the measurement of small solid-fuel combustion systems as per German Federal Immission Act (1st BIm-SchV).

The program provides the following sequences

- Heat-up time -> Main menu
- To measurement -> Selection of fuel -> Start zero calibration

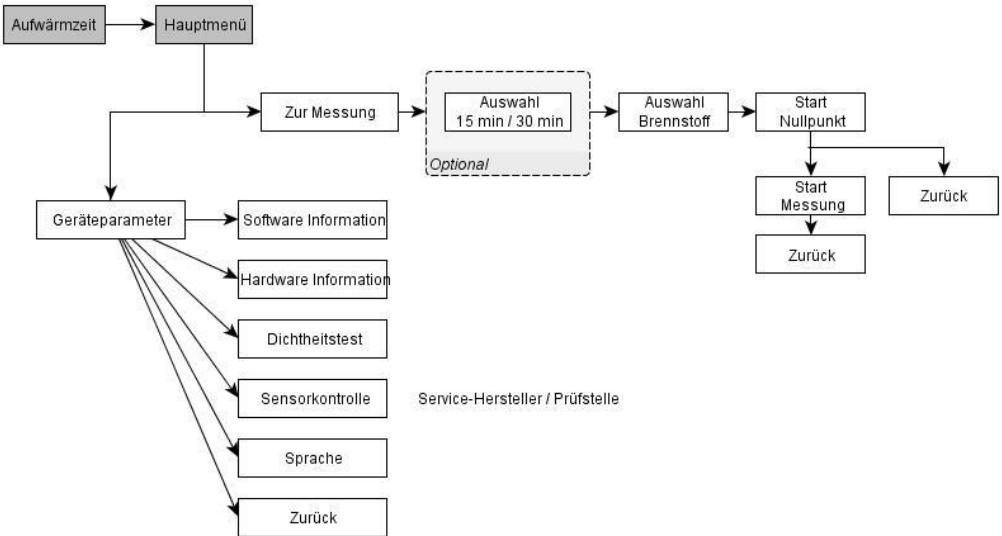


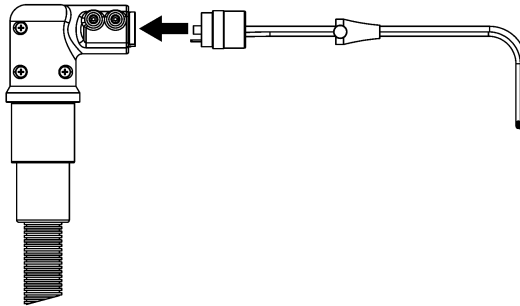


Fig. 5: Menu structure STM 225 (version: V.4.0.4.1)

7 Mounting and commissioning

1. Place STM 225 at a maximum distance of 1.5 m from the measuring point on a safe, level surface. STM 225 must be lower than the measuring point so there is a gradient in the sampling line.
2. Plug in and tighten the PE 7 pin connector for heating the sampling line.
3. Fit the zero point filter into the gas inlet piece.
4. Plug in the mains plug.
5. Press the On/Off switch of STM 225.
-  STM 225 starts the heat-up time. This step cannot be skipped. The sampling line is heated. The temperature controller display shows the current temperature of the sampling line.
-  The temperature controller display shows +60 °C. The heat-up procedure is complete when the measurement chamber temperature and the sampling line temperature are reached: STM 225 displays the main menu.
6. Check whether the colour display shows errors. STM 225 displays errors at the top of the colour display. Remove the cause of errors (see chapter 10, page 30).
7. Plug the sampling probe onto the handle and tighten it manually.

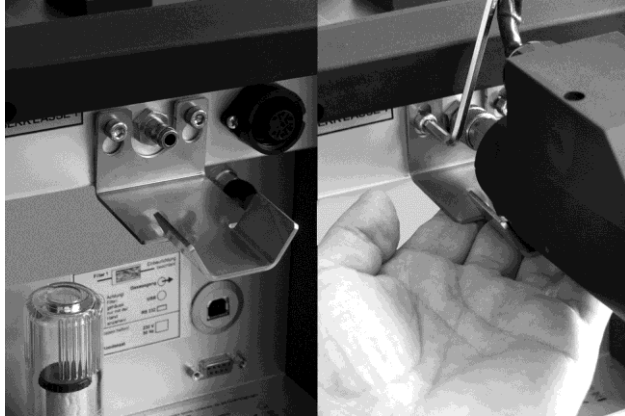


8. Fit the sampling probe into the measuring point and fixate it.



7.1 Mounting the support

1. Pre-assemble the support. Do not yet tighten the screws.
2. Plug the withdrawal line into the gas inlet connection.
3. Fit the support to the sampling line and tighten the screws.



7.2 Connecting MULTILYZER NG/STe (optional)

- ▶ Verify cleanliness of the Teflon filter at ASS-STM. If required, replace filter.
- ▶ Connect MULTILYZER NG/STe via the connection kit ASS-STM the sampling line as shown in fig. 6. Note the direction of flow of the gas.

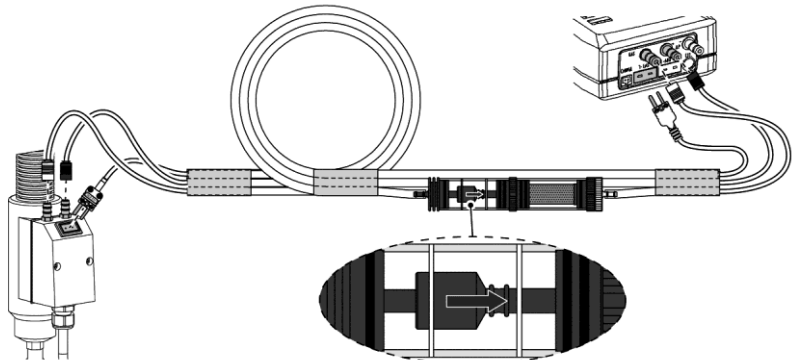


Fig. 6: Connection MULTILYZER NG/STe

Establishing a Bluetooth connection to MULTILYZER NG/STe
 STM 225 communicates with MULTILYZER NG/STe via a wireless Bluetooth interface.



- ▶ Establish the connection as described in the operating instructions of MULTILYZER NG/STe.

7.3 Performing a tightness test

- ▶ Perform a tightness test of the entire gas circuit prior to each measurement. The results of measurements will not be correct if ambient air can get into the system via leaks.
 - ☑ The sampling line has been connected electrically.
 - ☑ The sampling line has been connected to the gas inlet.
 - ☑ STM 225 is ready for operation. The colour display shows the main menu.
1. Select the menu item "Device Parameters".
 2. Select the menu item "Tightness Test".
 3. First tightly seal the gas inlet, then the gas outlet.
 4. Select the menu item "Start".
- ↪ The pump generates a vacuum for approx. 5 seconds. Then the pump stops. Using internal sensors, STM 225 determines whether the system is tight. After approx. 10 seconds, STM 225 shows the result:
The colour display shows: "Tightness Test OK".
Or:
The colour display shows: "STM 225 is NOT TIGHT". The required values for the tightness test were not reached. In this case, check the entire line system (see chapter 10, page 30). Repeat the tightness test until the display shows "Tightness Test OK".
5. After a successful tightness test, re-open the gas inlet and the gas outlet.
 6. Select the menu item "Back".
- ↪ STM 225 returns to the menu "Device Parameters".
7. Select the menu item "Back".
- ↪ STM 225 returns to the main menu.

8 Operation

Measurements can be performed directly at STM 225 or in conjunction with MULTILYZER NG/STe.

- The sampling probe has been positioned in the flue gas flow.
- The sampling line has been mounted as described in chapter 5, page 17.
- The support has been mounted.
- The tightness test has been performed.
- ▶ Perform the measurement at STM 225 (chapter 8.1, page 20) or in conjunction with MULTILYZER NG/STe (chapter 8.2, page 22).

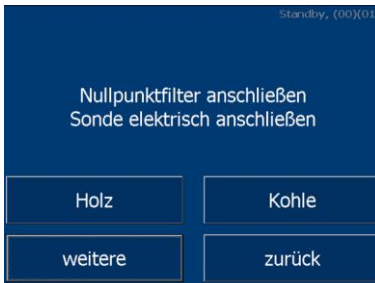
8.1 Performing the measurement at STM 225

- The display of the temperature controller shows 60 °C. See chapter 10, page 30 if other values are displayed.

1. Select the menu item "To Measurement".



2. Optional:
Select a measurement duration (15 minutes or 30 minutes).
3. Select a fuel.



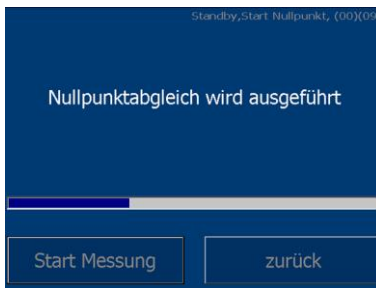
- ↳ The colour display shows: "Connect Zero Point Filter". Measurements can only be performed after a zero calibration. After a measurement, particles may remain in the line system of



STM 225. Therefore, the measuring system must be calibrated with particle-free ambient air prior to each measurement. The zero point filter at the gas inlet ensures particle-free air in the gas flow. The line system is cleaned.



4. Plug the supplied zero point filter onto the gas inlet connection. Only use zero point filters provided by the manufacturer. Do not use filters other than the zero point filter.
5. Select the menu item "Start Zero Point".



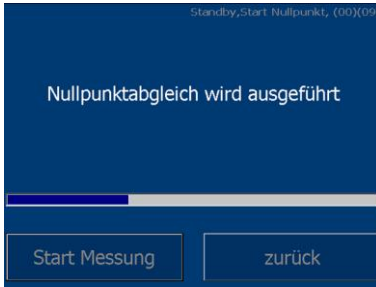
- ↪ Zero correction sets the measuring unit to completely particle-free ambient air.
- ↪ The colour display shows: "Remove Zero Point Filter, Connect Probe Mechanically!".



6. Remove the zero point filter from the gas inlet.
7. Plug the gas sampling hose of the sampling line onto the gas inlet.



- ☞ STM 225 is ready for the measurement.
- 8. Select the menu item "Start Measurement".



- ☞ STM 225 displays the current dust concentration values in mg/m³ and the remaining measurement duration. The total measurement duration is 15 minutes or 30 minutes, depending on your selection.
 - ☞ After completion of the measurement, STM 225 displays the following values:
 - Mean value over the entire duration of the measurement
 - Maximum value
 - Minimum value
- Moist fuels and humidity in the ambient air cause condensation.
- ▶ Check the condensate level after each measurement. Drain the condensate, if necessary (see chapter 9.2, page 24).

8.2 Example of a measurement with MULTILYZER NG/STe

- ▶ Perform measurements with MULTILYZER NG/STe as described in the operating instructions of MULTILYZER NG/STe.

8.3 Cancelling a measurement

Measurements with STM 225 can be cancelled at any time. If a measurement is cancelled, this is not transmitted to MULTILYZER NG/STe. The measurement must also be cancelled via MULTILYZER NG/STe.

- ▶ Select the menu item "Cancel".

After you have cancelled a measurement at STM 225:

- Also cancel the measurement at MULTILYZER NG/STe.
- Perform the tightness test again.
- Perform zero calibration again.



8.4 Switching off STM 225

1. Connect the zero point filter.
2. Allow STM 225 to run for another few minutes.
 - ↳ The pump keeps running. The line system is cleaned.
3. Press the On/Off switch of STM 225.
 - ↳ STM 225 is off.
4. Empty the condensate cartridge.

9 Maintenance

9.1 Maintenance times

Table 4: Maintenance times

When	Activity
Prior to each use	<ul style="list-style-type: none">▶ Visual inspection▶ Performing a tightness test
If required	<ul style="list-style-type: none">▶ Clean STM 225 Set (if the measured values are unrealistic / flow error is shown on colour display)
After each measurement	<ul style="list-style-type: none">▶ Check the condition of the filters. Replace in the case of visible pollution▶ Check the condensate level. Drain the condensate, if necessary
Weekly	<ul style="list-style-type: none">▶ Visual inspection▶ Clean STM 225 Set (every 20 measurements, after product displays message)
Annually	<ul style="list-style-type: none">▶ Send product to manufacturer for inspection and maintenance



9.2 Maintenance activities

Visual inspection

- ▶ Perform visual inspection of STM 225 Set for visible external damage.
- ▶ Contact the manufacturer in the following cases:
 - Visible damage to STM 225 Set
 - Scratches on or damage to colour display
 - Cracks in the filters/housing
 - Scratches at the inside of the measurement chamber

Cleaning STM 225 Set

Do **not** use water, cleaning agents or compressed air to clean STM 225 Set.

- ▶ Clean the colour display and the housing with a clean, dry cloth.
- ▶ Clean the sampling line and the sampling probe with a hand-operated bulb pump, with water or compressed air up to 3 bar.

Draining the condensate

- Mains plug has been removed from the mains socket.
- 1. Place STM 225 onto a horizontal, acid-resistant surface.
- 2. Place an acid-resistant container below the drain opening/condensate cartridge.

WARNING



Chemical burns due to acid in the condensate

- ▶ Avoid contact of the condensate with skin or eyes. In the case of contact, immediately rinse with plenty of water and seek medical advice.
-
3. Open the valve at the condensate drain and drain the condensate cartridge.
 4. Dispose of the condensate in compliance with all applicable regulations.
 5. Refit the condensate cartridge and close the valve.

Cleaning the measurement chamber

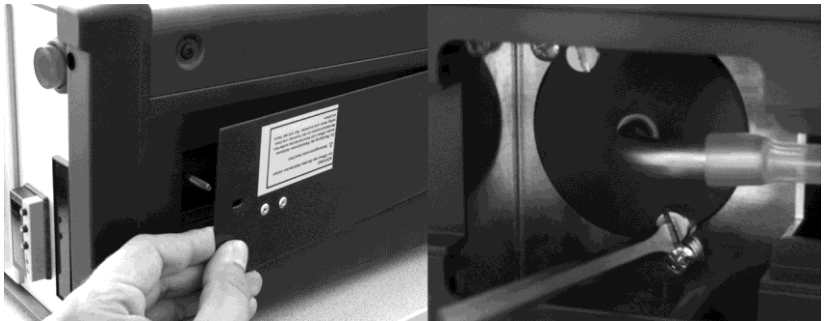
Only clean the measurement chamber with the cleaning kits provided by the manufacturer (see chapter 13, page 34).

- Mains plug has been removed from the mains socket.
- The condensate has been drained.

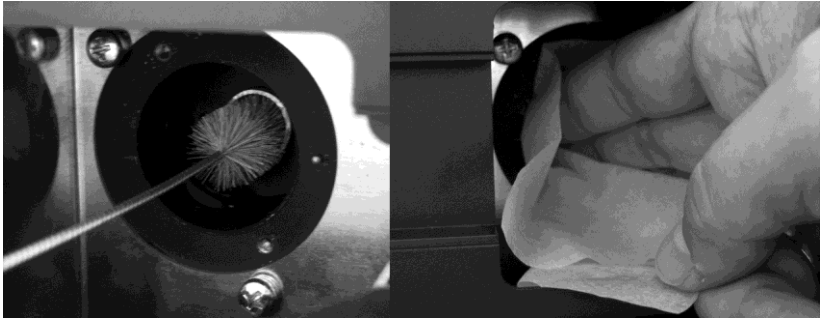
CAUTION**Damage to electronic components by leaking condensate.**

- ▶ Drain the condensate before you clean the measurement chamber of STM 225.

-
1. Place STM 225 upside down.
 2. Loosen the two knurled nuts at the bottom plate.
 3. Loosen both screws of the measurement chamber cover. Remove the measurement chamber cover.



4. Clean the gas channel via the gas inlet with the narrow cleaning brush.
5. Clean the gas channel via the measurement chamber with the wide cleaning brush.
6. Clean the three optical systems and then the inside of the measurement chamber with the special cleaning cloth for the optical systems.



7. Clean the gas channel of the removed measurement chamber cover with the narrow cleaning brush.



8. Check the measurement chamber and the measurement chamber for scratches and damage.
9. Mount the measurement chamber and the bottom plate. Verify correct alignment of the magnet (**M**).



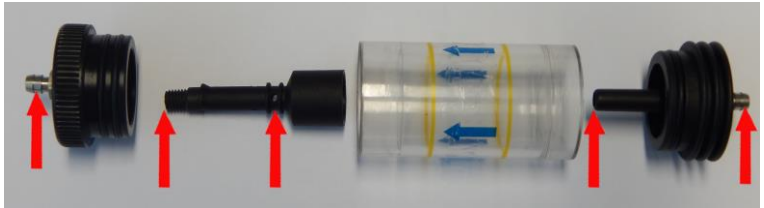


Draining the condensate cartridge

1. Pull the condensate cartridge at lower end out of the holder and remove the two hoses.



2. Remove the bottom cap and drain the condensate cartridge.
3. Remove the upper cap and unscrew the insert.
4. Clean all openings (see illustration below). All openings must be free.



5. Plug the condensate cartridge together, push on the hoses and push it back into the holder. Verify correct direction of flow (arrows point upwards).





Replacing the particle filter (Infiltec fine filter)

Do not use tools.

1. Unscrew the transparent filter housing.
2. Unscrew the filter holder with the filter insert.



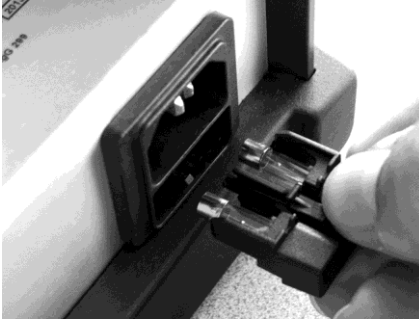
3. Hand-tighten the new filter insert until the filter insert no longer moves.
4. Hand-tighten the transparent filter housing.



Replace the mains fuse

Mains plug has been removed from the mains socket.

1. Push down the lock and pull out the fuse holder.



2. Replace the defective fuse.
3. Push in the fuse holder until it snaps in.
4. Switch on STM 225 and verify correct operation.



10 Troubleshooting

Repairs may only be performed by specially trained, qualified staff.

Table 5: Troubleshooting

Problem	Possible reason	Repair
STM 225 cannot be switched on	No mains voltage	<ul style="list-style-type: none"> ▶ Verify that the mains plug has been plugged in ▶ Check the mains fuse
Tightness test not passed	Filter cup of particle filter (Infiltec fine filter) not tightened or damaged O ring missing	<ul style="list-style-type: none"> ▶ Tighten loose filter cup ▶ Replace defective filter cup ▶ Refit or replace the O ring
	Condensate cartridge not properly mounted	<ul style="list-style-type: none"> ▶ Hoses defective or not tight ▶ Condensate cartridge not tight or incorrectly mounted
	Cover of measurement gas chamber loose	<ul style="list-style-type: none"> ▶ Screw on the cover of the measurement gas chamber
Flow error	Sampling probe, sampling line, zero point filter or gas outlet clogged	<ul style="list-style-type: none"> ▶ Clean affected components
	Valve at condensate outlet not closed	<ul style="list-style-type: none"> ▶ Close valve
	Particle filter (Infiltec fine filter) polluted	<ul style="list-style-type: none"> ▶ Replace polluted filter
	Condensate cartridge full or not properly mounted	<ul style="list-style-type: none"> ▶ Drain condensate cartridge ▶ Verify correct mounting
Display shows "Bottom Cover Open"	Bottom plate not tightened Magnetic contact defective	<ul style="list-style-type: none"> ▶ Tighten bottom plate ▶ Fit new bottom plate



Problem	Possible reason	Repair
Display shows "Pump Error"	The gas pump does not operate properly	▶ Send STM 225 to the manufacturer (see chapter 12, page 33)
Display of temperature controller shows value other than +60 °C	Error in sampling line	▶ Verify correct connection of sampling line
STM 225 is on (switch lights red), but display remains dark	Internal device error	▶ Send STM 225 to the manufacturer (see chapter 12, page 33)
Display does not respond to tapping		
Other malfunctions	–	



10.1 Status messages shown by the display

Status messages shown at the top right of the display consist of two parts:

- XX is a combined error/status message
- YY is a status message

Table 6: Error/status messages

Code	Explanation
00	No device error
01	Measurement OK (no errors)
02	Detector check
04	Bottom cover is open
08	Not assigned
10	Error category 1
20	Error category 2 (temperature low)
40	Error category 3 (pump error)
80	Flow error

Table 7: Status message

Code	Explanation
01	Standby
02	Ready for measurement
04	Not assigned
08	Zero calibration running
10	Measured values ready
20	Heating-up phase
40	Measurement running
80	Not assigned



11 Decommissioning, disposal



1. Switch off the supply voltage.
2. To protect the environment, this product must **not** be disposed of together with the normal household waste. Dispose of the product according to local directives and guidelines.

This product consists of materials that can be reused by recycling firms. The electronic inserts can be easily separated and the device consists of recyclable materials.

If you do not have the opportunity to dispose of the used device in accordance with environmental regulations, please contact us for possibilities to return it (see chapter 12, page 33).

12 Returning the device

In order to protect the environment and our staff, we will transport, check, repair or dispose of returned products only if this is possible without risk to health and environment.

- ▶ Always enclose a declaration of decontamination when returning a device (confirmation that the device is free from hazards)
- ▶ The declaration of decontamination can be downloaded at www.afriso.com.

Without a declaration of decontamination, we are unable to process your returned device. Thank you for your understanding.

If the product was operated with hazardous substances:

1. Decontaminate the device in accordance with all pertinent directives.
- ✎ The product is free from hazardous substances.
2. Enclose proof of decontamination in accordance with all pertinent directives when returning the device.



13 Spare parts and accessories

Part	Part no.
Particle filter (Infiltec fine filter (5 pieces)	511003
Neck collar screw M4 x 12	523578
Condensate cartridge	500193
Zero point filter	570209
Knurled nut M4 for bottom cover	523579
Cleaning kit consisting of:	570210
Cleaning cloth for optical systems STM 225 (10 pieces)	
Cleaning brush with cotton tip STM 225 (2 pieces)	
Cleaning swab STM 225 (10 pieces)	
Sampling line ENL-H 2, heated, 2 m	570205
Connection kit ASS-STM, 2 m (for connection to MULTILYZER NG/STe)	500296
Transport bag	570201
Sampling probe, ENS-G 280 mm, straight	570202
Sampling probe ENS-W 300 mm, bent	570203
Flushing filter	570207
O ring kit	570214

14 Warranty

The manufacturer's warranty for this product is 12 months after the date of purchase. This warranty shall be good in all countries in which this product is sold by the manufacturer or its authorised dealers.

15 Copyright

The manufacturer retains the copyright to these operating instructions. These operating instructions may not be reprinted, translated, copied in part or in whole without prior written consent.

We reserve the right to technical modifications with reference to the specifications and illustrations in this manual.



16 Customer satisfaction




Customer satisfaction is our prime objective. Please get in touch with us if you have any questions, suggestions or problems concerning your product.

17 Addresses

The addresses of our worldwide representations and offices can be found on the Internet at www.afriso.com.

18 Appendix

18.1 EC Declaration of Conformity

EG – Konformitätserklärung Declaration of conformity / Declaração de conformidade CE		Formblatt FB 27 - 03
Name und Anschrift des Herstellers: AFRISO-EURO-INDEX GmbH, Lindenstr. 20, 74383 Güglingen		
Manufacturer / Fabricant / Fabricante / Nome e endereço do fabricante:		
Erzeugnis: Staubmessgerät		
Product / Produit / Produto: STM 225		
Typenbezeichnung: STM 225		
Type / Type / Tipo:		
Betriebsdaten: AC 230 V		
Caractéristiques / Características / Detalhes técnicos:		
Das bezeichnete Erzeugnis stimmt mit den Vorschriften folgender Europäischer Richtlinien überein: The above mentioned product meets the requirements of the following European Directives Le produit mentionné est conforme aux prescriptions des Directives Européennes suivantes O produto indicado cumpre com as prescrições das seguintes Diretivas Europeias:		
Elektromagnetische Verträglichkeit (2004/108/EG) Directive Electromagnetic Compatibility / Diretiva sobre compatibilidade eletromagnética / Directiva compatibilidad electromagnética / Diretiva sobre compatibilidade eletromagnética		
- EN 301488-17		
Niederspannungsrichtlinie (2006/95/EG) Low Voltage Directive / Directive basse tension / Directiva baja tensión / Diretiva sobre baixa tensão		
- EN 60950-1:2006+A11:2009+A1:2010+A1:2011+AC:2011		
Telekommunikationsausrüstungen – Richtlinie (1999/5/EG) Radio and Telecommunications Terminal Equipment Directive R&TTE		
- EN 301488-17 V2.1.1 (EN61000-4-2:2008, EN 61000-4-3:2006+A1:2008)		
- EN 300328 V1.7.7, EN 300 328 V1.6.1:2004		
Zusätzlich berücksichtigt:		
- VDI 4206 Bl. 2		
Unterschieber: Dr. Aldinger, Geschäftsführer, Technik Signed / Signataire / Firmante / Assinado por: Technical Director / Diretor Técnico		
		
Datum / Date / Fecha / Data: 24.7.2013		
Unterschrift / Signature / Firma / Assinatura:  AFRISO-EURO-INDEX GmbH, Lindenstr. 20, 74383 Güglingen		
Version: 2 / Index: 3	AFRISO-EURO-INDEX GmbH	D-74383 Güglingen
Seite: 1 von 1		



18.2 Bluetooth Declaration of Conformity



R&TTE Declaration of Conformity (DoC)

We, Bluegiga Technologies Oy, a corporation validly organized and existing under the laws of Finland having its principal place of business at Sinikalliontie 5A, 02630 Espoo, Finland

declare under our sole responsibility that the product:

MT11-A

to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the R&TTE Directive (1999/5/EC). The product is conformity with the following standards and/or normative documents:

EMC (Art. 3(1)(a)):

- EN 301 489-17:V2.1.1
 - ESD immunity, EN 61000-4-2:2009
 - Radiated electric field immunity, EN 61000-4-3:2006 +A1:2008

SPECTRUM (Art. 3(2)):

- EN 300 328 V1.7.1
 - Equivalent isotropic radiated power, Clause No 4.3.1
 - Frequency range, Clause No 4.3.3
 - Frequency hopping, Clause No 4.3.4
 - Medium access protocol, Clause No 4.3.5
 - Transmitter spurious emissions, Clause No 4.3.6
 - Receiver spurious emissions, Clause No 4.3.7

Supplementary information:

Technical file held by: Bluegiga Technologies Oy

Place and date of issues (of thid DoC): Espoo, 09.06.2011

Mikko Savolainen/VP /Product management

Bluegiga Technologies
Sinikalliontie 5A, FIN-02630
Espoo, FINLAND
Tel +358 9 435 5060 | Fax +358 9 435 50660
Co ID 0934238-1, VAT registered, domicile: Espoo
www.bluegiga.com | sales@bluegiga.com