

# Triboelectric chimney emission dust detection probe for humid and/or aggressive environments



📌 Sectors [Plant Components](#),

📌 Applications: [Fix](#)

📌 Issues [Fumes](#)

COD: TRIBOPOLVCAMIAU

ATEX II 3D EEx IP65 T85°C certified probe - zone 22D

Reading the **concentration of dust being emitted from an industrial chimney** is of fundamental importance to be sure of being within legal limits. Moreover, in the presence of filtration systems it allows to be alerted in case of their malfunction.

Thanks to the certified triboelectric probe, it is possible to monitor the dust in emission and take concentration readings in mg/mc.



## Detailed description

### HOW IT WORKS

The powder concentration reading probe exploits the principle of transferring electrical charges carried by powder immersed in a gaseous fluid, thanks to an electrode connected to specific electronic circuitry capable of amplifying the signal. The amount of charge induced on the electrode is proportional to the amount of powder in the gaseous fluid. An increase in the concentration of the powders therefore results in a proportional increase in the signal reaching the microprocessor.

By applying mathematical algorithms, the dust particles are counted individually so that their exact concentration in mg/mc can be calculated.

The processed values can be stored internally for future processing, or sent via RS485 serial transmission to an external control unit for further analysis or visualization.

The microprocessor-based triboelectric probe is supplied pre-calibrated, complete with No. 3 optically isolated open collector type digital outputs, No. 1 RS485 serial output for configuring and/or downloading data, and a set of LEDs for concise indications of operating modes. The pipe diameter ranges from 250mm up to 2,000mm\*

### INSTALLATION TIPS AND NOTES

- Sensor length: the probe comes standard with an electrode length of 1,950mm. However, the electrode should be almost as long as the diameter of the chimney to be monitored [about 20mm less]. To be purchased separately is the electrode extension kit, which can be cut on site.
- When installing the triboelectric probe in chimneys with a diameter greater than 800mm and an air velocity greater than 12m/s, we recommend installing, on the opposite side of the probe, an insulated support to which the rod can be attached.
- The probe should be installed with a downward tilt of 2° to avoid moisture and/or water stagnation on the insulation.

\*When ordering, specify the diameter of the tubing

### TECHNICAL DATA

Power supply (vdc): 24 - 30Vdc

Relay switching outputs: N°03 opto-isolated outputs with solid state relays

Measuring principle: charge displacement

Sensitivity (mg/mc): 0.1

Min air speed: 4m/s

Air Tmax (°C): 220

Measuring range: 0mg/mc to 10mg/mc or 0 mg/mc to 50mg/mc

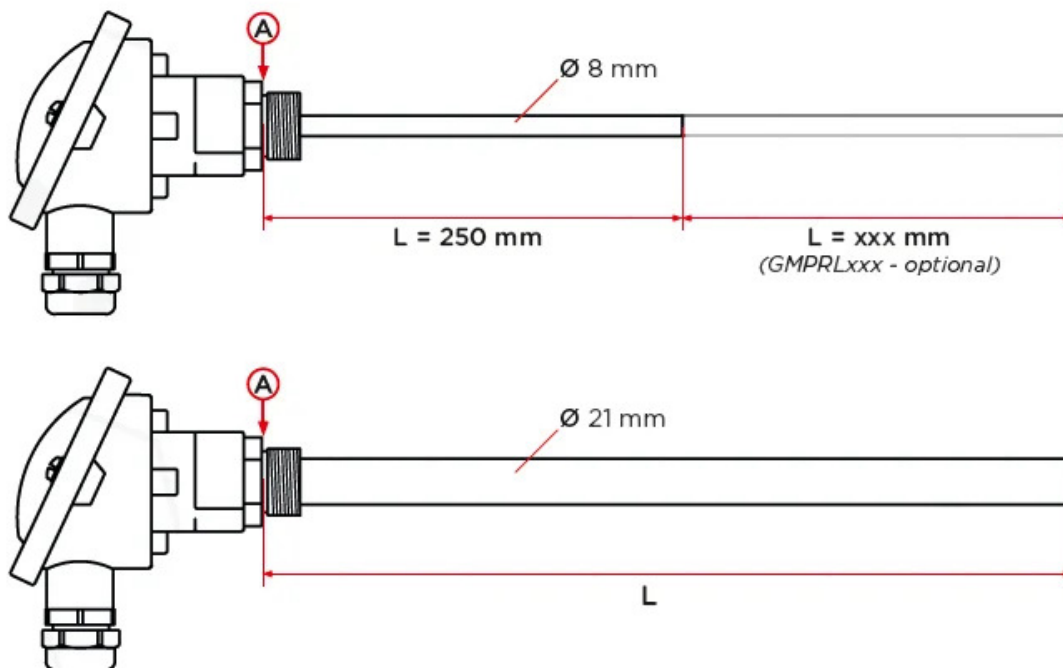
Electrode length: 1950mm

Electrode material: stainless steel

Alarm threshold (mg/mc): 2 - 1 at 5mg/mc and 1 at 10mg/mc



## Dimensions



Code	L mm	Ø mm
STPBAU2503D0000	1950	250
STPBAU2503D4200	1950	250
STPBAU2503D3G00	1950	250
STBAU2503D3G420	1950	250
STPBAU2803D0000	1950	600
STPBAU2803D4200	1950	600
STPBAU2803D3G00	1950	600
STBAU2803D3G420	1950	600
STPBAU6503D0000	1950	900
STPBAU6503D4200	1950	900
STPBAU6503D3G00	1950	900
STBAU6503D3G420	1950	900
STPBAU9503D0000	1950	2000
STPBAU9503D4200	1950	2000
STPBAU9503D3G00	1950	2000
STBAU9503D3G420	1950	2000

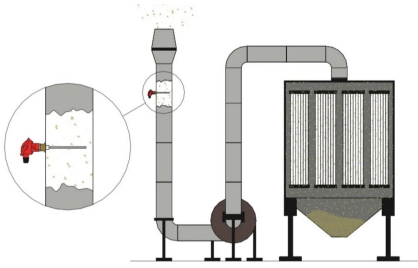


## Technical Data

Code	Electrode diameter mm	Outputs	Interface	ATEX protection
STPBAU2503D0000	250	RS485 serial output	No. 01 RS 485 serial	Complies with ATEX Directive 2014/34/EU - Category 3D
STPBAU2503D4200	250	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	Complies with ATEX Directive 2014/34/EU - Category 3D
STPBAU2503D3G00	250	RS485 serial output	No. 01 RS 485 serial	Complies with ATEX Directive 2014/34/EU - Category 3D/3G
STBAU2503D3G420	250	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	Complies with ATEX Directive 2014/34/EU - Category 3D/3G
STPBAU2803D0000	600	RS485 serial output	No. 01 RS 485 serial	Complies with ATEX Directive 2014/34/EU - Category 3D
STPBAU2803D4200	600	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	Complies with ATEX Directive 2014/34/EU - Category 3D
STPBAU2803D3G00	600	RS485 serial output	No. 01 RS 485 serial	Complies with ATEX Directive 2014/34/EU - Category 3D/3G
STBAU2803D3G420	600	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	Complies with ATEX Directive 2014/34/EU - Category 3D/3G
STPBAU6503D0000	900	RS485 serial output	No. 01 RS 485 serial	Complies with ATEX Directive 2014/34/EU - Category 3D
STPBAU6503D4200	900	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	Complies with ATEX Directive 2014/34/EU - Category 3D
STPBAU6503D3G00	900	RS485 serial output	No. 01 RS 485 serial	Complies with ATEX Directive 2014/34/EU - Category 3D/3G
STBAU6503D3G420	900	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	Complies with ATEX Directive 2014/34/EU - Category 3D/3G
STPBAU9503D0000	2000	RS485 serial output	No. 01 RS 485 serial	Complies with ATEX Directive 2014/34/EU - Category 3D
STPBAU9503D4200	2000	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	Complies with ATEX Directive 2014/34/EU - Category 3D
STPBAU9503D3G00	2000	RS485 serial output	No. 01 RS 485 serial	Complies with ATEX Directive 2014/34/EU - Category 3D/3G
STBAU9503D3G420	2000	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	Complies with ATEX Directive 2014/34/EU - Category 3D/3G



## Photogallery



## Accessories



### Extension for triboelectric probe electrode

PROTRIBOELET000

The length of the electrode should be almost equal to the diameter of the chimney to be monitored, considering about 20mm less.

The electrode can be cut on site.



## Related products



### Triboelectric chimney emission dust detection probe

TRIBOPOLVCAMINO

ATEX II 3D EEx IP65 T85°C certified probe - zone 22D

Reading the **concentration of dust being emitted from an industrial chimney** is of fundamental importance to be sure of being within legal limits. Moreover, in the presence of filtration systems it allows to be alerted in case of their malfunction.

Thanks to the certified triboelectric probe, it is possible to monitor the dust in emission and take concentration readings in mg/mc.



### 220°C triboelectric probe kit and reading module

KITMONITORPOLHT

Kit consisting of STPB220 triboelectric probe and reading module with IP65 enclosure.



### 140°C triboelectric probe kit and readout module

KITMONITORPOLV0

Kit consisting of STPB140 triboelectric probe and reading module with IP65 enclosure.

