

# Triboelectric chimney emission dust detection probe

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COD: 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.



## Insight

### 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. 2 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.

### INSTALLATION TIPS AND NOTES

- Sensor length: the probe comes standard with a 250mm long electrode. 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.

### TECHNICAL DATA

Operating temperature: -20°C +65°C

Power supply (Vdc): 24 - 30Vdc

Relay switching outputs: No. 03 opto-isolated outputs with solid-state relays

Measuring principle: Charge displacement

min air speed (m/s): 4m/s

Measurement Range: 0mg/mc to 10mg/mc or 0mg/mc to 50mg/mc

Electrode length (mm): 250mm (extensions available)

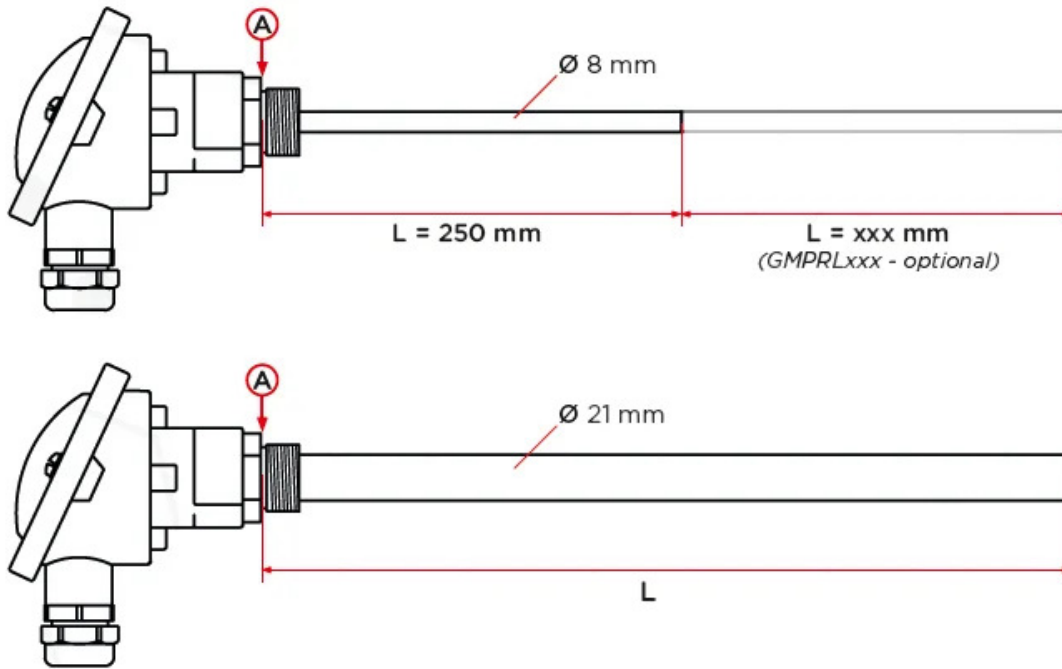
Electrode material: stainless steel

Electrode diameter: 8mm

ATEX protection: II 3D EEx IP65 T85°C - zone 22D - Conforms to ATEX Directive 2014/34/EU - Category 3D



## Dimensions



Code	L mm	$\varnothing$ mm
STPB14000000000	250	8
STPB22000000000	250	8
STPB140420NR000	250	8
STPB220420NR000	250	8
STPB140420HR000	250	8
STPB220420HR000	250	8

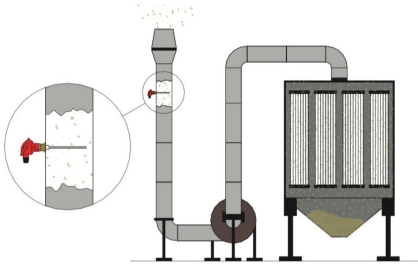


## Technical Data

Code	Sensitivity mg/mc	Max air ° C	Outputs	Interface	Alarm threshold mg/mc
STPB14000000000	0.1	140	RS485 serial output	No. 01 RS 485 serial	2 - 1 at 5mg/m <sup>3</sup> and 1 at 10mg/m <sup>3</sup>
STPB22000000000	0.1	220	RS485 serial output	No. 01 RS 485 serial	2 - 1 at 5mg/m <sup>3</sup> and 1 at 10mg/m <sup>3</sup>
STPB140420NR000	0.1	140	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	2 - 1 at 5mg/m <sup>3</sup> and 1 at 10mg/m <sup>3</sup>
STPB220420NR000	0.1	220	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	2 - 1 at 5mg/m <sup>3</sup> and 1 at 10mg/m <sup>3</sup>
STPB140420HR000	0.01	140	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	2 - 1 at 1mg/m <sup>3</sup> and 1 at 2mg/m <sup>3</sup>
STPB220420HR000	0.01	220	RS485 serial output + 4-20mA analog output [4mA = 0mg/mc - 20mA = 10mg/mc]	N°01 RS 485 serial + N°01 4-20mA	2 - 1 at 1mg/m <sup>3</sup> and 1 at 2mg/m <sup>3</sup>



## Photogallery



## Related 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



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

KITMONITORPOLV0

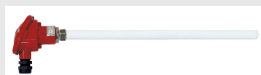
Kit consisting of STPB140 triboelectric probe and reading module with IP65 enclosure.



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

KITMONITORPOLHT

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



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

TRIBOPOLVCAMIAU

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