

GOYEN

BBD5 BROKEN BAG DETECTOR



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OPERATIONAL RANGE

- Suitable for a wide range of dust collection and stack emissions.
- Applicable for all types of outlet stack geometrical arrangements.
- For duct sizes from 50mm (2") to over 10m (33ft).
- Suitable for most stack material eg. steel, brick etc.
- Applicable to most particulate types.
- Insertion temperatures up to 80°C or 200°C (176°F to 392°F), higher if required.
- Dust concentrations from 0.01mg/m³ (4x10⁻⁶gr/ft³).
- Optional intrinsically safe barrier.

BENEFITS

- Detects most particles regardless of composition.
- Very sensitive due to AC coupled technology.
- Can be used over a wide range of particulate.
- Can monitor extremely small particles eg. galvanising fume (≈0.1µm).
- Can assist in dramatically reducing plant down-time through filter failures.

FEATURES

- Proven AC Triboelectric technology.
- Sensitivity adjustment.
- Potted construction for reliability and operational stability.
- Relay time delay feature.
- Air purge port.
- Simple Installation.
- Alarm level adjustment.

FUNCTIONS

Bar graph:	Visual indication of emission density
Alarm Time Delay:	0-18 seconds in 2 second steps to prevent false alarms due to pulsing
Sensitivity :	Adjustable sensitivity (10 position switch)

OUTPUTS

Type	Name	Specification	Function
Output	Alarm Relay	8A Resistive 1A Inductive	Emission Alarm

CONTROL UNIT

Enclosure Rating:	IP66/NEMA 4
Enclosure Size:	180mm wide x 180mm high x 90mm deep (7 1/8" x 7 1/8" x 3 1/2")
Enclosure Material:	Plastic Composite
Power Supply:	100-240VAC or 18-32VDC
Bargraph Display:	20 step LED
Temperature Range:	-20°C to 60°C (-4°F to 140°F)
Active Head:	One

SENSING HEAD

Insertion Temp Range:	P2-45210: -20°C to 80°C (-4°F to 176°F) P2-45220: -20°C to 200°C (-4°F to 392°F)
Connection required on duct:	1" BSPT socket
Enclosure Temperature Range:	-20°C to 60°C (-4°F to 140°F)
Enclosure Rating:	IP66/NEMA4
Enclosure Material:	Aluminium
Sensing Element Material:	316 Stainless Steel
Sensing Element Options:	• solid rod • tubular • teflon coated • multiple supports • cable type • different lengths available
Air Purge Requirements:	• Connection: 1/8" gas thread on side of unit • Air Pressure: 400kPa (60psi) max • Air Consumption: 1.7 -17m ³ /hr (1-10cfm) pulsed
Electrical Specification between Sensing Head	4 core screened data cables: Beldon 9534

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EMP5 PARTICULATE EMISSION MONITOR



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WHAT IT DOES

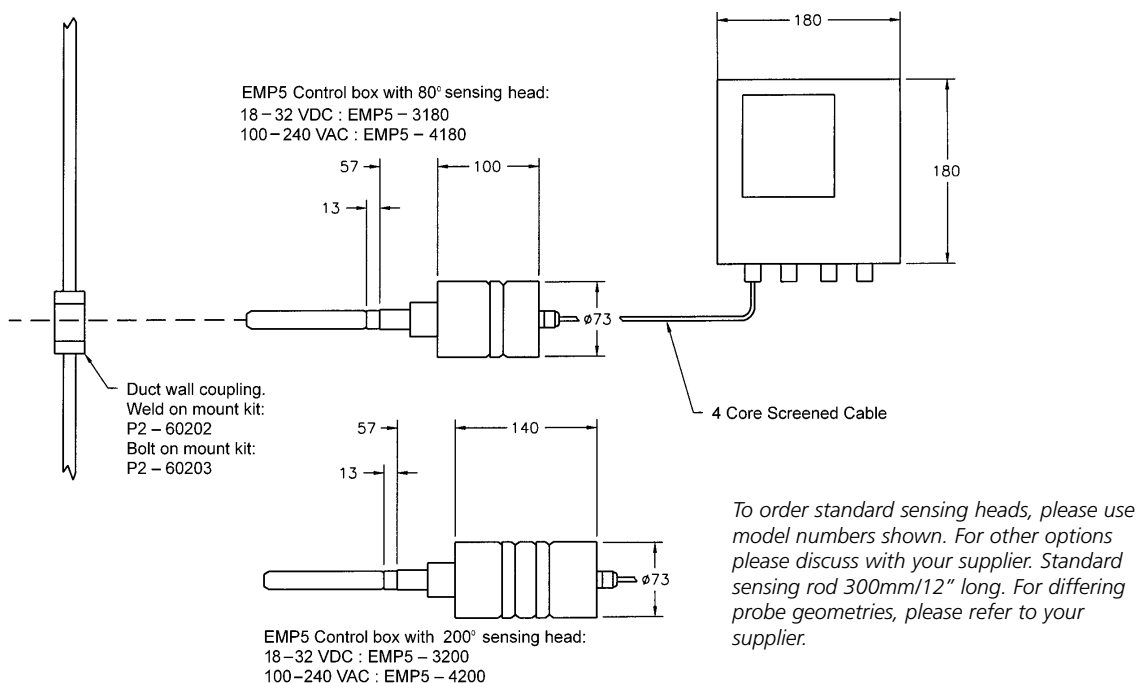
- Continuously monitors particulate flow.
- Indicates relative condition of bags.
- Provides, for the purpose of compliance and preventative maintenance, analogue output that can be connected to data logger for historical recording of process conditions.
- Output can be interfaced to PLC or SCADA system enabling data to be logged in plant operating system.
- Linear representation of mg/m^3 or mg/s (gr/ft^3 or gr/s). Iso-kinetic sample required for initial calibration.

PRINCIPLES OF OPERATION

The EMP5 utilises AC Coupled Triboelectric technology. As particles travel through the process they develop a charge. This charge is transferred as the particle passes or impacts the sensing element. The resulting current is amplified, filtered, rectified and further filtered looking only at the AC component, to give a linear representation of the concentration or mass flow rate of the particles in the gas stream.

The reason for measuring the AC component is that compared to the DC component the electronics are more sensitive. The AC signal is substantially less affected by influences such as amplifier noise and process parameters, which includes the build-up of process dust on the sensing rod.

The EMP5 remote sensing head totally filters out any 50Hz or 60Hz frequencies related to mains supply. The amplified signal is then sent via data cable to control unit for further processing and display.



FUNCTIONS

Bar Graph:	Visual indication of emission density
Alarm Time Delay:	0-18 seconds in 2 second steps to prevent false alarms due to pulsing
Sensitivity:	Coarse: Adjustable sensitivity (10 position switch) Fine: Allows fine tuning in between coarse steps

OUTPUTS

Type	Name	Specification	Function
Output	Particulate concentration or mass flow	4-20mA (470Ω max) or 0-10V (10K min)	Full range of particulate level
Output	Alarm Relay	8A Resistive/1A Inductive	High Level Alarm

CONTROL UNIT

Enclosure Rating:	IP66/NEMA4
Enclosure Size:	180mm wide x 180mm high x 90mm deep (7 ¹ / ₈ " x 7 ¹ / ₈ " x 3 ¹ / ₂ "
Enclosure Material:	Plastic Composite
Power Supply:	100-240VAC or 18-32VDC
Bargraph Display:	20 step LED
Temperature Range:	-20°C to 60°C (-4°F to 140°F)
Sensing Head:	One per control unit

SENSING HEAD

Insertion Temp Range:	P2-45210: -20°C to 80°C (-4°F to 176°F) P2-45220: -20°C to 200°C (-4°F to 392°F)
Connection required on duct:	1" BSPT socket
Enclosure Temperature Range:	-20°C to 60°C (-4°F to 140°F)
Enclosure Rating:	IP66/NEMA4
Enclosure Material:	Aluminium
Sensing Element Material:	316 Stainless Steel
Sensing Element Options:	<ul style="list-style-type: none"> • solid rod • tubular • teflon coated • multiple supports • cable type • different lengths available
Air Purge Requirements:	<ul style="list-style-type: none"> • Connection: 1/8" gas thread on side of unit • Air Pressure: 400kPa (60psi) max • Air Consumption: 1.7-17m³/hr (1-10cfm) pulsed
Electrical Specification between Sensing Head and Control Unit:	4 core screened data cables: Beldon 9534 (or equivalent) max 200m (660ft)

OPERATIONAL RANGE

- Suitable for a wide range of dust collection, gas cleaning and stack emissions.
- Applicable for all types of outlet stack geometrical arrangements.
- Insertion temperatures up to 80°C or 200°C (176°F or 392°F), higher if required.
- Applicable to most particulate types.
- For duct sizes from 50mm (2") to outlets over 10m (33ft).
- Dust concentrations from 0.01mg/m³ (4 x 10⁻⁶gr/ft³).
- Suitable for most stack material. eg. steel, brick etc.
- Optional intrinsically safe barrier.

BENEFITS

- Detects most particles regardless of composition.
- Very sensitive due to AC coupled technology.
- Can monitor extremely small particles eg. galvanising fume (≈0.1µm).
- Can be calibrated for large range of concentrations or mass flow rates
0.01mg/m³ to 800mg/m³ (4 x 10⁻⁶gr/ft³ to 0.35gr/ft³).
- A seamless interface with industry standard PLC, data logger or SCADA.
- Can dramatically reduce plant downtimes when interfaced into existing plant monitoring equipment.

FEATURES

- Proven AC Triboelectric technology
- Relay time delay feature.
- Sensitivity adjustment.
- Air purge port.
- Potted construction for reliability and operational stability.
- Simple installation
- Alarm level adjustment.

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EMS6 PARTICULATE EMISSION MONITOR



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WHAT IT DOES

- Continuously monitors particulate flow, primarily emissions from process plants.
- Capable of being a part of total process monitoring system.
- Measures the movement of particulate past the stationary emission monitor.
- Output can be interfaced into PLC, SCADA or Connect Network System enabling data to be logged in plant operating system.
- Output signal is RS485 Modbus RTU protocol.
- Linear representation of mg/m^3 (gr/ft^3) or mg/s (gr/s). Iso-kinetic sample required for initial calibration.

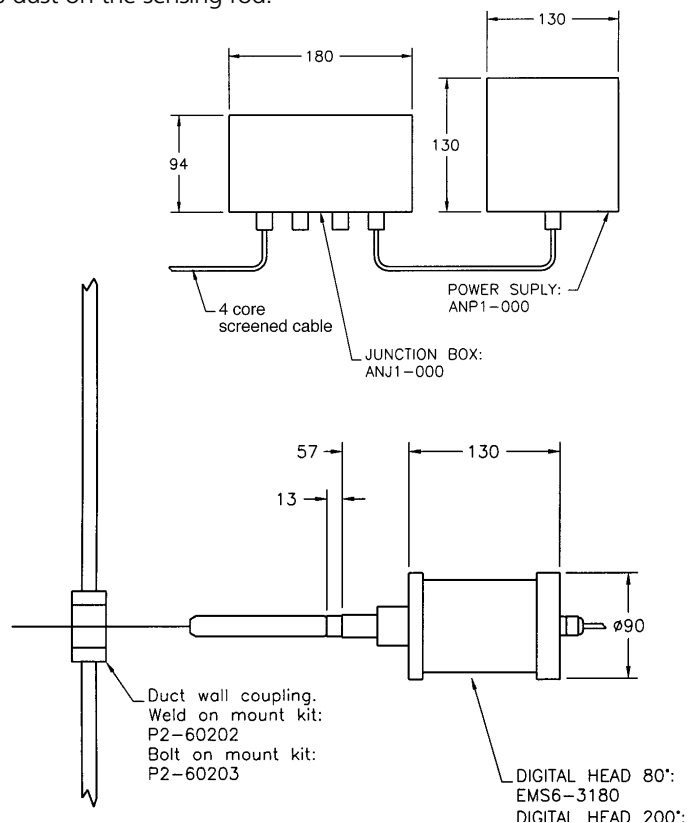
PRINCIPLES OF OPERATION

The EMS6 utilises AC Coupled Triboelectric technology. As particles travel through the process they develop a charge. This charge is transferred as the particle passes or impacts the sensing element. The resulting current is amplified, filtered, rectified and further filtered and converted to digital form looking only at the AC component. This gives a linear representaton of the concentration or mass flow rate of the particles in the gas stream, depending on the chosen scale for calibration.

The reason for measuring the AC component is that, compared to the DC component, the electronics are more sensitive. The AC signal is substantially less affected by influences such as amplifier noise and process parameters which includes the build-up of process dust on the sensing rod.

The EMS6 totally filters out any 50Hz or 60Hz frequencies related to mains supply. The digital signal is then sent via a data cable to PLC, SCADA or a Connect network system.

The EMS6 linear representation of concentration or mass flow has been validated by independent laboratories. The EMS6 along with ANJ1, ANP1 and Connect software has been tested and certified for monitoring dust emissions according to the MCERTS standard.



OPERATIONAL RANGE

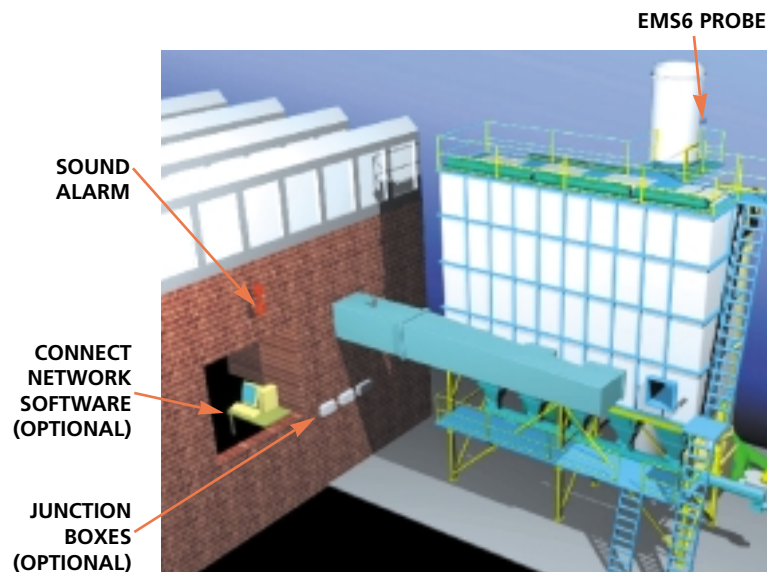
- Suitable for a wide range of dust collection, gas cleaning and outlet stack applications.
- Applicable for all types of outlet stack geometrical arrangements.
- Insertion temperatures up to 80°C or 200°C (176°F or 392°F), higher if required.
- Applicable to most particulate types.
- For duct sizes from 50mm (2") to outlets over 10m (33ft).
- Dust concentrations from 0.01mg/m³ (4x10⁻⁶gr/ft³)
- Suitable for most stack material eg. steel, brick etc.

BENEFITS

- Detects all particles regardless of composition.
- Very sensitive due to AC coupled technology.
- Can be a linear representation of either concentration or mass flow rate.
- Can monitor extremely small particles like galvanising fume (≈0.1µm).
- Can be calibrated for large range of concentrations or mass flow rates
- A seamless interface to industry standard PLC, SCADA or Connect network system.
- Easy installation.
- Immunity to bridging providing reliable continuous operation.

FEATURES

- Proven AC Triboelectric technology.
- Air purge port.
- Three settable ranges under both hardware and software control.
- Network ID settable under both hardware and software control.
- RS485 Modbus RTU communications protocol.
- Simple installation.



OPERATIONAL EQUIPMENT

	ANJ1 Junction Box	ANP1 Power Supply	AYK1 Relay Card
Enclosure Rating:	IP66/NEMA 4	IP66/NEMA 4	IP66/NEMA 4
Enclosure Size:	94mm x 180mm x 57mm (3 ¹¹ / ₁₆ " x 7 ¹ / ₈ " x 2 ¹ / ₄ ")	130mm x 130mm x 75mm (5 ¹ / ₈ " x 5 ¹ / ₈ " x 2 ³¹ / ₃₂ ")	130mm x 94mm x 57mm (5 ¹ / ₈ " x 3 ¹¹ / ₁₆ " x 2 ¹ / ₄ ")
Enclosure Material:	Plastic Composite	Plastic Composite	Plastic Composite
Power Supply:	12VDC or 24VDC	100 – 240VAC	12VDC nominal
Temperature Range:	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)

REMOTE SENSING HEAD

Insertion Temp Range: EMS6-3180: -20°C to 80°C (-4° to 176°F)
 EMS6-3200: -20°C to 200°C (-4° to 392°F)
High temperatures are achievable >650°C (1200°F) with additional hardware (see supplier)

Sensor Lengths: 50mm to 10m (2" to 33ft) using appropriate probe options
Consult with supplier for larger options

Connection required on duct: 1" BSPT Socket

Enclosure Temperature Range: -20°C to 60°C (-4°F to 140°F)

Enclosure Rating: IP66/NEMA4

Enclosure Material: Aluminium

Sensing Element Material: 316 stainless steel

Sensing Element Options: • solid rod • tubular • teflon coated • multiple supports
 • cable type

Air Purge Requirements: • Connection: 1/8" gas thread on side of unit
 • Air Pressure: 400kPa (60psi) max
 • Air Consumption: 1.7-17m³/hr (1-10cfm) pulsed

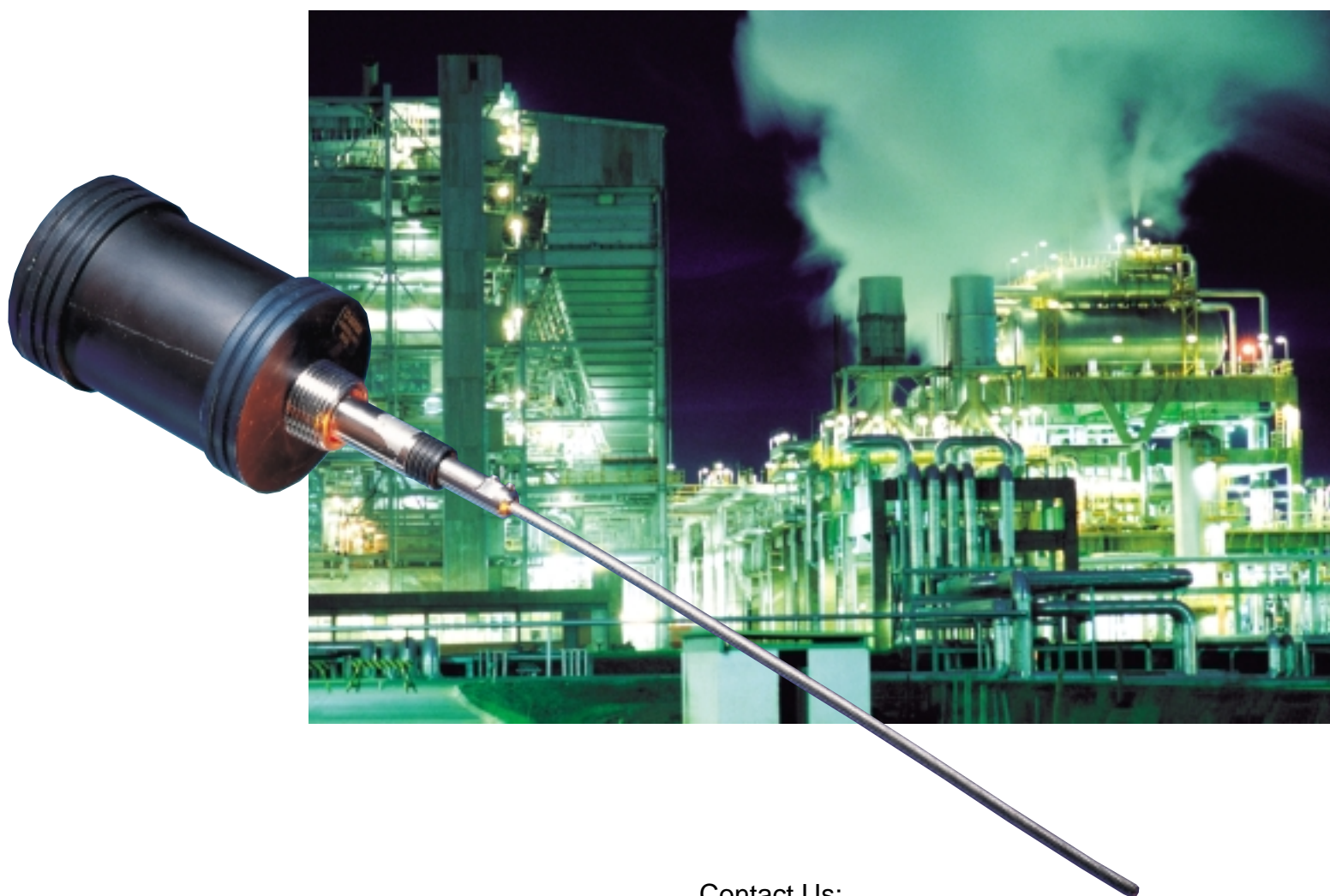
Electrical Specification between Sensing Head and Controller: 4 core screened data cable: Beldon 9534 (or equivalent) max 1000m

Resolution: 0.001mg/m³ (0.4x10⁻⁶gr/ft³)





EMP7 PARTICULATE EMISSION MONITOR



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WHAT IT DOES

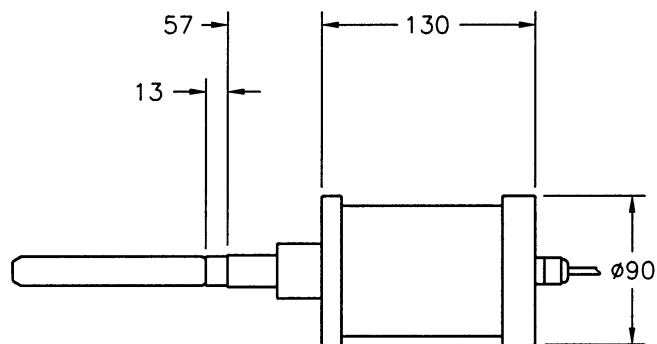
- EMP7 is a simple self contained 2-wire, particulate monitor with 4-20mA output designed to feed a PLC, display device such as AUD1 or Connect Network via Connect Access Card or Numeric Display, AUD1.
- Continuously monitors particulate flow, primarily emissions from process plants.
- Indicates condition and efficiency of cleaning system.
- Maintains absolute calibration.
- Models available for mg/m³ (gr/ft³) or mg/s (gr/s) following calibration to Iso-kinetic sample.
- Self Test diagnostics including Statistical History, Run Time, Power Up and optional remote diagnostics reporting.

PRINCIPLES OF OPERATION

The EMP7 utilises ISE technology. Each particle travelling through the process develops an electrical charge. As the particle passes or impacts with the sensing element, a current is induced which is processed in EMP7 by a method called Impulse Signature Extraction ("ISE").

ISE technology extracts the basic characteristics (the "signature") of the impulsive signals induced by individual particles in the gas stream. Since these characteristics are related to such things as the particle velocity, EMP7 is able to compute velocity as a parameter, and therefore to calculate the emission level as either mass flow rate or mass density as required. In addition, although ISE technology processes the entire signal from the sensing element, its algorithm effectively negates the potentially erroneous effects of the DC component of the signal, so ISE technology shares all the advantages of existing AC Triboelectric technology.

Made a reality by very recent advances in low power digital signal processing, ISE technology is as significant a step forward now as the introduction of AC Triboelectric technology was in 1992.



- EMP7 – 3100 : Basic Unit 80°C
- EMP7 – 3200 : Basic Unit 200°C
- EMP7 – 3250 : Velocity Compensation 200°C
- EMP7 – 3270 : Velocity Compensation + Diagnostics 200°C

OPERATIONAL RANGE

- Suitable for a wide range of dust collection and materials handling operations and gas cleaning plants.
- Dust concentrations from 0.01mg/m³ (4x10⁻⁶gr/ft³).
- Accurate for most particle and particle characteristics.
- Insertion temperatures from -20°C to over 650°C (-4°F to over 1200°F) with additional hardware.
- Duct sizes from 50mm (2") to outlets over 10m (33ft).
- Suitable for most stack material. eg. brick, steel etc.

BENEFITS

- Detects all particles regardless of composition.
- Very sensitive due to ISE Technology Monitoring.
- No range switching or other adjustments.
- Calibration is constant.
- Extremely wide range of concentration and mass flow.
- Tolerates extremely high leakage of signal due to insulator bridging.
- Seamless interface into industrial controls systems, such as PLC.

FEATURES

- Extremely wide, adjustment free range (0.01mg/m³ to 1kg/m³ or 4 x 10⁻⁶gr/ft³ to 400gr/ft³).
- Simple 4-20mA, 2-wire output connection.
- Output is true mass density (mg/m³) (gr/ft³) or true mass flow rate (mg/s) (gr/s) depending on model selected.
- Full internal electrical isolation to prevent potential corruption due to ground potential differences.
- Resolution of 0.001mg/m³ (4 x 10⁻⁷gr/ft³).
- Logarithmic output for wide range displays, but also easily converted to linear.

INSTRUMENT SPECIFICATIONS

Enclosure Rating:	IP66/NEMA 4
Enclosure Size:	ø88 x 125mm high (ø 3 1/2" x 5") not including sensor length
Power Supply:	10-32VDC
Insertion Temp Range:	-20°C to 200°C (-4°F to 392°F) <i>See supplier for higher temperature options</i>
Connection required on duct:	1" BSPT socket
Sensing Element Material:	316 Stainless steel (5mmOD x 300mm (standard cable length) 3/16" x 12")
Sensing Element Options:	<ul style="list-style-type: none"> • solid rod • tubular • teflon coated • multiple supports • cable type • other lengths available
Air Purge Requirments:	<ul style="list-style-type: none"> • Connection: 1/8" gas thread on side of unit • Air Pressure: 400kPa (60psi) max • Air Consumption: 1.7-17m³/hr (1-10cfm) pulsed
Electrical Specification between Sensing Head and Electrical Input:	2 core screened data cable: max 5000m (16,400ft)
Resolution:	0.001mg/m ³ (0.4x10 ⁻⁷ gr/ft ³)
Range Stability:	± 1% 4-20mA signal

