PENTAIR

GOYEN N6-BD

BURST BAG DETECTION SYSTEM

PENTAIR CLEAN AIR SYSTEMS

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WHAT IT DOES

- Provides a high-quality and cost-effective solution for detecting media leakage in large and multiple-filter applications.
- Validates raw particulate data.
- Provides local Indication of the relative condition of media in multiple-filter units.
- Provides dual-level alarm indications.
- Transmits alarm status to remote plant control systems for immediate preventative action.

PRODUCT DESCRIPTION

The Goyen N6-Burst Bag Detection system forms part of the Goyen Network Systems range of particulate monitors. It is a rugged, industrialised solution for detecting media leakage in large multiple-filter applications. It is used in conjunction with the well-renowned EMS6 Particulate Monitoring Probes to produce a fully featured and yet cost-effective burst bag detection solution for modern-day industrial processes.

The units are housed in IP65/NEMA 4 ABS enclosures and can be located at most convenient points throughout an industrial facility. The N6-BD is configurable, with each unit able to monitor up to 6 probes, delivering both local analogue representation of the particulate emissions and also fault and alarm relay status signals. The units offer operators clear, local indication of the relative particulate concentration and include an 'auto-sense' feature to ignore offline units.

Communication between the display unit and the monitoring probes is via the industry standard RS485 MODBUS communications protocol which ensures reliable data collection with low-cost installation. The EMS6 sensing heads utilise AC Coupled Triboelectric technology, comprising a duct/stack-mounted IP65 electronics housing with integral sensing element protruding into the duct. As particles travel through the process they develop a charge, which 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. This gives a linear representation of the concentration 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 element. The EMS6 totally filters out 50 Hz and 60 Hz frequencies related to the mains supply. The EMS6 linear representation of concentration has been validated by independent laboratories and has also been tested and certified for monitoring dust emissions according to the UK Environment Agencies 'MCERTS' standard.

OPERATIONAL RANGE

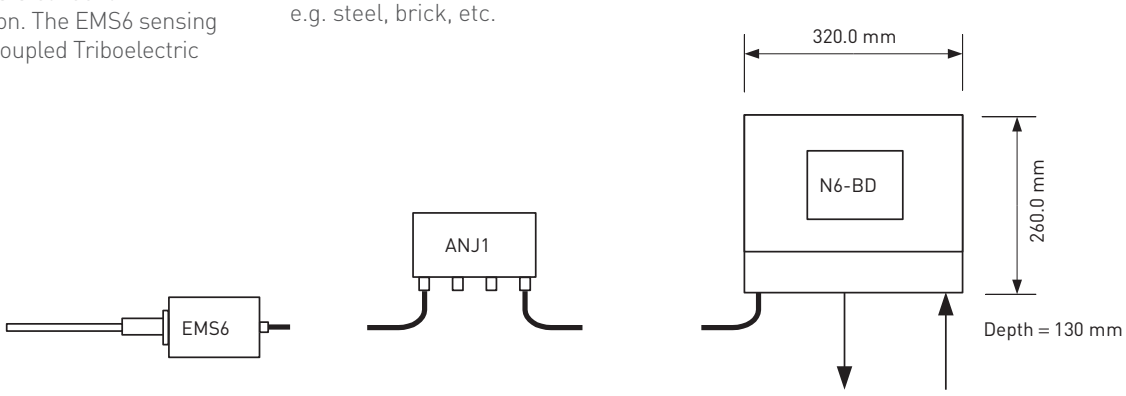
- Suitable for a wide range of dust collection, gas cleaning and stack emissions.
- Applicable for all types of outlet stack geometrical arrangements.
- Insertion temperatures up to 200°C (392°F)
- Applicable to most particulate types.
- Suitable for duct sizes from 50 mm (2″) to outlets over 10 m (33′)
- Particulate concentrations from 0.01 mg/m^3 (4 × 10^{-6} gr/ft^3)
- Suitable for most stack materials, e.g. steel, brick, etc.

FEATURES

- Very sensitive, can monitor very small particles, e.g. galvanising fumes.
- Sensitivity adjustment to provide wide operating range
- Cost-effective multi-point solution
- Clear, local analog display
- User-configurable ranges and alarm points
- Intelligent internal diagnostics feature
- Intelligent 'auto-sense' feature, ignores offline units
- Dual-alarm function with sophisticated hysteresis algorithm
- Air purge facility for improved reliability in difficult applications
- High reliability, no moving parts or delicate optics
- Low maintenance requirement and low cost of ownership
- Proven technology
- Convenient ANJ1 junction boxes simplify installation and support

BENEFITS

- Simplifies and aids the management of filter plant
- Reduces the cost of monitoring particulate emissions
- Easy to operate and maintain
- Sophisticated alarm algorithm and 'auto-sense' features reduce false alarms
- Can help reduce filter plant downtime
- Networked solution reduces initial capital outlay



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- Networked solution simplifies installation and reduces associated costs
- Proven technology and high reliability result in low cost of ownership and minimal downtime
- Complete 'all in one' solution meets all customer needs

MODES OF OPERATION

Sensitivity

Like all dust monitoring systems the N6-BD generates a signal that is proportional to particulate concentration. The unit is supplied in an un-calibrated state with ranges set 0 to 100% of range. Each probe has an individual gain setting that can be set on site to give the following nominal ranges:

- High Gain = 0 to 20 mg/Nm^3
- Medium Gain = 0 to 150 mg/Nm^3
- Low Gain = 0 to 1000 mg/Nm^3

ALARMS

Each channel is supplied with dual-alarm functionality which in turn operates relays to signal warning and breach conditions to plant control systems. Such alarms can be troublesome when the emission concentrations hover around the alarm set points causing the alarms to operate and reset repeatedly. Many systems employ a straightforward time delay to attempt to minimise this effect, but the N6-BD employs a more sophisticated time and magnitude algorithm to provide the optimum solution to fast accurate alarm reporting with minimal nuisance tripping. The simple level alarm function is bolstered by the addition of a hysteresis function which considers both the time the alarm level has been exceeded and the magnitude by which the level has been exceeded. The algorithm ensures accurate alarm reporting with minimal inconvenience.

TECHNICAL SPECIFICATION

FUNCTIONS	
Display	2 line × 16 characters, backlit monochrome
User displays	Digital emission level by channel – Resolution xxx.x Input, fault and alarm status displays by channel
Alarms	Two alarms per channel with user-configurable set point and hysteresis
Sensitivity	Adjustable within each active head, low, medium and high
Status	System OK, System calibrating, System fault, Plant operating/ Not operating
OUTPUTS	
Digital	1 × high and 1 high/high alarm relay contact per channel 30 V DC 3A max per channel (resistive load)
INPUTS	
	1 per channel, plant status, volt-free contact closure
ENCLOSURE	
Rating	IP66/NEMA 4
Finish	ABS enclosure with tinted hinged cover
Dimensions	320 mm × 260 mm × 130 mm deep
Weight	2.5 kg
Power supply	85 to 263 V AC, 47 to 63 Hz, 50 W, 24 V DC option available
Temperature range	0°C to +50°C (32 to 122°F) operating, –20°C to +60°C (–4 to 140°F) storage
Sensing head	One per channel, maximum 6 per unit
SENSING HEAD	
Insertion temperature	–20°C to 200°C (–4 to 392°F)
Duct connection	1″ BSPT female
Head enclosure temperature	–20°C to 60°C (–4 to 140°F)
Rating	IP66/NEMA 4
Material	Aluminium, black
Sensing element	316 stainless steel
Sensing element options	Solid rod, tubular, Teflon coated, multiple supports, cable type, varying lengths
Air purge requirements	Connection 1/8″ gas thread on side of unit Air pressure: 400 kPa (60 psi) Max air consumption: 1.7 to 17 m^3/hr (1 to 10 cfm) pulsed
Interconnecting cable Sensing head to display unit	4-core screened data cable: Beldon 9534 or equivalent See installation instruction for maximum lengths

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