PMsenseCR

PM / CO_2 TRANSMITTER FOR EXPERT ENVIRONMENTS

INTRODUCTION

Whether in the pharmaceutical or high-tech sectors, cleanrooms are environments where attention to contamination must be paramount.
They must be closely monitored at all times to ensure that the required standards are met.

PMsenseCR is a particle counter transmitter suitable exactly for these applications.

FEATURES

Particularly suitable for controlled environments

The measuring principle is based on the laser scattering method: it counts and classifies particles according to their size in order to monitor a cleanroom environment as described in the ISO 14644 standards.

Excellent long term performance

The transmitter is maintenance-free and has fast response, high sensitivity, excellent stability and long operating life.

Additional measurements

An optional CO_2 sensor can be integrated in the transmitter.

CONFIGURATION & MEASUREMENT

Measuring cycle interval user configurable

The measuring circuit of the transmitter can be operated in continuous mode (default operating mode) or, in order to extend the PM sensor lifetime, at cyclic intervals.

Output flexibility

Digital RS485 output with MODBUS-RTU or ASCII proprietary protocol or version with two additional 4...20 mA outputs. The two analog outputs can be independently associated with any of the measured parameters.
Very flexible with regards to the choice of outputs and fully equipped with 5 channels (ch. 1 > 0.3 µm; ch. 2 > 0.5 µm; ch. 3 > 1.0 µm; ch. 4 > 2.5 µm; ch. 5 > 5.0 µm).

ACCORDING TO THE STANDARD
Accurate and reliable monitoring of cleanrooms as described in the ISO 14644 Standards

FLEXIBILITY
Output at choice according to your needs

FAST & RELIABLE
Laser scattering principle - Real time particle count from 0.3 µm to 10 µm

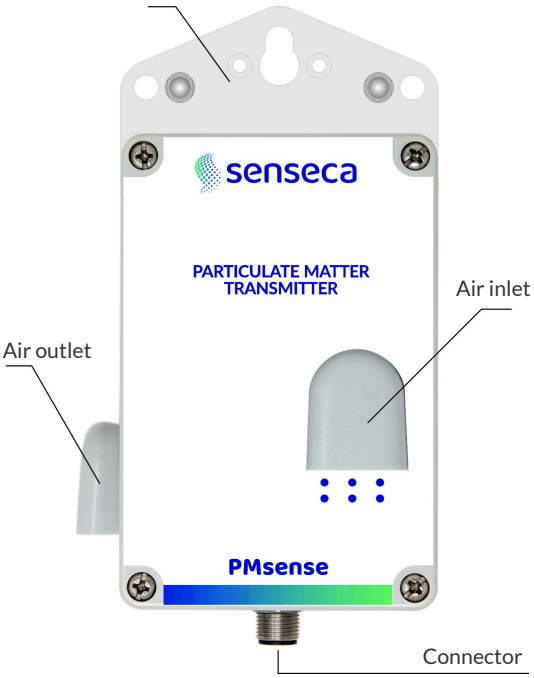
Measurement specifications

Particulate Matter	
Measuring principle	Laser scattering
Measured pollutants	N° of particles/m³ with size > 0.3 µm N° of particles/m³ with size > 0.5 µm N° of particles/m³ with size > 1 µm N° of particles/m³ with size > 2.5 µm N° of particles/m³ with size > 5 µm
Measuring range	< 3.3 x 10^9 pcs/m³ (loss of linearity above this threshold)
Particle size detection range	Ø 0.3...10 µm
Lowest detectable concentration	350 particles/m³
Detection efficiency (according ISO 21 501-4)	50% ± 30% @ 0.3 µm 100% ± 20% @ 0.5 µm
False count	< 3 over 15 minutes
Repeatability	< 3% for N° of particles/m³ with size > 0.3 µm and > 0.5 µm < 5% for N° of particles/m³ with size > 1 µm < 10% for N° of particles/m³ with size > 2.5 µm < 15% for N° of particles/m³ with size > 5 µm
Sensor warm up time	15 s
Sensor lifetime	> 10,000 hours in continuous operating mode (default, 1 meas./s) 5 years approx. in 5 minutes cyclic operating mode
CO_2 (only PMBsenseCR...)	
Measuring principle	Double wavelength NDIR
Measuring range	0...5000 ppm
Accuracy	±(50 ppm+3% of measurement) @ 25 °C and 1013 hPa
Response time	< 120 s (air speed= 2 m/s)
Long-term stability	5% of measurement / 5 years
Temperature drift	1 ppm/°C

General specifications

Output	RS485 with Modbus-RTU or ASCII proprietary protocol Only **PM[B]senseCR-A**: 2 x analog 0/4...20 mA (R_{Lmax} = 500 Ω); on request 2 x 0...10 V (R_{Lmin} = 10 kΩ)
Power supply	7...30 Vdc (15...30 Vdc for 0...10 V analog outputs)
Power consumption	25 mA @ 24 Vdc during measurement 4 mA in stand-by (only for cyclic operating mode) The indicated consumption does not include the consumption due to the analog outputs
Connection	M12 8-pole circular connector
Operating conditions	-20...+70 °C / 0...95 %RH / 500...1500 hPa
Housing material	Polycarbonate
Protection degree	Housing equipped with a rain-proof and UV resistant inlet air filter – IP 53
Dimensions	120 x 94 x 71 (excluding M12 connector)
Weight	330 g

Fixing bracket with U-bolt



Ordering codes

PM **senseCR-**

Output
M = RS485 MODBUS-RTU
A = RS485 MODBUS-RTU + 2 analog output

Measurement
Blank = Only PM
B = PM + CO_2

vs1.2

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