## **SPECIFICATIONS**

## PARTICLE SENSOR KA-03



3-20-41 Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan

## **Outline**

This KA-03 uses the light scattering principle to detect airborne particles according to ISO 21501-4:2007 and JIS B 9921:2010. The unit measures particle size and particle count and is designed to be used as a particle sensor in a multi-point monitoring system.

The unit incorporates the proprietary Rion multi-point system interface which allows connection to a multi-point monitoring system.

Because the unit does not include controls or indicators for measurement, it must be controlled by software (such as RP Monitor EVO or similar) used for operation of a multi-point monitoring system.

The unit has five measurable particle size ranges ( $\geq 0.3 \ \mu m$ ,  $\geq 0.5 \ \mu m$ ,  $\geq 1.0 \ \mu m$ ,  $\geq 2.0 \ \mu m$ , and  $\geq 5.0 \ \mu m$ ) and the flow rate is 2.83 L/min.

The unit incorporates an alarm function that can be used to trigger external alarm equipment.

\* All company names and product names mentioned in this specifications are trademarks or registered trademarks of their respective owners.

## **Specifications**

Optical system 90° sideway light scattering method

Light source Laser diode (wavelength 780 nm, rated output 35 mW)

Laser product class Class 1, IEC 60825-1 (2007)

Internal particle detection mechanism uses Class 3B laser

Light detector Photodiode

Collecting optics Spherical mirror

Pump Diaphragm pump

Allowable measurement sample types

Air

Sample pressure range Atmospheric pressure

Calibration By polystyrene latex (PSL) particles with refractive index 1.6

Minimum detectable particle size

0.3 µm (for spherical particles with refractive index 1.6)

Measurable particle size ranges

Five channels ( $\geq 0.3 \mu \text{m}$ ,  $\geq 0.5 \mu \text{m}$ ,  $\geq 1.0 \mu \text{m}$ ,  $\geq 2.0 \mu \text{m}$ ,  $\geq 5.0 \mu \text{m}$ )

Counting efficiency  $50\% \pm 20\%$  (measuring PSL particles in the range of 0.3 µm)

 $100\% \pm 10\%$  (measuring PSL particles in the range with 1.5 to 2

times larger than 0.3 µm)

Size resolution 15% or less (in the vicinity of 0.5 µm PSL particles)

Responsivity 0.5% or less

Maximum particle number concentration

140,000,000 particles/m³ (coincidence loss within 10%)

False count rate 140 particles/m³ or less (95% confidence interval)

Flow rate 2.83 L/min

Warm-up time 10 minutes or less

Display

POWER Serves to indicate the status of the power and the measurement

operation

SENSOR Serves to indicate the status of the particle detector section and

the light source (laser diode)

ALARM Serves to indicate the alarm output

DATA LINK Serves to indicate the status of the communication

Inputs/outputs

DATA LINK connector

Multi-point system interface

ALARM connector Open collector (maximum load: 20 V DC, 100 mA)

POWER connector Connect an AC adapter

Tube connector

INLET Outer diameter 5 mm

Power

AC adapter

Rated input 100 V to 240 V AC, 50/60 HZ, 0.9 A

Rated output 12 V DC

Maximum power consumption: Approx. 0.5 A

**Environmental Requirements** 

Operation Environments

Indoor Use Only

Altitude Up to 2000 m

Supply Voltage Fluctuations

 $100 \text{ to } 240 \text{ V AC} \pm 10\%$ 

Overvoltage Category II
Pollution Degree 2
Protection Class I

Environmental conditions for operation

+15°C to +40°C, 85% RH or less (no condensation)

Environmental conditions for storage

-10°C to +50°C, 90% RH or less (no condensation)

Approx. 126 (H)  $\times$  87 (W)  $\times$  204 (D) mm (without protruding **Dimensions** 

parts)

Approx. 157 (H)  $\times$  87 (W)  $\times$  213 (D) mm (maximum)

Weight Approx. 2 kg

Supplied accessories AC adapter 1

> AC power cord (for use in Japan with 100 V AC) 1 Sampling tube  $(7 \text{ mm} \times 5 \text{ mm dia.}, 2 \text{ m})$ 1 Inlet cap 1 Concise manual 1 1

Inspection certificate

**Options** Zero count filter

Tube (for connecting zero count filter:  $9 \text{ mm} \times 5 \text{ mm}$  dia., 0.04 m)

Isokinetic probe

Isokinetic probe joint Alarm connector plug

Terminator KE-80-S03

Sub line cable

5 m KZ-44-S01 10 m KZ-44-S02 20 m KZ-44-S03 30 m KZ-44-S04 40 m KZ-44-S05 50 m KZ-44-S06

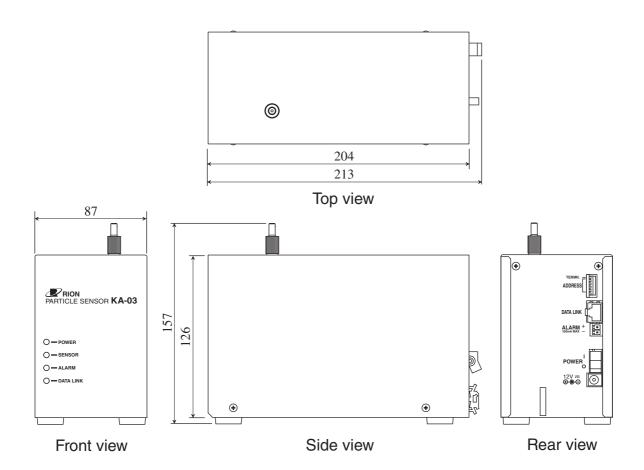
Communication cable (shielded: 5 m, 10 m, 20 m, 30 m) Communication cable (unshielded: 5 m, 10 m, 20 m, 30 m)

Factory options Particle size change ( $\geq 0.5 \mu \text{m}$ ,  $\geq 1.0 \mu \text{m}$ ,  $\geq 2.0 \mu \text{m}$ ,  $\geq 5.0 \mu \text{m}$ )

Consumable parts Laser diode, O ring of inlet, pump, exhaust filter

Recommended calibration interval

One year



Unit: mm Dimensional Drawings