

SPECIFICATIONS

PARTICLE SENSOR

KA-82



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Outline

The KA-82 is a particle sensor designed for the multi-point systems which monitor air purity in clean rooms. It is based on the light scattering method for the sensor to measure the size and number of airborne particles. The KA-82 incorporates the proprietary Rion multi-point system interface which allows connection to a multi-point monitoring system.

The KA-82 can determine the particle count in five size ranges ($\geq 0.1 \mu\text{m}$, $\geq 0.15 \mu\text{m}$, $\geq 0.2 \mu\text{m}$, $\geq 0.3 \mu\text{m}$, and $\geq 0.5 \mu\text{m}$). The air flow rate is 2.83 L/min (automatic control).

The KA-82 does not have measurement controls or display for measurement results. It is designed to be used under control of a controller what take a leading part of a multi-point system (optional multi-point monitoring system software).

The KA-82 has two alarm circuits can be controlled independently.

Specifications

| | |
|---------------------------------------|---|
| Optical system | 90° sideway light-scattering method |
| Light source | Laser-diode pumped solid state laser (wavelength 1064 nm), open-cavity type |
| Laser diode: | Wavelength 800 nm, rated output power 1 W |
| Laser medium: | Nd:YVO4 |
| Laser product class | Class 1, IEC 60825-1 (2014) |
| | Internal particle detection mechanism uses Class 3B and Class 4 lasers |
| Light collector | Aspherical lenses (condensing half-angle 40 degrees) |
| Light detector | Photodiode |
| Air flow method | Purified sheath air envelops sample air coaxially. |
| Sample flow rate | 2.83 L/min |
| Flow control | Automatic control (sample flow rate $\pm 10\%$) |
| Calibration | Polystyrene latex (PSL) particles in clean air (refractive index 1.6) For calibration, PSL particles from JSR weighted according to the DMA (Differential Mobility Analysis) method were used. |
| Minimum particle size | 0.1 μm (for spherical particles with refractive index 1.6) |
| Particle size ranges | Five channels ($\geq 0.1 \mu\text{m}$, $\geq 0.15 \mu\text{m}$, $\geq 0.2 \mu\text{m}$, $\geq 0.3 \mu\text{m}$, $\geq 0.5 \mu\text{m}$) |
| Maximum particle number concentration | |

| | |
|------------------|---|
| | 10,000 particles/L (coincidence loss within 5%) |
| False count rate | Less than 1 particle per 5 minutes |
| Sample air inlet | |
| Inlet | Insert the supplied sampling pipe for introduction of sample air |
| Pressure range | ±4 kPa (to which automatic flow control functions) |
| LED indicators | |
| POWER | Shows power status <ul style="list-style-type: none"> • Lit green when power to the unit is on • Off when power to the unit is off |
| LASER | Shows light source and particle sensor status <ul style="list-style-type: none"> • Lit green when the light source (laser diode) is operating normally • Lit red when the temperature of the light source (laser diode) is outside the specified range • Flashes red when the output of the light source (laser diode) is below the rated level • Flashes green when the interior of the sensor has been contaminated by coarse particles, high particle number concentration, or condensation etc. • Off when light source (laser diode) is off |
| FLOW | Shows sample air flow status <ul style="list-style-type: none"> • Lit green when sample air flow rate is within specified range • Flashes green when sample air flow rate is within -8% to -10% or +8% to +10% of specified range • Flashes red when sample air flow rate is more than ±10% outside of specified range • Off when pump is stopped |
| DATA LINK | Shows the status of communication with controller via DATA LINK connector <ul style="list-style-type: none"> • Lit green when the unit exists in the state that can be communicated • Lit intermittently in green when communication is being carried out normally • Lit intermittently in red when error has occurred during communication • Off when no communication is being carried out, or the unit is not controlled by the controller |

Connectors

ALARM1 and ALARM2

Maximum load 30 V DC, 1 A

Terminals are closed by relay when the instruction of alarm output via the DATA LINK connector

DATA LINK

For multi-point system interface

Power requirements

100 V to 240 V AC, 50/60 Hz, approx. 100 VA

(Supplied power cord only for use in Japan on 100 V AC)

Ambient conditions for operation

+15°C to +30°C, 85% RH or less (no condensation)

Ambient conditions for storage

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

Dimensions

206 (H)mm × 155 (W)mm × 340 (D) mm (max.)

185 (H)mm × 155 (W)mm × 330 (D) mm (without protruding parts)

Weight

Approx. 7.5 kg

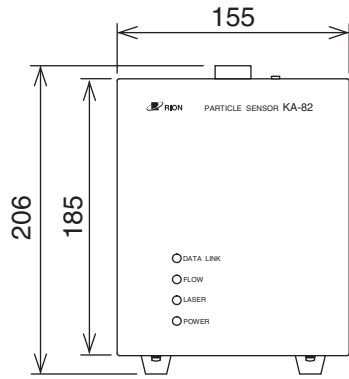
Supplied accessories

| | |
|--|---|
| Sampling pipe | 1 |
| Sampling tube (2 m) | 1 |
| Power cord (for use in Japan with 100 V AC, 2.5 m) | 1 |
| Instruction manual | 1 |
| Inspection certificate | 1 |

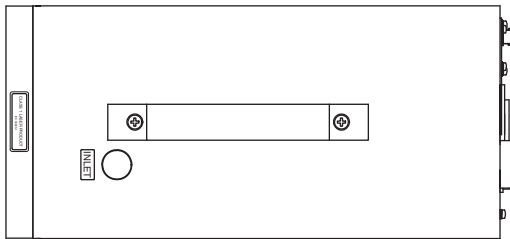
Options

Sub-line cables

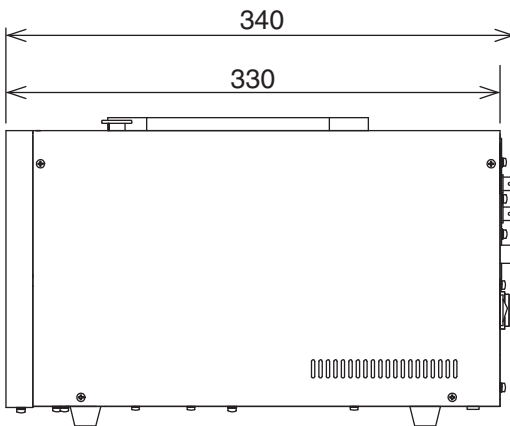
| | |
|------------|-----------|
| 5 m | KZ-44-S01 |
| 10 m | KZ-44-S02 |
| 20 m | KZ-44-S03 |
| 30 m | KZ-44-S04 |
| 40 m | KZ-44-S05 |
| 50 m | KZ-44-S06 |
| Filter | KC-22-S10 |
| Terminator | KE-80-S03 |



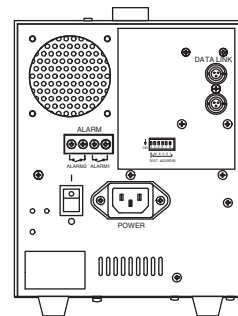
Front view



Top view



Side view



Rear view

Unit: mm

Dimensional Drawings

Specifications subject to change without notice