

SPECIFICATIONS

Hand Held Particle Counter

KR-12A



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Outline

The Hand Held Particle Counter (HHPC-6) KR-12A is designed to detect particles floating in air, using the light-scattering method. The unit can display a particle count for six size ranges: $\geq 0.3 \mu\text{m}$, $\geq 0.5 \mu\text{m}$, $\geq 0.7 \mu\text{m}$, $\geq 1.0 \mu\text{m}$, $\geq 2.0 \mu\text{m}$, and $\geq 5.0 \mu\text{m}$. The sample air flow rate is automatically adjusted by the unit to 2.83 L/min. Temperature and humidity value of the sample air are also displayed.

The unit can store the results of up to 500 measurements in an internal buffer and can show the data stored in the buffer. The built-in I / O port (serial interface) allows communication with a computer on which the supplied utility software or software that can use the RS-232-C protocol of the unit (such as the optional RP Monitor application) is installed. A serial printer (such as the optional Seiko Instruments DPU-414) can be used to print measurement data.

The multi-point system interface allows connection of the unit to a multi-point system.

The password-protected administrator setting is available. This is suitable to prevent unauthorized users from making changes to measurement parameters and other settings.

The unit operates on a rechargeable battery and is highly compact, allowing easy use in the field. An AC adapter can also be used to power the unit.

- * 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 (Maximum rated output 50 mW, wavelength 790 nm)
Laser product class	Class 1, IEC 60825-1 (2001) Internal particle detection mechanism uses Class 3B laser
Light detector	Photodiode
Sample flow rate	2.83 L / min
Calibration	Polystyrene latex (PSL) spheres with refractive index 1.6
Minimum particle size	0.3 μm (for particles with refractive index 1.6)
Particle size ranges	Six channels ($\geq 0.3 \mu\text{m}$, $\geq 0.5 \mu\text{m}$, $\geq 0.7 \mu\text{m}$, $\geq 1.0 \mu\text{m}$, $\geq 2.0 \mu\text{m}$, $\geq 5.0 \mu\text{m}$)
Maximum particle concentration	70,000 particles / L (for 0.3 μm particles, coincidence loss 5%)

Ambient conditions for operation	10°C to 40°C, 20% to 90% RH (no condensation)
Ambient conditions for storage	-10°C to 50°C, max. 90% RH (no condensation)
Measurement time	6 sec (0.01 CF), 21 sec (1 L), 1 min (0.1 CF, 2.83 L), 3 min 32 sec (10 L), 10 min (1 CF, 28.3 L), arbitrary (MANUAL), arbitrary (1 sec to 59 minutes 59 sec)
Count display modes	Cumulative or differential
Measurement modes	
Concentration	Particle count converted into particles per specified volume.
Totalize	Total particle count from start of measurement.
Audio	Total particle count from start of measurement, with beep tone each time count of selected particle size reaches a multiple of preset alarm level.
Buffer function	Rotating buffer for up to 500 measurement data. The buffer contents can be accessed using the main unit. Alternatively, the contents can be accessed from a computer, using the supplied utility software or RS-232-C protocol.
Password function	Protect to change the various parameters with password.
Display	LCD with backlight, 8 digits maximum
Alarm functions	
LOW BATTERY	"LOW BATTERY" indication is displayed when charge capacity of battery becomes low.
CAL Alarm	"CAL Alarm" indication is displayed when problem is detected in optical or electro-optical system.
CNT Alarm	When the count for the selected particle size exceeds the preset alarm level, the indication "CNT Alarm" appears and a continuous beep tone is heard. In Audio mode, "CNT Alarm" indication is not displayed, but single beep is sounded every time count reaches a multiple of alarm level. Available alarm level settings are 0, 1, 10, 100, 1000, 10000, 100000. 0 setting defeats alarm.

I/O port Can be switched to function as serial interface or multi-point system interface.

Serial Interface

Operation mode

Printer	Allows printing measurement results after each measurement on the serial printer.
Print Buffer	Allows printing buffer data on the serial printer.
Serial 9600	Allows serial communication with a computer on which the supplied utility software is installed.
Serial Type2	Allows serial communication with a computer on which software that can use the RS-232-C protocol of the unit (such as the optional RP-Monitor application) is installed.

Communication parameters

When the setting is Printer, Print Buffer, or Serial 9600

Baud rate:	9600 bps
Data word length:	8 bits
Parity:	None
Stop bits:	2

When the setting is Serial Type2

Baud rate:	4800 bps
Data word length:	7 bits
Parity:	Even
Stop bits:	2

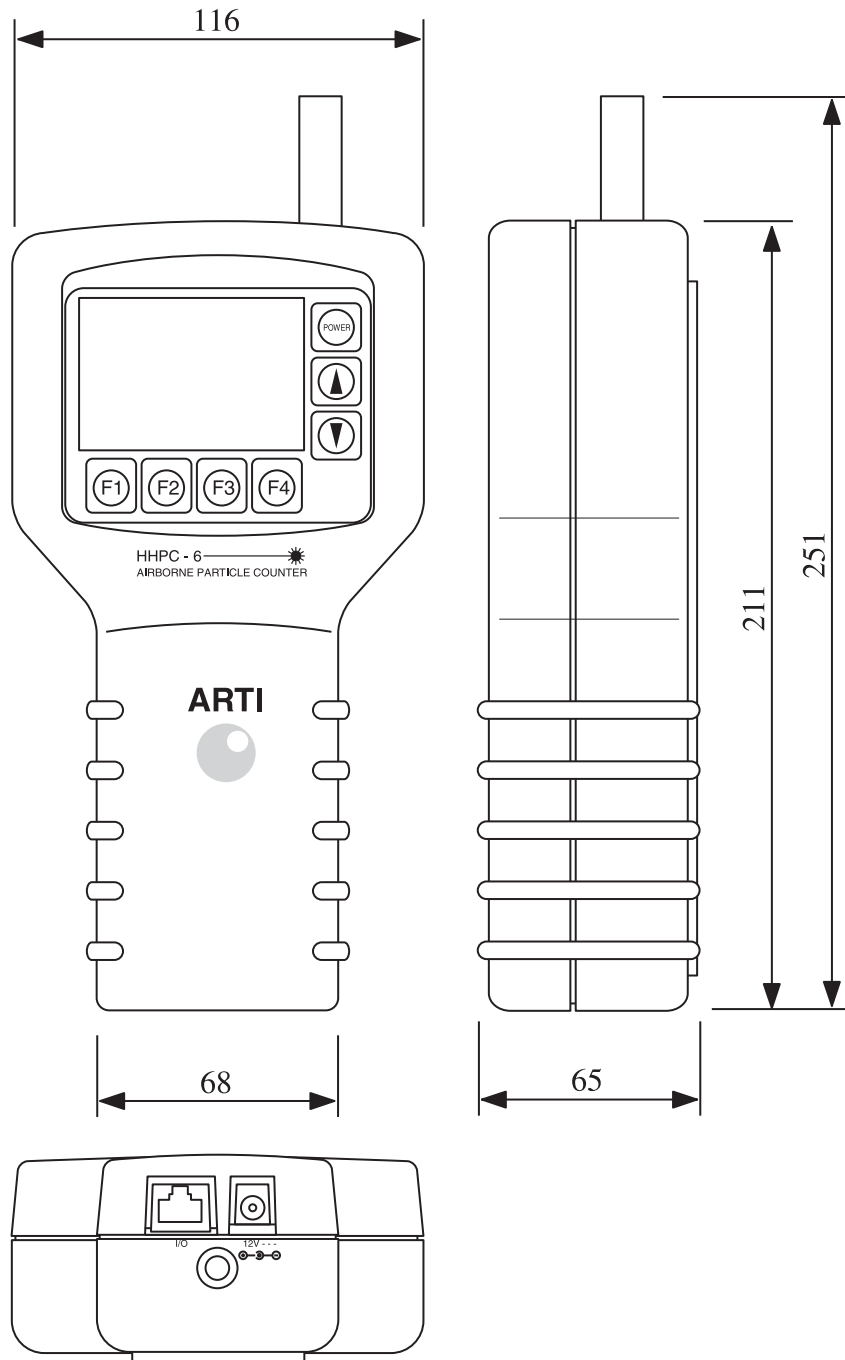
Interface for multi-point system

Operation Mode

Multi-point	Allows use of the unit in a multi-point system.
Multi-9600	Allows use of the unit in the multi-point system whose baud rate is 9600 bps.

Transfer principle	Transmission principle:	Asynchronous
	Data word length:	7 bit
	Parity:	Even
	Stop bits:	2
	Transfer rate:	
	Multi-Point	4800 bps
	Multi-9600	9600 bps
Character code:	ASCII	

Temperature/humidity measurable range	10 to 40°C, 20 to 90% RH	
Power requirements	Internal battery or AC adapter	
	Continuous measurement possible with AC adapter (supplied power cord only for use in Japan on 100 V AC)	
Maximum current consumption:	2.5 A (DC) 1.2 A (AC adapter input)	
Battery:	Nickel Metal Hydride (Ni-MH) Continuous operation approx. 8 hours (25°C), can be charged with supplied AC adapter (charge time 2 hours when the unit is on at an ambient temperature between 10°C and 25°C).	
AC adapter:	Input voltage range 100 to 240 V AC, 50/60 Hz	
Dimensions	116 (W) × 251 (H) × 65 (D) mm (max.) 116 (W) × 211 (H) × 65 (D) mm (excluding protruding parts)	
Weight	Approx. 1 kg	
Supplied Accessories	AC adapter (KR-12-003)	1
	Power cord	1
	Modular cable	1
	PC connector adapter	1
	1 / 8 inch hose barb	1
	1 / 8 inch tube	1
	Zero count filter	1
	Carrying case	1
	Utility software	1
	Hand strap	1
	Instruction manual	1
	Inspection certificate	1
Optional Accessories	Thermal printer (Seiko Instruments DPU-414)	
	Printer connector cable	



Dimensional Drawings

Unit: mm

Specifications subject to change without notice