SPECIFICATIONS

CONTROLLER

KE-40B1

RION CO., LTD.

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No. 05098-1E 09-03 Printed in Japan

Outline

This unit is a controller for use in combination with particle sensors such as the KS-42AF.
It supplies power to the particle sensor, controls its operation, and displays measurement data, among other functions.
The unit can also be combined with the syringe sampler KZ-30W1 or KZ-30W2.

The display is a touch panel, so that buttons on the display can be selected and operated using the touch pen, or another suitable implement.

Printout of measurement results on an internal thermal printer is also possible.
An internal serial interface allows for communication with a computer.

Adding an optional CF card allows automatic saving measurement data in text format (as Tab-Separated Values (TSV)).

The unit can output the measurement results converted into an analog signal with a range of 4 mA to 20 mA using a factory option D/A converter interface, so it can be connected directly to an instrumentation system.

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

Specifications

Display

Display	640 × 480 pixel color LCD (with backlight)
Display language	English
Display items	
Measurement screen	This screen displays particle counts (up to 8 digits (one decimal place), one channel or up to ten channels on simultaneous display), date and time, remaining measurement time, error information, measurement parameter setting and display, etc.
System Configuration screen	Date, time, communication parameters, auto print and other system settings
LED indicators	
START	Lights green to indicate measurement operation Lights when measurement starts Flashes when periodic measurement or preset-time measurement is paused (during measurement operation), and during purging Otherwise, switched off

STOP	Lights green to indicate that measurement has stopped Lights when measurement or purging has stopped (when the START LED is not lit or flashing) Otherwise, switched off
PURGE	Lights green to indicate that the system is in syringe sampler Purge mode Lights when a syringe sampler is connected and Purge mode is selected, and during purge operation Flashes when the syringe sampler encounters an unexpected error when the system is in Purge mode Goes out when no syringe sampler is connected, or when the mode is not Purge mode
MEAS.	Lights green to indicate that the system is in syringe sampler measurement mode Lights when a syringe sampler is connected and Measurement mode is selected, and during Measurement operation Flashes when the syringe sampler encounters an unexpected error when the system is in Measurement mode Goes out when no syringe sampler is connected, or when the mode is not Measurement mode
COMBI.	Lights green to indicate that the system is in syringe sampler Combination mode Lights when a syringe sampler is connected and Combination mode is selected Flashes when the syringe sampler encounters an unexpected error when the system is in Combination mode Goes out when no syringe sampler is connected, or when the mode is not Combination mode

Controls

Touch panel	Resistance sensitive
Buttons	
START	Starts measurement, and instructs the syringe sampler to start operating
STOP	Stops measurement
MEAS.	Instructs the syringe sampler to enter Measurement mode
PURGE	Instructs the syringe sampler to enter Purge mode
COMBI.	Instructs the syringe sampler to enter Combination mode

Measurement time
10 seconds to 2 hours, and manual
In Remote status, 1 or 10 minutes can be selected, in addition to the above

Measurement modes

Manual measurement
Measurement controlled with START and STOP buttons

Automatic measurement

Average measurement
Repeated measurement of preset time or volume, up to 99 times, with averaging of results

Periodic measurement
Repeated measurement can be performed automatically, specifying the time intervals (10 seconds to 24 hours)

Moving average measurement
During periodic measurement, moving average for 10, 60, or 100 measurements is calculated and results are output via printer, serial link, and D/A converter
Processing results are not shown on the screen

Preset-time measurement
Starts/Stops measurement at the set time

Count display modes
Cumulative value, differential value, number concentration (units: /mL, /L)

Alarm
Buzzer sounds and ALARM terminals are closed by relay when particle count in the specified particle size range equals or exceeds the specified alarm level
When moving average measurement is carried out, buzzer sounds and ALARM terminals are closed by relay at end of measurement

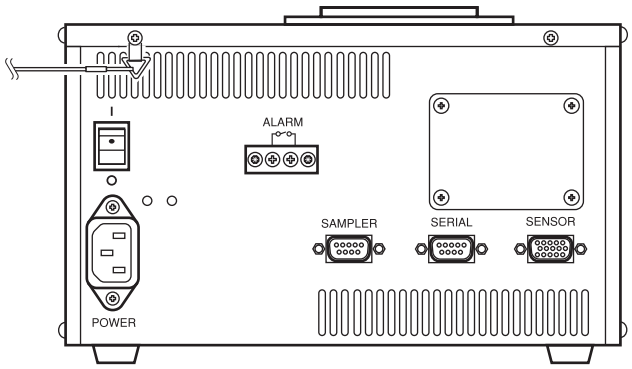
Alarm level
1 to 9999999, or alarm is off
Additional settings in remote mode: Select from 10, 100, 1,000, 10,000, 100,000

Maximum contact load
30 V DC, 1 A

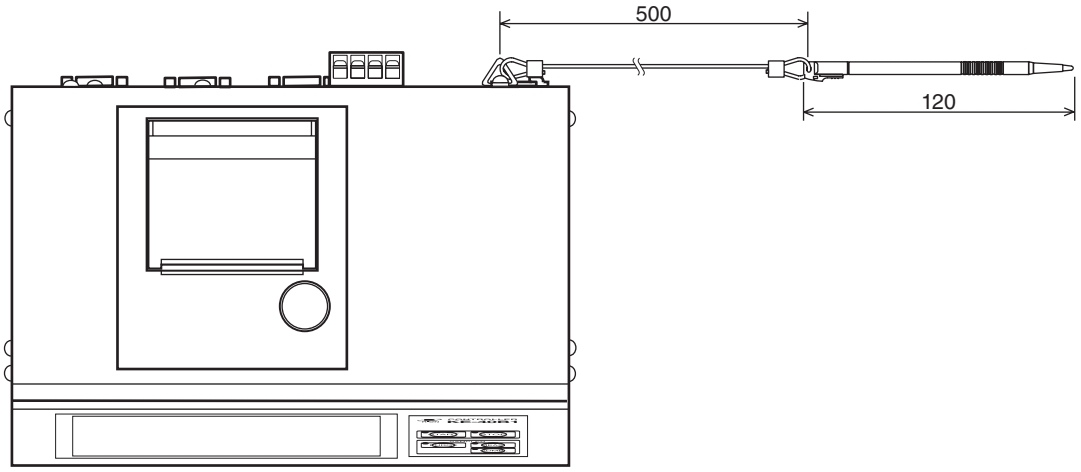
Terminal strip
M3 screw terminal strip (Connect spade terminals (Y-type) or wires of 1.25 mm^2 cross sectional area)

Clock	Auto calendar for year, month, day, hour, minute, second (adjusts for leap years until 2037) - Accuracy: ±2 minutes/month or better (at normal temperature)	
Internal interfaces		
Serial interface		
Communications parameters		
	Electrical characteristics	Compliant with JIS X 5101^{-1982} (JIS X 5101 corresponds to TIA/EIA-232)
	Transmission configuration	Full-duplex, asynchronous
	Baud rate	4,800 bps
	Data word length	7 bits
	Parity	Even
	Stop bits	2 bits
	Terminator	<CR> <LF>
	Connector	9-pin male D-sub connector
D/A converter interface (factory option)		
	Converts the particle count in a selected channel into 4 mA to 20 mA DC current	
Output range	Select one from 0 to 1, 0 to 10, 0 to 100, 0 to 1,000, 0 to 10,000, 0 to 100,000, 0 to 16, 0 to 256, 0 to 4,096, 0 to 40,960, 0 to 409,600	
	Load resistance	0 Ω to 500 Ω (including the resistance of the connection cable)
	Output precision	±1%
Inputs/outputs		
SERIAL	Connect a control equipment compatible with the internal interface	
SENSOR	Connect one connectable particle sensor	
SAMPLER	Connect a syringe sampler (KZ-30W1/W2)	
ALARM	Alarm output terminals	
Internal printer		
Printout content	Measurement results, date and time, etc.	
Printing method	Thermal printer, 48 mm print width	
Printer paper	Thermal printer paper TP-08 or Lint-free thermal printer paper TP-10	
Memory functions	Measurement data or others are automatically saved to CF cards in text (TSV) form	

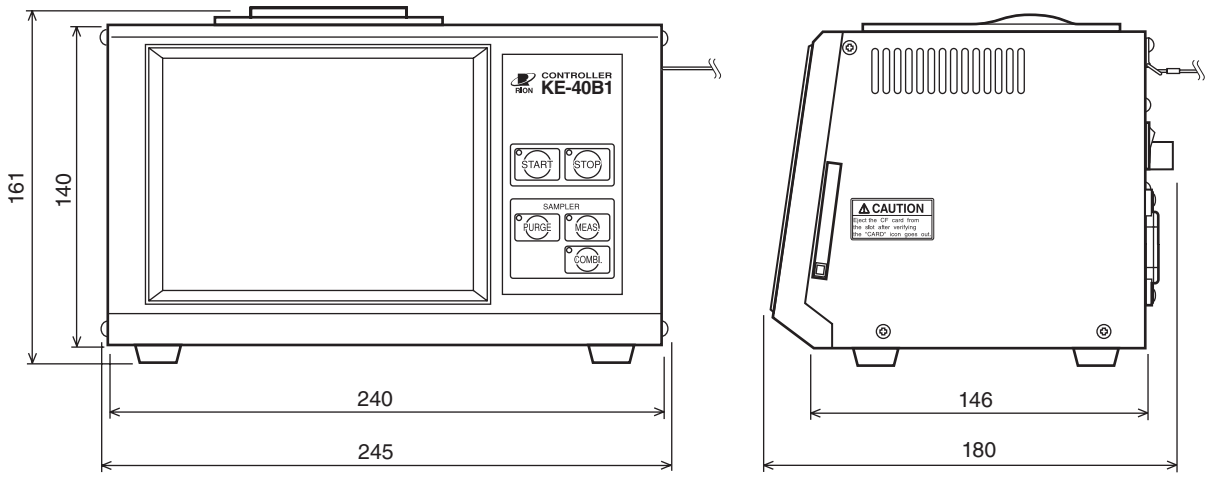
Power requirements	100 V to 240 V AC, 50/60 Hz	
	Approx. 130 VA	
Environmental Requirements		
Operation Environments		
	Indoor Use Only	
Altitude	Up to 2000 m	
Supply Voltage Fluctuations		
	100 V to 240 V AC ± 10%	
Overvoltage Category	Ⅱ	
Pollution Degree	2	
Protection Class	Ⅰ	
Ambient conditions for operation		
	+5°C to +40°C, 85% RH max. (no condensation) Must be in the range 30% to 80% RH when using the printer. (no condensation)	
Ambient conditions for storage		
	-10°C to +50°C, 90% RH max. (no freezing and no condensation)	
Dimensions	Approx. 161 (H) × 245 (W) × 180 (D) mm (maximum dimensions) Approx. 140 (H) × 240 (W) × 146 (D) mm (without protruding parts)	
Weight	Approx. 3 kg	
Supplied Accessories	Power cord	1
	Thermal printer paper TP-08	2
	CF dummy card	1
	Instruction manual	1
	Inspection certificate	1
Factory option	D/A converter interface	KE-40-S06
Options	Interface cable	CC-61A
	(For connection to DTE with 9-pin male D-sub connector)	
	Thermal printer paper	TP-08 (6 rolls set)
	Lint-free thermal printer paper	TP-10 (6 rolls set)
	Compact Flash card (formatted)	MC-12CF1: 128 MB MC-25CF1: 256 MB
	Compact Flash-PCMCIA adapter	CFC-ADP03
	RP monitor (monitoring software)	K9461



Rear view



Top view



Front view

Right side view

Unit: mm

Dimensional Drawings

Specifications subject to change without notice