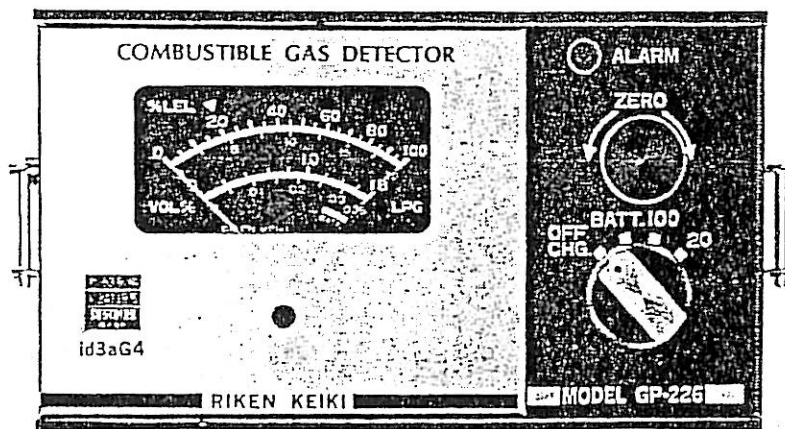


INSTRUCTION MANUAL  
FOR  
RIKEN HAND HELD PORTABLE  
GAS DETECTOR/ALARM MODELS GP-226/236



## 1. GENERAL

RIKEN hand held portable combustible gas detector models GP-226 and GP-236 are ideal for fast, accurate measurement of combustible gas in manholes, and other potentially hazardous underground or enclosed areas. These units have all of the operational design characteristics including intrinsically safe design, audible/visual alarm, built-in automatic suction pump, dual range with % gas by volume and % LEL scales and special high-sensitivity detection circuit. The power for operation of the instrument is provided by a built-in rechargeable nickel cadmium battery.

Model GP-226 operates for up to 4 hours (model GP-236 operates for 3 hours) continuously.

## 2. SPECIFICATIONS

	GP-226	GP-236
Measuring method	Catalytic combustion, automatic sample drawing	
Measurable gas	General combustible gas in air	Methane in air
Explosion proof	Class id3aG4 in Japan Circuit and pump... Intrinsically safe Detector..... Flameproof	
Meter graduation	(1) 0-100/0-20% LEL & 0-1.8/0-0.36% LPG (2) 0-100/0-20% LEL & 0-1.4/0-0.28% Gasoline (3) 0-100/0-20% LEL & 0-4.0/0-0.8% H <sub>2</sub> (4) 0-100/0-25% LEL & 0-5/0-1.25% CH <sub>4</sub>	0-100/0-20% LEL & 0-5/0-1% CH <sub>4</sub>
Measuring range	0-100/0-20% LEL, 0-100/25% LEL CH <sub>4</sub> , 0-100/0-20% LEL, GP-236	
Accuracy	Better than ±5% of full scale	
Alarm method	Red light and buzzer	
Preset alarm level	20% LEL	
Response time	Dead time.....Within 3 sec. 90% response.....Within 15 sec.	
Operating temperature	10 to + 40 °C	
Power source	Ni-Cd, rechargeable pack.	Ni-Cd rechargeable battery pack.
Recharging time	15 hours	
Continuous operation per recharge	Approx 4 hours at one full charge	Approx 3 hours at one full charge.
Dimensions & weight	150(W) x 85(H) x 125(D)mm, Approx. 1.6 kg	Approx. 1.9 kg

### 3. DESIGNATION

(1) Function switch knob (OFF/CHG, Battery, Range selection)

(2) Zero adjusting knob

(3) Alarm Light

(4) Meter

(5) Hook for shoulder strap

(6) Alarm buzzer

(7) Sampling hose (1m)

(8) Sampling probe

(9) Gas inlet/connection for sampling hose

(10) Adjusting screw for mechanical zero

(11) Carrying case

(12) Shoulder strap

(13) Alarm level

(14) BATT zone (For checking the battery voltage)

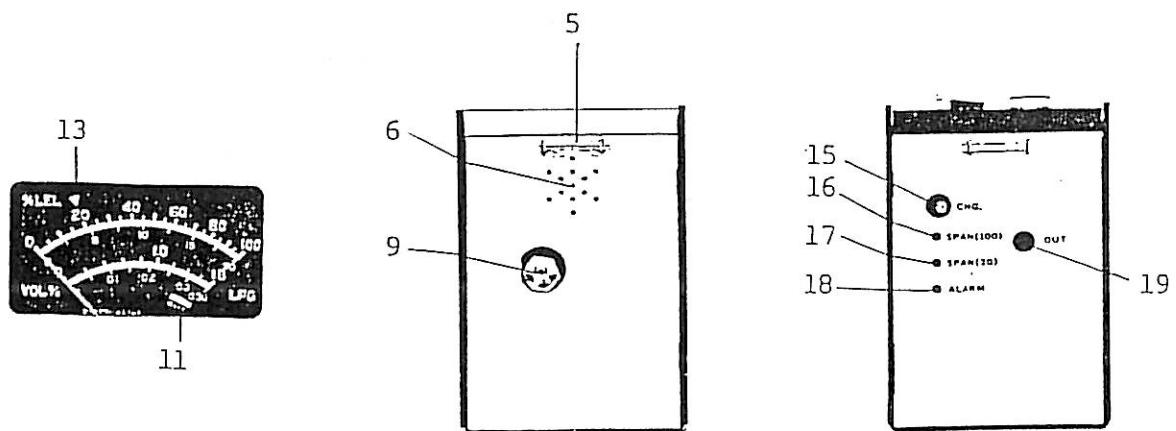
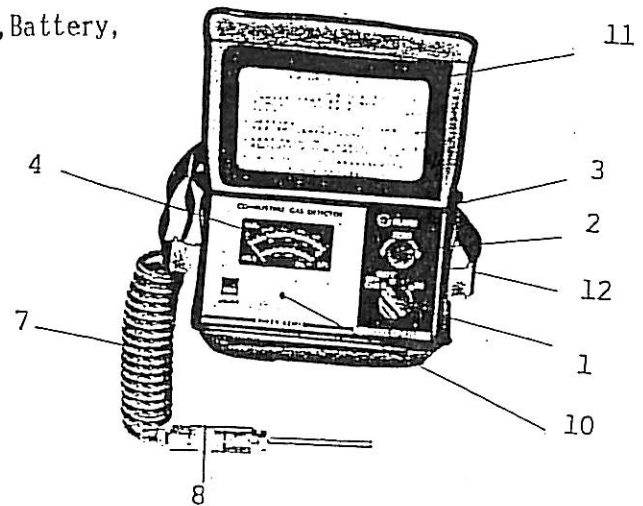
(15) Charger receptacle

(16) Calibration potentiometer (High range)

(17) Calibration potentiometer (Low range)

(18) Alarm setting potentiometer

(19) Gas outlet



#### 4. HOW TO USE MODEL GP-226/236

- 1) Couple sampling probe and hose to instrument inlet on left hand end.
- 2) Turn switch knob to "BATT." position, and indicating needle moves within the BATT zone on the meter scale.  
If it is not, battery needs recharging for full capacity.
- 3) Turn switch knob to "20" position. Turn "ZERO" adjusting knob to bring reading exactly 0. This adjustment should be done at gas free atmosphere.
- 4) Turn switch knob to "100". Close sampling probe to test point, and samples of the air under test are drawn by means of built-in pump. Watch meter carefully to observe maximum reading.  
If gas concentration under test is lower than 20% LEL, turn switch knob to "20" position and read with low range.
- 5) Presence of combustible gas above preset alarm point (20% LEL) is signalled by an audible tone and red light
- 6) After completion of test, remove probe from test space, flush with fresh air and turn off the switch knob.

#### 5. NOTICE

- 1) Do not attempt high concentration of combustible gas especially those above the LEL. This may cause damage to the sensor or tend to shorten its life.
- 2) The instrument should be put into the carrying case during on operation.
- 3) Recharging should be done at non-hazardous area.
- 4) Do not sample the water into the instrument.
- 5) Where there is danger of water being drawn into instrument, a water trap or a floating type gas sampling head with water trap (with lm hose) should be used.
- 6) Calibrate the instrument once per 6 months with standard gas.

## 6. CALIBRATION AND ADJUSTMENT

In addition to the normal operating controls found on the top panel, the following auxiliary controls are available.

### 1) Calibration

This adjustment is used to set the meter reading to the desired level while sampling a known concentration of combustible gas (standard gas). Two calibration potentiometers are located at the side of instrument.

Turn respective potentiometer clockwise to increase reading.

If reading cannot be set high enough on a calibration gas, using calibration potentiometer, the sensor should be replaced.

### 2) Alarm setting (adjustment)

Alarm setting potentiometer which is located at the side of instrument is used to set the actuation point of the alarm circuit.

With the function switch knob in "100" position, turn the "ZERO" adjusting knob upscale to bring meter to desired operating point.

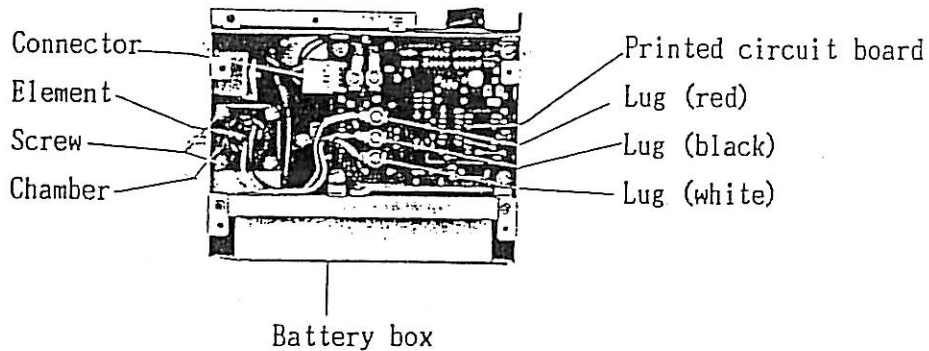
Then, turn alarm setting potentiometer until the alarm just comes on or off.

## 7. HOW TO RECHARGE

- 1) Whenever meter cannot be set within BATT zone of the scale with function switch knob in "BATT" position, internal rechargeable battery requires recharging.
  
- 2) Turn function switch knob to "OFF/CHG" position. Connect recharging plug of charger to the charger receptacle of instrument. Connect power plug of charger to the charger receptacle of AC line. Power requirement is for AC 220V, 50/60Hz or AC 117V, 50/60Hz. Don't make overcharge. Recharging should be done at safety area.

## 8. BATTERY REPLACEMENT

- 1) Remove the instrument from carrying case. Take off front and rear panel plates by taking off the eight screws.
- 2) Front view after taking off the front and back plates are as follows.



- 3) Draw out the connector from the printed circuit board. Take off three screws holding the battery box and take off the battery box. Set new battery box, front and rear panel plates as previous. When continuous operation time is less than greatly 4 hours for model GP-226 (In case of model GP-226, 3 hours) after recharging of 15 hours, battery replacement is recommendable.

## 9. SENSOR REPLACEMENT

The sensor should be replaced if zero cannot be set to zero position or if reading cannot be set high enough on a calibration gas using calibration potentiometer. To replace;

- 1) Remove the instrument from carrying case. Take off the front and back panel plates.
- 2) Take off the lug from the printed circuit board.
- 3) Take off the sensor by detaching the four screws of chamber.
- 4) Set new sensor and fix every thing as previous.

## 10. ACCESSORIES

- 1) Standard accessories
  - \* Battery charger (Power source AC 100V, AC 117V or AC 220V, 50/60Hz).....1 pce
  - \* Step-down transformer (220VAC to 100VAC.....1 pce (GP-236 only) for GP-236)
  - \* Carrying case with shoulder straps.....1 pce
  - \* Gas sampling hose (1m).....1 pce
  - \* Gas sampling probe.....1 pce
  - \* Instruction manual and test certificate.....1 copy

2) Spare parts & optional accessories

<u>Parts/code No.</u>	<u>Descriptions</u>
0904017710	1) Sampling probe
0914007240	2) Sampling hose (1m)
2661220120	3) Alarm lamp
2605201720	4) Meter complete (Please specify desired scale)
4125914020	5) Carrying case
4056-61	6) Sensor GE-4641-S2 for model GP-226
4000-47	7) Sensor GE-5740-B5 for model GP-236
4100-50	8) Pump assembly for model GP-226
4100-61	9) Pump assembly for model GP-236
2904705070	10) Ni-Cd battery pack for model GP-226
4100921600	11) Ni-Cd battery pack for model GP-236
	12) Charger/adaptor model GP-226
	a) 100VAC
	b) 170VAC
	c) 220VAC
	13) Charger/adaptor 100VAC with step-down transformer (220VAC to 100VAC) for model GP-236
0904009110	14) Water trap
	15) Floating type sampling head
	16) Standard gas with high pressure cylinder
	17) Reducing valve for item 16)
	18) Gas sampling bag(6L)

