

RIKEN For Semiconductor / LCD Manufacturing Gases

GAS DETECTION INSTRUMENTS

Toxic, Oxygen and Flammable Gas



Fixed type

- Compact smart detector
- Microprocessor operation
- Digital LED display
- Quick replacement -
No tools required for maintenance



Desk-top type



Portable type



RIKEN KEIKI

Smart Type Gas Detector

Fixed installation, Sample drawing

GD-K71D series
GD-V77D series
GD-F77D series



GD-K77DG series
(for NF₃, R-123)



GD-S77DG series
(for TEOS, TMS, TRIMS, TMOP, HMDS)



Features

- High brightness LED assures clear reading even in dark places
- Trend graph for alarm evidence
- Self-diagnostic functions
- Two alarm levels, trouble alarm plus relay outputs
- Maintenance capability by remote PC
- Various communication networks
- CE approved $\text{C} \in$

Approval : CE approved $\text{C} \in$

Model designation based on signal transmission

No sign : 4~20mA
NT : DC power line communication
DV : DeviceNet
LN : Lon Works

Specifications

Model	GD-K71D series	GD-V77D series	GD-F77D series	GD-K77DG series	GD-S77DG series
Model designation and signal transmission	GD-K71D : 4-20mA GD-K71D-NT : DC power line communication GD-K71D-DV : Device Net GD-K71D-LN : Lon Works	GD-V77D : 4-20mA GD-V77D-NT : DC power line communication GD-V77D-DV : Device Net GD-V77D-LN : Lon Works	GD-F77D : 4-20mA GD-F77D-NT : DC power line communication GD-F77D-DV : Device Net GD-F77D-LN : Lon Works	GD-K77DG : 4-20mA GD-K77DG-NT : DC power line communication GD-K77DG-DV : Device Net GD-K77DG-LN : Lon Works	GD-S77DG : 4-20mA GD-S77DG-NT : DC power line communication GD-S77DG-DV : Device Net GD-S77DG-LN : Lon Works
Detection principle	Electrochemical cell	Semiconductor method	Galvanic cell	Pyrolysis-electrochemical cell	Pyrolysis-particle detection
Target gas and detection range	Refer to the detectable gas list	H ₂ in air 0~2000ppm CH ₂ F ₂ (R-32) in air 0~2000ppm	O ₂ in air 0~25%	NF ₃ in air 0~30ppm R-123 in air 0~100ppm	TEOS in air 0~15ppm TMS in air 0~15ppm TMOP in air 0~10ppm TRIMS in air 0~15ppm HMDS in air 0~30ppm
Gas concentration display	Digital LED display, 4 digits 7 segments				
Alarm display	1 st alarm : Yellow LED light, 2 nd alarm : Red LED light, Trouble alarm : Green LED flashing				
Alarm relays	Normally-open or normally-close contact for both AL1/AL2 and trouble, rated 0.25A at 125VAC/0.5A at 24VDC (Resistive load)				
Self-diagnostic function	Trouble, low flow, system trouble, communication error.				
Operating conditions	0~40°C, 30~85%RH (Non-condensing)		0~40°C, below 90%RH (Non-condensing)	0~40°C, 30~85%RH (Non-condensing)	
Power requirement	24VDC±10%, Approx 10W			24VDC±10%, 10W and 100~120VAC or 200~240VAC, 70VA	
Applicable tubing for outer connection	O.D. ϕ 6-1t PTFE tubing (Provided with P.P. coupling)				
Applicable cable	Shielded cable, 3C, 1.25sq. (Shielded twisted one pair cable for NT series and exclusive cable for DV series)				
Dimensions and weight (Approx.)	70(W)x170(H)x153(D)mm (Except for DV) 70(W)x210(H)x153(D)mm (DV only) 2kg			GD-K77DG : 140(W)x170(H)x153(D)mm, 3.2kg GD-K77DG-DV : 140(W)x210(H)x153(D)mm, 3.5kg GD-S77DG : 140(W)x170(H)x193(D)mm, 3.2kg GD-S77DG-DV : 140(W)x210(H)x193(D)mm, 3.5kg	

Specifications subject to change without notice.

Smart Type Gas Detector

Fixed installation, Diffusion-sampling

GD-F77A
(for O₂)



GD-K82Ai
(Integrated sensor type)



Remote sensor
type w/3m cable



OX-500
(for O₂)
Approval : CE approved



Features

- High brightness LED
- Self-diagnostic functions
- Two alarm levels, trouble alarm plus relay outputs
- Various communication networks
- CE approved

Features

- Remote sensor type for duct mounting available
- Intrinsically safe design
- Digital display (LCD) for gas concentration readout
- Calibration and other sensor information stored in sensor memory
- Trend graph for alarm evidence
- Self-diagnostic functions by microprocessor
- Quick replacement sensor

Features

- Compact, wall mounting design
- Highly visible 3 color LED digital display
- Remote sensor capability
- Power cable can enter from any direction
- Stores alarm summary data (10 alarm events, time and alarm concentration)

Specifications

Model	GD-F77A series	GD-K82Ai	OX-500
Model designation and signal transmission	GD-F77A : 4-20mA GD-F77A-NT : DC power line net work	4-20mA	
Detection principle	Galvanic cell	Electrochemical cell	Galvanic cell
Target gas and detection range	O ₂ in air 0~25%	Refer to the detectable gas list	O ₂ in air 0~25%
Gas concentration display	4-digit LED, 7 segments	4-digit LCD, 7 segments	3-digit, 3 color LED
Alarm display	1 st alarm : Yellow LED light, 2 nd alarm : Red LED light, Trouble alarm : Green LED flashing	N/A	Warning : Yellow LED Alarm : Red LED Trouble : Red error message
Alarm relays	Normally-open or normally-close contact for both AL1/AL2 and trouble, rated 0.25A at 125VAC/0.5A at 24VDC (Resistive load)	N/A	Normally-open contact for both AL1/AL2, rated 1A at 125VAC (Resistive load)
Self-diagnostic function	System trouble, communication error	System trouble, sensor disconnection, non-identical sensor connection	Memory error, sensor disconnection
Operating conditions	0~40°C, 30~85%RH (Non-condensing)	0~40°C, 45~75%RH (Non-condensing)	0~40°C, below 95%RH (Non-condensing)
Power requirement	24VDC±10%		24VDC±10% or 100~120VAC
Applicable cable	Shielded cable 3C, 1.25sq		3m power cable is supplied
Structure	Wall mounting	Intrinsically safe Exia II CT4. Wall mounting	Wall mounting
Dimensions and weight (Approx.)	70(W)x170(H)x153(D)mm, 2kg	93(W)x140(H)x50(D)mm, 0.75kg	95(W)x135(H)x35(D)mm, 0.42kg

Specifications subject to change without notice.

Highly Sensitive Toxic Gas Monitor

Desk top type, Sample-drawing

FP-300



FP-260 AGZS



Features

- PPB detection for many gases
- PPB or PPM digital display
- Easy transportability
- Interference-free detection
- Easy to replace cassette tape
- Cassette tape remainder display
- Panel mounting configuration available (FP-300)
- Self-diagnostic functions
- 2 alarm levels

Detection gas and range

Target gas / chemical formula	Range	FP-260 AGZS	FP-300
Ammonia (NH ₃)	0~4ppm		○
Arsine (AsH ₃)	0~150ppb		○
Chlorine (Cl ₂)	0~1.5ppm		○
Diborane (B ₂ H ₆)	0~300ppb		○
Hydrogen Chloride (HCl)	0.25ppm~1ppm		○
	1.5ppm~8ppm		○
Hydrogen Fluoride (HF)	0~9ppm		○
Hydrogen Sulfide (H ₂ S)	0~100ppb		○
	0~10ppm		○
Octafluorocyclopentene (C ₅ F ₈)	0~5ppm	○	
Perfluorobutadiene (C ₄ F ₆)	0~5ppm	○	
Phosphine (PH ₃)	0~900ppb		○
Silane (SiH ₄)	0~15ppm		○

Specifications

Model	FP-260AGZS	FP-300
Detection principle	Pyrolysis-photoelectric photometry method	Photoelectric photometry method
Target gas and detection range	See detection gas and range	
Gas concentration display	Digital display by LCD	
Alarm display	Gas alarm : Yellow WARNING light, Red ALARM light and buzzer sound Trouble alarm : Flashing green light	
Alarm relays	Form "C" for both WARNING/ALARM and trouble, latched mode, rated 0.5A at 125VAC (Resistive load)	
Self-diagnostic function	Sensor failure, low flow, tape cut, tape end notice, tape end, tape set failure, system trouble	
Analog output	4~20mADC, non-isolated, max loop load 300Ω	
Operating conditions	5~35°C, 30~90%RH (30~60%RH for FP-260AGZS, Non-condensing)	
Power requirement	100VAC±10%, 50/60Hz	100VAC~220VAC±10%, 50/60Hz, or 24VDC±10%
Dimensions and weight (Approx.)	275(W)x220(H)x370(D)mm, 12kg	164(W)x198(H)x263(D)mm, 6.5kg for desk-top type 164(W)x164(H)x261(D)mm, 5.5kg for panel mounting.

Specifications subject to change without notice.

Infrared Single Gas Monitor

Fixed installation, Sample drawing

RI-257

(for PFC, HCFC, HFC and IPA)



RI-2000W

(for N₂O)



Features (RI-257 & RI-2000W)

- Wall mounting design for easy installation
- Negligible interference from other gases
- Self-diagnostic functions
- 4~20mA linear outputs
- Two alarm levels, trouble alarm plus relay outputs
- Audible and visual alarms
- Automatic backlight during alarm
- Automatic zero correction function

Detection gas and range of RI-257

Target Gas	Range	Alarm preset point
1) PFC-14(*)	0-10000ppm (50ppm/digit)	3000ppm
2) PFC-116(*)	0-5000ppm (25ppm/digit)	2000ppm
3) PFC-C318(*)	0-5000ppm (25ppm/digit)	2000ppm
4) HFC-23	0-10000ppm (50ppm/digit)	3000ppm
5) HFC-32	0-10000ppm (50ppm/digit)	3000ppm
6) HFC-41	0-5.000vol% (0.025vol%/digit)	2.000vol%
7) HFC-134a(Vertrel XP)	0-5000ppm (25ppm/digit)	2000ppm
8) HCFC-225	0-5000ppm (25ppm/digit)	2000ppm
9) IPA(Iso-propyl alcohol)	0-10000ppm (50ppm/digit)	3000ppm

(*)PFC means Perfluoro compound gas

Specifications

Model	RI-257	RI-2000W (Wall mounting)
Detection principle	NDIR (Non-dispersive Infrared Ray Absorption) method	
Target gas and detection range	See detection gases and ranges	N ₂ O (Nitrous oxide) 0~200ppm
Display	16-digits LCD (with backlight)	
Alarm display	Gas alarm : Yellow WARNING light, Red ALARM light Trouble alarm : Flashing green light	
Alarm preset level	See detection gas and range	50ppm (WARNING), 100ppm (ALARM)
Alarm relays	Normally-open (standard) or normally-close (optional) contact for both WARNING/ALARM and trouble, rated 0.1mA~0.3A at 125VAC (Resistive load)	
Self-diagnostic function	Lamp trouble, sensor trouble, heater trouble, low flow, fan stop, system trouble	
Analog output	4~20mADC, linear, non-isolated sourcing signal, max loop load 300Ω	
Operating conditions	0~40°C, 30~90%RH (Non-condensing)	
Power requirement	100VAC, 117VAC or 220VAC±10%, 50/60Hz	100VAC or 220VAC±10%, 50/60Hz
Power consumption	Max. 50VA	Max. 400VA
Dimensions and weigh (Approx.)	180(W)x355(H)x97(D)mm, 3.8kg	350(W)x440(H)x160(D)mm, 7kg

Specifications subject to change without notice.

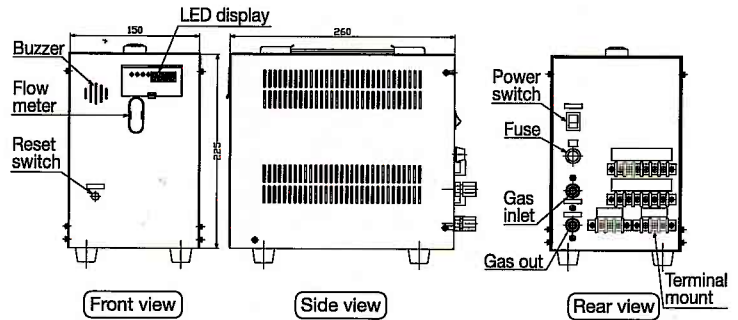
Smart Type Gas Detector

Desk top-type, Sample drawing

EC-777
EC-777DG
(for NF₃)

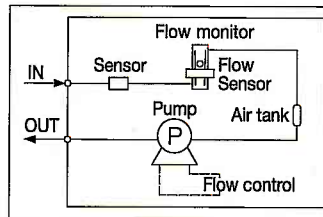


Dimensions

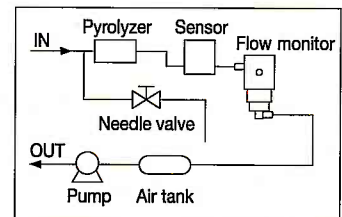


Block diagram

EC-777



EC-777DG



Features

- Easy transportability
- Digital display(LED) for gas concentration readout
- Calibration and other sensor information stored in sensor memory
- Trend graph for alarm evidence
- Self-diagnostic functions by microprocessor
- Easy replacement of pump and sensor (less than one minute)
- Two alarm levels, trouble alarm, plus relay outputs
- Maintenance capability by remote PC


Specifications

Model	EC-777	EC-777 DG
Detection principle	Electrochemical cell	Pyrolysis-electrochemical cell
Target gas and detection range	Same as for GD-K71D (Refer to the detectable gas list)	NF ₃ in air, 0~30ppm
Gas concentration display	4-digit LED, 7 segments	
Outputs	Both 4~20mA DC (max. loop load 300Ω) and 0~10mV DC	
Alarm display	1 st alarm : Yellow LED light, 2 nd alarm : Red LED light, Trouble alarm : Green LED flashing	
Alarm relays	Form "C" for each alarm	
Self-diagnostic function	Low flow, system trouble, sensor disconnection	
Operating conditions	0~40°C, 30~85%RH (Non-condensing)	0~40°C, 45~75%RH (Non-condensing)
Power requirement	100VAC, 115VAC or 220VAC±10%	
Power consumption	Approx 15VA	Approx 100VA
Applicable tubing for outer connection	O.D. φ 6-1t PTFE tubing (Provided with P.P. coupling)	
Dimensions and weight (Approx.)	150(W)x225(H)x250(D)mm, 6kg	150(W)x225(H)x250(D)mm, 8kg

Specifications subject to change without notice.

Portable Toxic Gas Monitor

SP-205ASC Leak Tester


Approval : CE approved 



Features

- Ideal for trace gas leak check
- Compact, light weight
- Notify by intermittent buzzer and LED light according to detection level

SC-90 Single Gas Monitor

Approval : CE approved 



Features

- LCD digital readout
- Audible/visual alarms
- Sample drawing system
- Self-diagnostic function
- Peak hold and average reading
- Automatic backlight in dark places

Specifications

Model	SP-205ASC				
Detection principle	Catalytic/semiconductor combination Sample-drawing with built-in pump				
Detection gas	Phosphine (PH ₃)	Arsine (AsH ₃)	Diborane (B ₂ H ₆)	Silane (SiH ₄)	Hydrogen (H ₂)
Detectable concentration	0.3 ppm	0.2 ppm	0.1 ppm	0.5 ppm	1.0 ppm
Alarm indication	Intermittent buzzer and LED light				
Power source	Size "AA" Alkaline battery x 4pcs Continuous operating time approx. 7 hours at 20°C				
Operating temperature	0~40°C				
Dimensions and weight (Approx.)	68(W)x155(H)x32(D)mm, 400g				

Specifications subject to change without notice.

Specifications

Model	SC-90
Detection principle	Electrochemical cell
Detection gas and range	Refer to the list on back page
Display	Continuous gas reading, average/peak reading and status
Alarm	Buzzer sound and red LED flashing
Operating conditions	-10~+40°C, 30~90%R.H. (Non-condensing)
Power source	Alkaline, size C batteries (standard) x 4pcs. : Approx. 20 hours Ni-Cd batteries (option) x 4pcs. : Approx. 10 hours
Dimensions and weight (Approx.)	220(W)x80(H)x142(D)mm, 1.9kg

Specifications subject to change without notice.

GASES DETECTABLE WITH RIKEN KEIKI'S ELECTROCHEMICAL SENSORS

Target gases	ACGIH TLV-TWA	Detection range*	Types of detector head
Ammonia	NH ₃	25ppm	0 - 75ppm GD-K71D,-K82Ai, SC-90
Antimony Pentachloride	SbCl ₅		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Arsenic Pentachloride	AsCl ₅		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Arsenic Trichloride	AsCl ₃		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Arsenic Pentafluoride	AsF ₅		HF 0 - 9ppm GD-K71D, SC-90
Arsenic Trifluoride	AsF ₃		HF 0 - 9ppm GD-K71D, SC-90
Arsine	AsH ₃	0.05ppm	0 - 1ppm GD-K71D,-K82Ai
			0 - 0.2ppm GD-K71D,-K82Ai, SC-90
Boron Tribromide	BBr ₃		HBr 0 - 6ppm GD-K71D, SC-90
Boron Trichloride	BCl ₃		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Boron Trifluoride	BF ₃		HF 0 - 9ppm GD-K71D, SC-90
Bromine	Br ₂	0.1 ppm	0 - 1ppm GD-K71D, SC-90
Carbon Monoxide	CO	25ppm	0 - 75ppm GD-K71D,-K82Ai, SC-90
Chlorine	Cl ₂	0.5ppm	0 - 1.5ppm GD-K71D,-K82Ai, SC-90
Chlorine Trifluoride	ClF ₃	0.1ppm(C)	0 - 0.6ppm GD-K71D, SC-90
Diethyl Amine (DEA)	(CH ₃ CH ₂) ₂ NH	5ppm	0 - 15ppm GD-K71D
Dimethyl Amine (DMA)	(CH ₃) ₂ NH	5ppm	0 - 15ppm GD-K71D
Diborane	B ₂ H ₆	0.1 ppm	0 - 0.3ppm GD-K71D, SC-90
Dichlorosilane	SiH ₂ Cl ₂		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Disilane	Si ₂ H ₆		0 - 15ppm GD-K71D,-K82Ai
Fluorine	F ₂	1 ppm	0 - 3ppm GD-K71D, SC-90
Germane	GeH ₄	0.2ppm	0 - 0.8ppm GD-K71D, SC-90
Germanium Tetrachloride	GeCl ₄		HCl 0 - 15ppm GD-K71D, SC-90
Hydrogen Bromide	HBr	2ppm(C)	0 - 6ppm GD-K71D, SC-90
Hydrogen Chloride	HCl	2ppm(C)	0 - 15ppm GD-K71D,-K82Ai, SC-90
Hydrogen Cyanide	HCN	4.7ppm(C)	0 - 15ppm GD-K71D, SC-90
Hydrogen Fluoride	HF	2ppm(C)	0 - 9ppm GD-K71D, SC-90
Hydrogen Iodine	HI		0 - 5ppm GD-K71D, SC-90
Hydrogen Peroxide	H ₂ O ₂	1 ppm	0 - 3ppm GD-K71D
Hydrogen Selenide	H ₂ Se	0.05ppm	0 - 0.2ppm GD-K71D, SC-90
Hydrogen Sulfide	H ₂ S	10ppm	0 - 30ppm GD-K71D,-K82Ai, SC-90
Molybdenum Hexafluoride	MoF ₆		HF 0 - 9ppm GD-K71D, SC-90
Molybdenum Pentachloride	MoCl ₅		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Monomethyl Amine (MMA)	CH ₃ NH ₂	5ppm	0 - 15ppm GD-K71D
Nitric Acid	HNO ₃	2 ppm	0 - 20ppm GD-K71D
Nitric Oxide	NO	25ppm	0 - 100ppm GD-K71D, SC-90
Nitrogen Dioxide	NO ₂	3ppm	0 - 15ppm GD-K71D, SC-90
Nitrogen Trifluoride	NF ₃	10ppm	0 - 30ppm GD-K77DG
Ozone	O ₃	0.1ppm	0 - 0.6ppm GD-K71D,-K82Ai, SC-90
Phosphine	PH ₃	0.3ppm	0 - 1ppm GD-K71D,-K82Ai, SC-90
Phosphorus Oxychloride	POCl ₃		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Phosphorus Pentachloride	PCl ₅		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Phosphorus Pentafluoride	PF ₅		HF 0 - 9ppm GD-K71D, SC-90
Phosphorus Trichloride	PCl ₃		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Silane	SiH ₄	5ppm	0 - 15ppm GD-K71D,-K82Ai, SC-90
Silicone Tetrachloride	SiCl ₄		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Silicone Tetrafluoride	SiF ₄		HF 0 - 9ppm GD-K71D, SC-90
Sulfur Tetrafluoride	SF ₄		HF 0 - 9ppm GD-K71D, SC-90
Tin Tetrachloride	SnCl ₄		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Trichlorosilane	SiHCl ₃		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Trimethyl Amine (TMA)	(CH ₃) ₃ N	5 ppm	0 - 15ppm GD-K71D
Tungsten Hexachloride	WCl ₆		HCl 0 - 15ppm GD-K71D,-K82Ai, SC-90
Tungsten Hexafluoride	WF ₆		HF 0 - 9ppm GD-K71D, SC-90

Specifications subject to change without notice.

- 1) For gases and/or detection ranges not listed above, contact us or our nearest agent.
- 2) Refer to the separate catalog spec of SC-90 for its measuring range in details.

★ Distributed by:



A9812



ISO 9001:2000

33248 Central Avenue Union City, CA 94587
 Toll Free: (800) 754-5165 • Phone: (510) 441-5656 • Fax: (510) 441-5650
 mail4rki@rkiinstruments.com • www.rkiinstruments.com