



**FOR SEMICONDUCTOR, LCD & SOLAR CELL FACTORIES**

# INTELLIGENT GAS DETECTOR

## MODEL GD-70D series



- Common platform (Main/Sensor/Pump) for all detection methods
- Universal main unit (All sensor types)
- Multifunctional sensor unit (New Intelligent Sensor)
- No internal tubing (Main unit) /No coil (Pump unit)
- Front access/No tool required/Easy replacement of sensor and pump
- Large size LCD (Easily viewable)
- Minimal maintenance cost through enhanced troubleshooting firmware functions
- Smallest mounting space
- Simple upgrade from old units
- Environmentally friendly
- Global standard

**RIKEN KEIKI Co.,Ltd.**

# GASES DETECTED WITH RIKEN KEIKI's ELECTROCHEMICAL SENSOR UNIT "ESU"

Gases detected		ACGIH TLV-TWA	Detection range
Ammonia	NH <sub>3</sub>	25ppm	0-75ppm
Arsine	AsH <sub>3</sub>	5ppb	0-0.2ppm
Boron Trichloride	BCL <sub>3</sub>	(HCL 2ppm) (C)	HCL 0-6ppm or 0-15ppm
Boron Trifluoride	BF <sub>3</sub>	(HF 2ppm) (C)	HF 0-9ppm
Bromine	Br <sub>2</sub>	0.1ppm	0-1ppm
Carbon Monoxide	CO	25ppm	0-75ppm, 0-150ppm or 0-300ppm
Chlorine	CL <sub>2</sub>	0.1ppm	0-1.5ppm or 0-3.0ppm
Chlorine Trifluoride	CLF <sub>3</sub>	0.1ppm (C)	0-0.3ppm or 0-0.6ppm
Diborane	B <sub>2</sub> H <sub>6</sub>	0.1ppm	0-0.3ppm
Dichlorosilane	SiH <sub>2</sub> CL <sub>2</sub>	(HCL 2ppm) (C)	HCL 0-6ppm or 0-15ppm
Diethylamine	DEA	5ppm	0-15ppm
Difluoromethane	CH <sub>2</sub> F <sub>2</sub>	-	0-60ppm
Dimethylamine	DMA	5ppm	0-15ppm
Disilane	Si <sub>2</sub> H <sub>6</sub>	-	0-15ppm
Fluorine	F <sub>2</sub>	1ppm	0-3ppm
Germane	GeH <sub>4</sub>	0.2ppm	0-0.8ppm
Hydrogen	H <sub>2</sub>	-	0-1000ppm or 0-2000ppm
Hydrogen Bromide	HBr	2ppm (C)	0-6ppm or 0-9ppm
Hydrogen Chloride	HCL	2ppm (C)	0-6ppm or 0-15ppm
Hydrogen Fluoride	HF	0.5ppm	0-9ppm
Hydrogen Selenide	H <sub>2</sub> Se	0.05ppm	0-0.2ppm
Hydrogen Sulfide	H <sub>2</sub> S	1ppm	0-1ppm or 0-30ppm
Nitric Oxide	NO	25ppm	0-100ppm
Nitrogen Dioxide	NO <sub>2</sub>	0.2ppm	0-9ppm or 0-15ppm
Nitrogen Trifluoride	NF <sub>3</sub>	10ppm	0-30ppm
Ozone	O <sub>3</sub>	0.1ppm	0-0.6ppm
Phosphine	PH <sub>3</sub>	0.05ppm	0-1ppm
Phosphorus Oxychloride	POCL <sub>3</sub>	0.1ppm	HCL 0-6ppm or 0-15ppm
Silane	SiH <sub>4</sub>	5ppm	0-15ppm
Silicon Tetrachloride	SiCL <sub>4</sub>	(HCL 2ppm) (C)	HCL 0-6ppm or 0-15ppm
Silicon Tetrafluoride	SiF <sub>4</sub>	(HF 2ppm) (C)	HF 0-9ppm
Sulfur Dioxide	SO <sub>2</sub>	0.25ppm (STEL)	0-6ppm
Titanium Tetrachloride	TiCL <sub>4</sub>	(HCL 2ppm) (C)	HCL 0-6ppm or 0-15ppm
Trichlorosilane	SiHCL <sub>3</sub>	(HCL 2ppm) (C)	HCL 0-6ppm or 0-15ppm
Trimethylamine	TMA	5ppm	0-15ppm
Tungsten Hexafluoride	WF <sub>6</sub>	(HF 2ppm) (C)	HF 0-9ppm

For gases and detection range not listed above, contact RIKEN KEIKI.

Specifications subject to change without notice.

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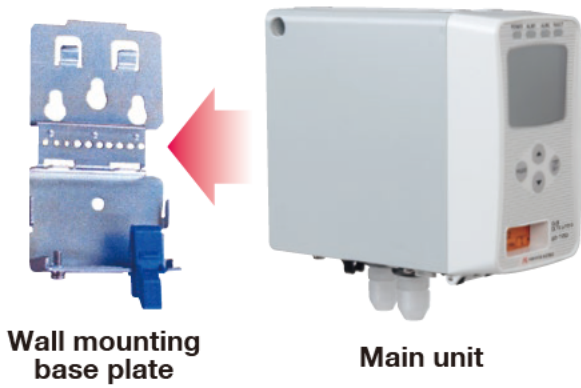
E-mail : [intdept@rikenkeiki.co.jp](mailto:intdept@rikenkeiki.co.jp)

Web site : <http://www.rikenkeiki.co.jp/english>

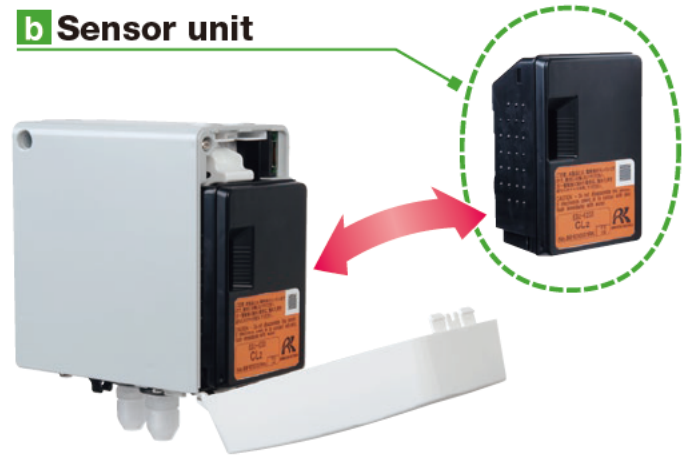
★ Distributed by:

## ▶ NO NEED FOR SPECIAL TOOLS

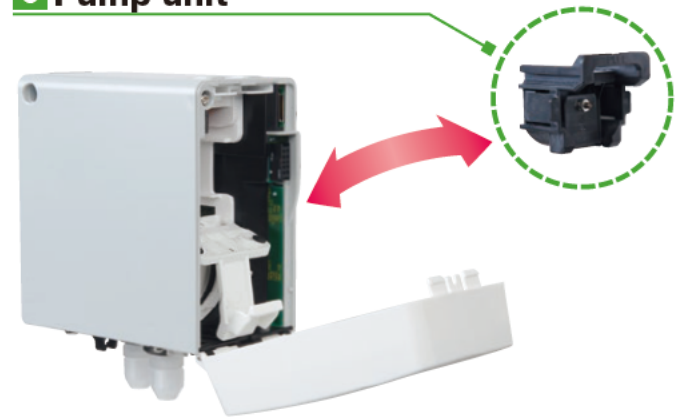
### a Main unit



### b Sensor unit



### c Pump unit



## ▶ SIMPLE UPGRADE FROM OLD UNITS TO OTHER COMMUNICATION METHODS (4-20mA or POE)

### Dimensions for installation

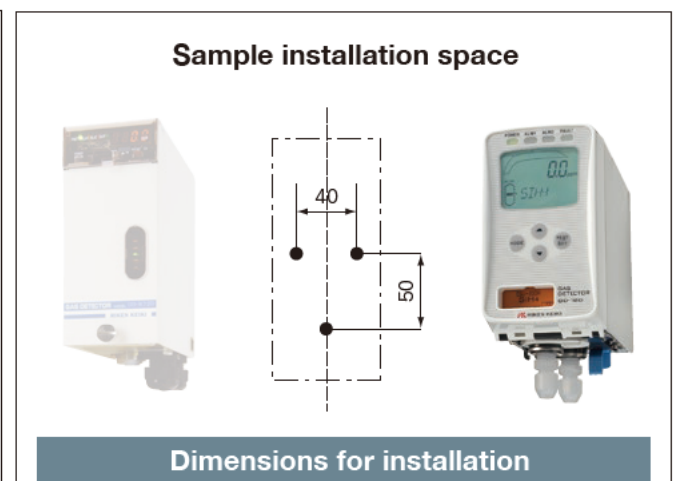
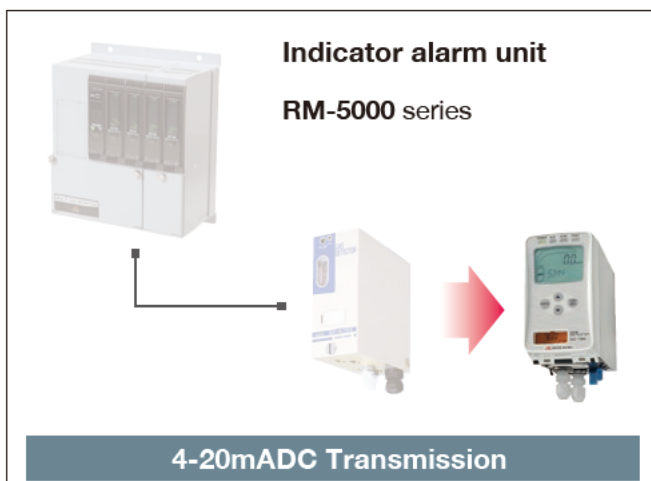
The Installation space for GD-70D is the same as our old units.

### Power requirements

Power requirements for GD-70D is DC24V, same as our old units.

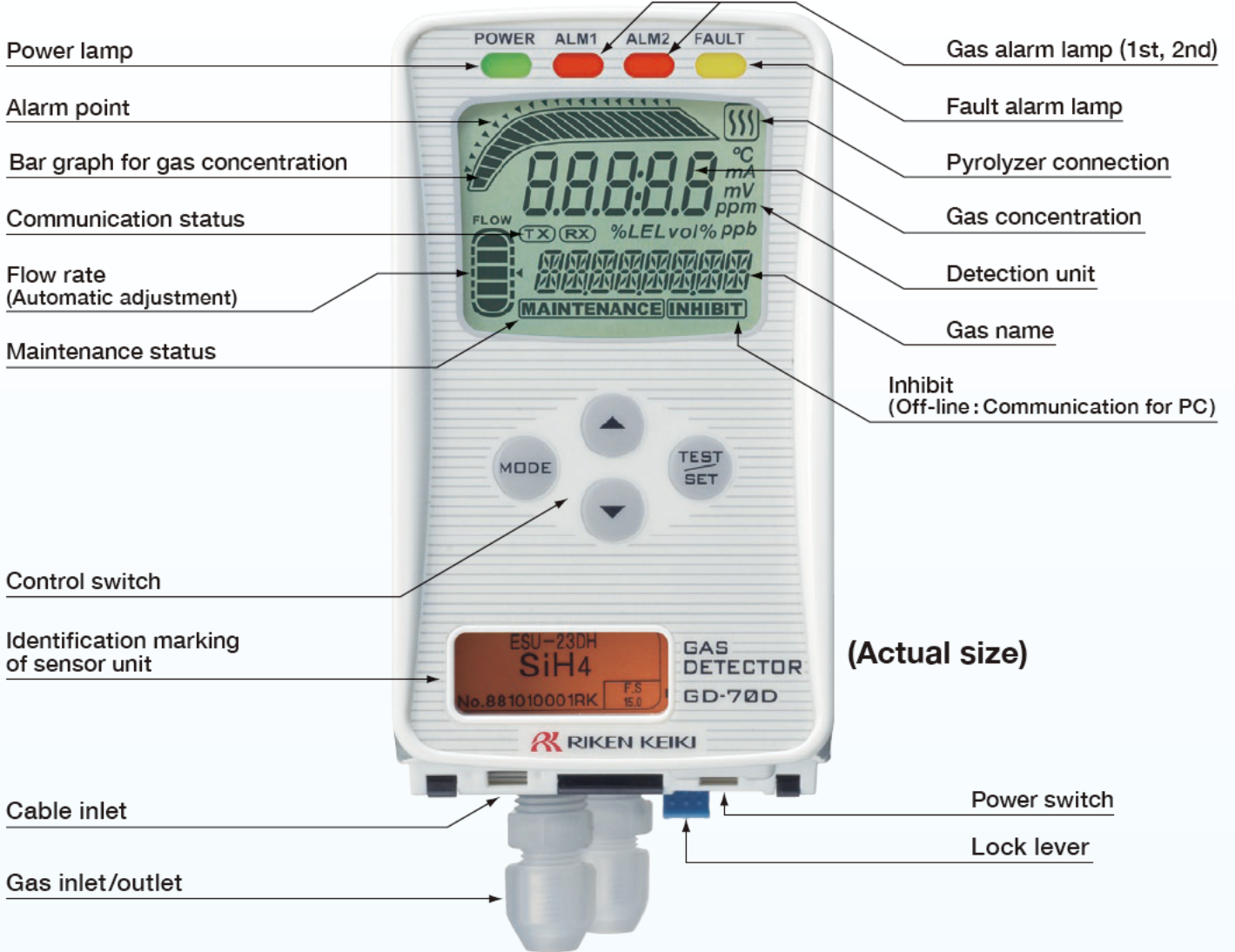
### Cable

The cable for the GD-70D is the same as one used for existing Riken units. You can use the existing cable installed for connecting to the GD-70D.



# ▶ COMPONENT DESIGNATIONS

## Front view

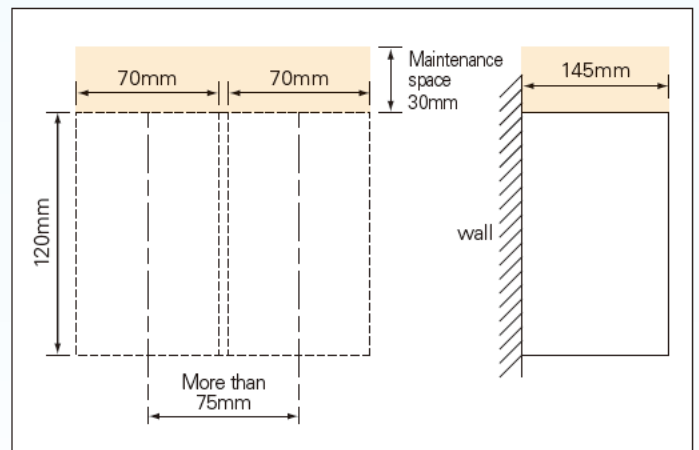


## Front view



# ▶ INSTALLATION SPACE

Installation space can be saved.









# SPECIFICATIONS

## Main unit

Model	GD-70D	GD-70D-EA
Communication	4-20mADC	4-20mADC/POE
Detection principle	Several kinds of detection principle available. It depends upon measuring gas and range.	
Sampling method	Sample-drawing (Auto-adjustment of flow rate) 0.5ℓ/min ±10%	
Display	Large LCD display (White back light) Gas concentration Flow rate, Communication status, Pyrolyzer status, Gas name Error code, Content of error	
Display (Alarm lamp)	1 <sup>st</sup> alarm : Red 2 <sup>nd</sup> alarm : Red Fault alarm : Yellow	
External output	1 <sup>st</sup> alarm/2 <sup>nd</sup> alarm/Trouble alarm : Relay contact output for each alarm	
Self-diagnosis	System failure, Sensor failure, Flow failure, Communication failure (EA)	
Data logging function	Event history, Alarm history, Calibration history Alarm trend (180 sec before/after 1 <sup>st</sup> alarm)	
Operating temp. & humidity	0-40°C, 30-70%RH (non-condensing)	
Operational settings	All operational settings are user adjustable through front panel	
Power requirements	DC24V±10%, approx 1.5W (Max 4W including sensor unit) Note : Approx 2.5W (Max 5W) with SGU sensor unit	DC24V±10% / POE
Dimensions	70(W)×120(H)×145(D) mm (2.8"W×4.7"H×5.7"D)	
Weight	Approx. 0.9kg (2.0lbs), including sensor unit	
Mounting	Wall-mounting base plate by 2 or 3 screws	
Sampling tubing	4×6mm PTFE tubing recommended. PP half union fittings provided as standard accessories	
Gland	Cable type varies depending on communication method (Cable gland optional)	

Specifications subject to change without notice.

## Sensor unit

Model	ESU	SGU	OSU	SSU
Detection principle	Electro-chemical cell	Semiconductor	Galvanic cell	Pyrolysis-particle
Gas detected and detection range	Refer to the table of the gases detected list on back page	0-2000ppm H <sub>2</sub> or CH <sub>4</sub> in air and others	0-25% O <sub>2</sub> in air	0-15ppm TEOS in air
Identification marking	 <p>ESU-231H PH<sub>3</sub> 423015001ES 1.00 RIKEN KEIKI</p>	 <p>SGU-8541 H<sub>2</sub> 860880002RN 2000 RIKEN KEIKI</p>	 <p>OSU-8078 O<sub>2</sub> 823010000ET 25.0 RIKEN KEIKI</p>	 <p>放射性 Radioactive 特定放射線障害物 内蔵 L型輸送容器 2174-0744 東京都建設局 型式 2-7-0 TEL: 03-5366-1112 環境省特許株式会社</p> <p>ご注意 管理下に置かれていない本センサを見つけた場合 無事にご連絡してください。 -本センサを分解しないでください。 -不意になった場合は、指定された 方法で弊社に連絡してください。 Ionization Chamber CAUTION Do not disassemble. When sensor is removed from service, return intact to Riken Keiki for disposal. 熱触手伝導センサ: 85U-1925 241-Am 37kBq 放射性 L型輸送容器 823010001R1 RIKEN KEIKI</p>
Self-diagnosis function	Sensor trouble, System failure			
Data logging function	Event history, Alarm history, Calibration history Alarm trend (60 sec before/after 1 <sup>st</sup> alarm)			

For other gases and/or detection range, contact us or our nearest agent.

Specifications subject to change without notice.

## Pyrolyzer unit

<b>Model</b>	<b>PLU-70</b>
<b>Gas detected</b>	NF <sub>3</sub> /TEOS etc in air
<b>Usage</b>	Used by connecting to "GD-70D" (Main unit)
<b>Power lamp</b>	LED (Green color) Normal : Light-on Warming-up : Flashing at every 1 sec interval Trouble : Flashing at every 0.2 sec interval
<b>Self-diagnosis function</b>	Pyrolyser unit trouble Fan trouble System trouble
<b>Operating temp. &amp; humidity</b>	0-40°C, 30-70%RH (non-condensing)
<b>Operational Settings</b>	All operational settings are user adjustable through front panel
<b>Power requirements</b>	DC24V±10%, approx. 25W (MAX)
<b>Dimensions</b>	70(W)×120(H)×145(D) mm (2.8"W×4.7"H×5.7"D)
<b>Weight</b>	Approx. 1.2kg (2.6lbs)
<b>Mounting</b>	Wall-mounting base plate by 2 or 3 screws
<b>Sampling Tubing</b>	4×6mm PTFE tubing recommended. PP half union fittings provided as standard accessories
<b>Gland</b>	1.25sq 2 core cable for power supply DC24V (Cable gland optional)

Specifications subject to change without notice.

## Signal converter unit

<b>Model</b>	<b>SD-70SC-ET</b>
<b>Application</b>	For POE
<b>Signal input</b>	4-20mA Linear
<b>Signal output</b>	POE
<b>Display</b>	Large LCD Display (White back light) Gas concentration : Digital & bar chart display Gas detected, Error code, Content of error
<b>Alarm</b>	1 <sup>st</sup> alarm : Red 2 <sup>nd</sup> alarm : Red Trouble alarm : Yellow
<b>External output</b>	1 <sup>st</sup> alarm/2 <sup>nd</sup> alarm/Trouble alarm : Each relay contract output
<b>Self-diagnosis function</b>	Analog line trouble System trouble
<b>Data logging function</b>	Several types of event history recorded Alarm trend (180sec before/after 1 <sup>st</sup> alarm)
<b>Operating temp. &amp; humidity</b>	0-40°C, 30-70%RH (non-condensing)
<b>Operational settings</b>	All operational settings are user adjustable through front panel
<b>Power requirements</b>	DC24V±10% approx. 1.5W (Max. 4W)
<b>Dimensions</b>	70(W)×120(H)×145(D) mm (2.8"W×4.7"H×5.7"D)
<b>Weight</b>	Approx. 0.9kg (2.0lbs)
<b>Mounting</b>	Wall-mounting base plate by 2 or 3 screws
<b>Gland</b>	Cable type varies depending on communication method (Cable gland optional)

Specifications subject to change without notice.