

# INTELLIGENT GAS DETECTOR

Gas Detection for Life

GD-70D Series



## Features

- Monitor combustibles, O<sub>2</sub>, and a wide range of toxics
- Plug and play smart sensors retain calibration and sensor data
- Common platform (Main unit / 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)
- Front access, no tool required, easy sensor and pump replacement
- Large size LCD screen
- Various communication methods available (4-20mA, NT and PoE)
- Minimal maintenance cost through enhanced troubleshooting firmware functions
- Small mounting space
- Environmentally friendly
- Wide variety of sensors available

The new Model GD-70D smart gas detection transmitter series sets a new standard for performance, flexibility, and versatility. The GD-70D sample-draw transmitter offers an array of sensor technologies unmatched in the industry, including unique offerings, such as our hydrogen-specific or LEL versions.

The long life high capacity pump and wide variety of sensing elements are replaceable in a few seconds, with no tools required! The smart sensors retain all calibration and sensor-specific data in non-volatile memory, so sensors can be hot-swapped in the field with no programming required. The sensors also retain calibration information, which means they can be conveniently calibrated separate from the transmitter, avoiding transport of calibration gases to the field location. The GD-70D firmware automatically corrects for long-term zero and span “drift” minimizing maintenance and maximizing reliability.

The GD-70D can be used as a stand-alone device, offering a number of communication protocols to existing PLC systems, or can be integrated with RIKI’s Beacon series of single and multi-channel controllers.

All GD-70D transmitters include a large, easy to read integral LCD display, tri-color bar graph for visual notification of alarm status, programmable low and high alarm relays, and fault relay. Pump flow is self-tuning for maintenance-free operation. Because all GD-70D base units are identical, sensors can be interchanged with no programming or tools required, resulting in maximum flexibility to the user.



RIKEN KEIKI

MAIN UNIT			
Model	GD-70D	GD-70D-NT	GD-70D-ET
Communication	4-20mA DC	DC power line communication	PoE method
Detection principle	Different type depending upon sensor unit and detectable gas (see table)		
Sampling method	Sample drawing types (auto-adjustment of flow rate) 0.5 / min +/-10%		
Display	<ul style="list-style-type: none"> <li>Large LCD display (white backlight)</li> <li>Flow rate, communication status, pyrolyzer status, gas detected</li> </ul>		<ul style="list-style-type: none"> <li>Gas concentration</li> <li>Error code, content of error</li> </ul>
Gas alarms	Two alarm levels: 1st alarm - Red 2nd alarm - Red Fault alarm - Yellow		
External output	1st, 2nd, and trouble alarms: Relay contact output for each alarm		
Self diagnostic function	System failure, sensor failure, flow failure, communication error NT / ET / Analog		
Datalogging	Event history, alarm history, calibration history. Alarm trend (180 sec before / after 1st alarm)		
Operation temp. & humidity	0 ~ 40°C, 30 ~ 70% RH (non-condensing)		
Operating settings	All operational settings are user adjustable through front panel		
Power requirements	DC 24V+/- 10%, approx 1.5W (Max 4W including sensor unit) Note: Approx. 2.5W (Max 5W) with SGU sensor unit		PoE standard arrangement
Dimensions	2.8"W x 4.7"H x 5.9"D (70W x 120H x 150Dmm)		
Weight	Approx. 0.9kg (2.0lbs), including sensor unit		
Mounting	Wall-mounting base plate by 2 or 3 screws		
Sampling tubing	4 x 6mm PTFE tubing recommended. Tube fittings provided as standard accessories		
Bushing	Cable type varies depending on communication method (Cable bushing optional)		

SENSOR UNIT					
Model	ESU	SGU	SSU	OSU	NCU
Detection Principle	Electrochemical cell	Semiconductor	Pyrolysis-particle	Galvanic cell	Catalytic combustion
Gas detected and detection range	Refer to list of detectable gases	0-2000ppm H <sub>2</sub> , CH <sub>4</sub> , or CH <sub>2</sub> F <sub>2</sub> (R-32) in air and others	0-15ppm TEOS in air	0-25% O <sub>2</sub> in air	0-100% LEL H <sub>2</sub> , CH <sub>4</sub> , and others
Self diagnosis function	Sensor trouble, system failure				
Date logging function	Event history, alarm history, calibration history, Alarm trend (60 sec. before/after 1st alarm)				

PYROLYZER UNIT	
Model	PLU-70
Application	NF <sub>3</sub> / TEOS gases detected in air
Usage	Used by connecting to "GD-70D" (Main unit)
Power Lamp	LED (Green color) Warming-up: Flashing at every 1 sec interval Normal: Light-on Trouble: Flashing at every 0.2 sec interval
Self-diagnostic function	Pyrolyser unit trouble                      Fan trouble                      System trouble
Operating temp. & humidity	0-40° C, 30-70% RH (non-condensing)
Operational settings	All operational settings are user adjustable through front panel
Power requirements	DC 24V+/- 10%, approx. 25W (max)
Dimensions	2.8"W x 4.7"H x 5.9"D (70W x 120H x 150Dmm)
Weight	Approx. 1.2kg (2.6lbs)
Mounting	Wall-mounting base plate by 2 or 3 screws
Sampling	4x6mm PTFE tubing recommended. Tube fittings provided as standard accessories
Bushing	1.25sq 2 core cable for power supply DC24V (Cable bushing optional)

ESU Gas Detected	ACGIH TLV-TWA	Detection Range
Ammonia NH <sub>3</sub>	25 ppm	75 ppm
Arsine AsH <sub>3</sub>	5 ppb	0.2 ppm
Bromine BR <sub>2</sub>	0.1 ppm	1 ppm
Carbon Monoxide CO	25 ppm	75 ppm * 150 ppm 300 ppm *
Chlorine Cl <sub>2</sub>	0.5 ppm	3 ppm 1.5 ppm *
Chlorine Trifluoride ClF <sub>3</sub>	(C) 0.1 ppm	0.6 ppm
Diborane B <sub>2</sub> H <sub>6</sub>	0.1 ppm	0.3 ppm
Disilane Si <sub>2</sub> H <sub>6</sub>	(C) 2 ppm	15 ppm
Dimethylamine (CH <sub>3</sub> ) <sub>2</sub> NH	5 ppm	15 ppm
Diethylamine (CH <sub>3</sub> CH <sub>2</sub> ) <sub>2</sub> NH	5 ppm	15 ppm
Fluorine F <sub>2</sub>	1 ppm	3 ppm
Germane GeH <sub>4</sub>	(C) 2 ppm	0.8 ppm
Hydrogen Bromide HBr	(C) 2 ppm	6 ppm, 9 ppm *
Hydrogen Chloride HCl	(C) 2 ppm	6 ppm, 15 ppm *
Hydrogen Fluoride HF	0.5 ppm	9 ppm, 3 ppm *
Hydrogen Selenide H <sub>2</sub> Se	0.05 ppm	0.2 ppm
Methylamine CH <sub>3</sub> NH <sub>2</sub>	5 ppm	15 ppm
Nitric Oxide NO	25 ppm	100 ppm
Nitrogen Dioxide NO <sub>2</sub>	3 ppm	15 ppm
Nitrogen Trifluoride NF <sub>3</sub>	10 ppm	30 ppm
Ozone O <sub>3</sub>	0.1 ppm	0.6 ppm
Phosphine PH <sub>3</sub>	0.3 ppm	1. ppm
Silane SiH <sub>4</sub>	5 ppm	15 ppm
Sulfur Dioxide SO <sub>2</sub>	—	6 ppm
Trimethylamine (CH <sub>3</sub> ) <sub>3</sub> N	5 ppm	15 ppm

SGU Gas Detected		ACGIH TLV-TWA	Detection Range
Methane	CH <sub>4</sub>	1,000 ppm	2,000 ppm 5,000 ppm *
Dichloroethene	C <sub>2</sub> H <sub>2</sub> CL <sub>2</sub>	200 ppm	600 ppm
Isopropyl Alcohol	CH <sub>3</sub> CHOHCH <sub>3</sub>	200 ppm	2,000 ppm
Propane	CH <sub>3</sub> H <sub>8</sub>	1,000 ppm	2,000 ppm 5,000 ppm *
Methyl Alcohol	CH <sub>3</sub> OH	200 ppm	1,000 ppm 2,000 ppm *
Hydrogen	H <sub>2</sub>	—	500 ppm * 1,000 ppm * 2,000 ppm
Difluoromethane	R-32	1,000 ppm	2,000 ppm
Fluoro Methane	R-41	1,000 ppm	2,000 ppm
Carbonyl Sulfide	COS	—	2,000 ppm
Dichloromethane	CH <sub>2</sub> CL <sub>2</sub>	50 ppm	2,000 ppm
NCU Gas Detected		LEL % Vol. Lev-els	Detection Range
Methane	CH <sub>4</sub>	5% Vol.	100% LEL 2.0 Vol.
Isobutane	i-C <sub>4</sub> H <sub>10</sub>	1.8% Vol.	100% LEL
Hydrogen	H <sub>2</sub>	4% Vol.	2.0 Vol.
SSU Gas Detected		ACGIH TLV-TWA	Detection Range
Trimethyl Silane	TMS	—	15 ppm
Trimethoxysilane	TRIMOS	—	15 ppm
Tetraethyl Orthosilicate	TEOS	10 ppm	15 ppm
OSU Gas Detected		ACGIH TLV-TWA	Detection Range
Oxygen	O <sub>2</sub>	—	25% Vol.

\* Special order for non-standard range

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