

GX-6100 Multi-Gas Detector

Compact. Powerful. Versatile.

The GX-6100 is Riken Keiki's next-generation portable gas detector, purpose-built for maritime and industrial applications where safety, reliability, and flexibility are critical.

Building on the proven performance of the GX-6000, the GX-6100 introduces significant upgrades including extended battery life, expanded sensor combinations, and improved usability. Whether for confined space entry, leak detection, or benzene-specific monitoring, the GX-6100 delivers robust protection in a compact, rugged design.

Examples of configurations available for GX-6100:

- GX-6100 PID 10.6eV ppm only, Li-Ion
- GX-6100 PID Benzene 10.0eV only, Li-Ion
- GX-6100 NH₃ only, Li-Ion
- GX-6100 CL₂ only (0-10ppm), Li-Ion
- GX-6100 NH₃ + PID 10.6eV ppm, Li-Ion
- GX-6100 CH₄ LEL/O₂/H₂S/CO/CO₂, Li-Ion
- GX-6100 CH₄ LEL/O₂/H₂S/CO/PID 10.6 (ppm), Li-Ion
- GX-6100 CH₄ LEL/O₂/H₂S/CO + NH₃, Li-Ion
- GX-6100 CH₄ LEL/O₂/CO/H₂S + PID 10.0 (Benzene), Li-Ion
- GX-6100 CH₄ LEL/O₂/CO/H₂S + PID 10.0eV & PID 10.6eV ppm, Li-Ion

Features

- Detects up to 6 gases simultaneously: Standard 4-gas (LEL, O₂, CO, H₂S) + 2 smart sensor options (VOC, CO₂, or toxics)
- Up to 3-year sensor warranty
- Extended battery life - Up to 28 hours continuous operation
- Combustible gas detection from ppm to vol% in one unit
- Benzene-specific detection mode – also for ppb range
- VOC library with over 600 compounds
- Bluetooth® connectivity - Enables real-time alert sharing and data management
- IP67-rated housing with impact-resistant rubber boot
- Intrinsically safe (ATEX / IECEx certified)
- Man-down and panic alarms for enhanced worker safety



Sensor specifications

Combustible gas sensor ¹ R sensor (new ceramic type)

Detection target gas		Methane (CH ₄)		Isobutane (i-C ₄ H ₁₀)	
Sensor model		NCR-6309			
Explosion-proof specifications		IECEX/ATEX	Japan Ex	IECEX/ATEX	Japan Ex
Display range		0 – 100 %LEL		0 – 100 %LEL	
Detection range		0 – 100 %LEL		0 – 100 %LEL	
Resolution		1 %LEL		1 %LEL	
Alarm setpoints	First alarm	10 %LEL		10 %LEL	
	Second alarm	25 %LEL	50 %LEL	25 %LEL	50 %LEL
	Third alarm	50 %LEL		50 %LEL	
	TWA	—		—	
	STEL	—		—	
Operating temperature range		-20 to +50 °C		-20 to +50 °C	
Operating humidity range		10 to 90 %RH		10 to 90 %RH	

Combustible gas sensor ¹ TE sensor (thermal conductivity type)

Detection target gas		Methane (CH ₄)
Sensor model		TE-756
Explosion-proof specifications		IECEX/ATEX and Japan Ex
Display range		0 – 100 vol%
Detection range		0 – 100 vol%
Resolution		1 % vol
Alarm setpoints	First alarm	—
	Second alarm	—
	Third alarm	—
	TWA	—
	STEL	—
Operating temperature range* ²		-20 to +50 °C
Operating humidity range* ³		0 to 95 %RH

Oxygen sensor ² R sensor (electrochemical type)

Detection target gas		Oxygen (O ₂)	
Sensor model		ESR-X13P	
Explosion-proof specifications		IECEX/ATEX	Japan Ex
Display range		0 to 40.0 %	
Detection range		0 to 25.0 %	
Resolution		0.1 %	
Alarm setpoints	First alarm	19.5 %	
	Second alarm	18.0 %	
	Third alarm	23.5 %	25 %
	TWA	—	
	STEL	—	
Operating temperature range* ²		-20 to +50 °C	
Operating humidity range* ³		10 to 90 %RH	

Toxic gas sensor ³ R sensor (electrochemical type)

Detection target gas		Hydrogen sulfide (H ₂ S)		Carbon monoxide (CO)		Hydrogen sulfide (H ₂ S)		Carbon monoxide (CO)	
Sensor model		ESR-A1DP				ESR-A13i		ESR-A1CP/ESR-A13P	
Explosion-proof specifications		IECEX/ATEX	Japan Ex	IECEX/ATEX	Japan Ex	IECEX/ATEX	Japan Ex	IECEX/ATEX	Japan Ex
Display range		0—200.0 ppm		0—200.0 ppm		0—200.0 ppm		0—2,000.0 ppm	
Detection range		0—100.0 ppm	0—30.0 ppm	0—500.0 ppm		0—100.0 ppm	0—30.0 ppm	0—500.0 ppm	
Resolution		0.1 ppm		1 ppm		0.1 ppm		1 ppm	
Alarm setpoints	First alarm	5.0 ppm	1.0 ppm	25 ppm		5.0 ppm	1.0 ppm	25 ppm	
	Second alarm	30.0 ppm	10.0 ppm	50 ppm		30.0 ppm	10.0 ppm	50 ppm	
	Third alarm	100.0 ppm	10.0 ppm	1,200 ppm	50 ppm	100.0 ppm	10.0 ppm	1,200 ppm	50 ppm
	TWA	1.0 ppm		25 ppm		1.0 ppm		25 ppm	
	STEL	5.0 ppm		200 ppm		5.0 ppm		200 ppm	
Operating temperature range		-20 to +50 °C		-20 to +50 °C		-20 to +50 °C		-20 to +50 °C	
Operating humidity range		10 to 90 %RH		10 to 90 %RH		10 to 90 %RH		10 to 90 %RH	

*1 The alarm setpoint values above are the default settings. Where the values are shown or indicated as "OFF", settings can be changed by the user using the setting program.

*2 With no sudden fluctuations.

*3 With no condensation.

*4 The display range and detection range in benzene select mode for which benzene can be selectively measured using the prefilter tube (sold separately).

*5 Due to export restrictions, concentrations of 0.0 to 0.2 ppm with the HCN sensor are indicated as 0.0 ppm.

VOC sensor 4 5 / 6 7 (P1 to P3)

Smart sensor (Photoionization detection type (PID))

Detection target gas		Volatile organic compounds(VOCs)		
Sensor model		PIS-001A	PIS-002A	PIS-003
Photoionization energy		10.6 eV	10.6 eV	10.0 eV
Explosion-proof specifications		IECEX/ATEX and Japan Ex		
Display range / Detection range		0 – 40,000 ppb	0 – 4,000 ppb	VOC: 0 – 100.0 ppm / Benzene: 0 – 50.0 ppm
Resolution		1 ppb (0 – 4,000 ppb) / 10 ppb (4,000 – 40,000 ppb)	0.1 ppm (0 – 400.0 ppm) / 1 ppm (400 – 4,000 ppm)	0.01 ppm (0 – 10.00 ppm) / 0.1 ppm (10.0 – 100.0 ppm)
Alarm setpoints	First alarm	5,000 ppm	400.0 ppb	5.00 ppm
	Second alarm	10,000 ppb	1,000 ppm	10.0 ppm
	Third alarm	10,000 ppb	1,000 ppm	10.0 ppm
	TWA	OFF	OFF	OFF
	STEL	OFF	OFF	OFF
Operating temperature range ^{*2}		-20 to +50 °C		
Operating humidity range ^{*3}		10 to 95 %RH		

Toxic gas sensor 4 5 / 6 7 (E1 to E6)

Smart sensor (electrochemical type)

Detection target gas		Sulfur dioxide (SO ₂)	Nitrogen dioxide (NO ₂)	Hydrogen cyanide (HCN) ^{*5}	Phosphine (PH ₃)	Ammonia (NH ₃)	Chlorine (Cl ₂)
Sensor model		ESS-03DH	ESS-03DH	ESS-03DH	ESS-03DH	ESS-B332	ESS-B335
Explosion-proof specifications		IECEX/ATEX and Japan Ex					
Display range		0 – 99.90 ppm	0 – 20.00 ppm	0 – 15.0 ppm	0 – 20.00 ppm	0 – 400.0 ppm	0 – 10.00 ppm
Detection range		0 – 99.90 ppm	0 – 20.00 ppm	0 – 15.0 ppm	0 – 1.00 ppm	0 – 400.0 ppm	0 – 10.00 ppm
Resolution		0.05 ppm	0.05 ppm	0.1 ppm	0.01 ppm	0.5 ppm	0.05 ppm
Alarm setpoints	First alarm	2.00 ppm	3.00 ppm	5.0 ppm	0.30 ppm	25.0 ppm	0.50 ppm
	Second alarm	5.00 ppm	6.00 ppm	10.0 ppm	1.00 ppm	50.0 ppm	1.00 ppm
	Third alarm	5.00 ppm	6.00 ppm	10.0 ppm	1.00 ppm	50.0 ppm	1.00 ppm
	TWA	2.00 ppm	3.00 ppm	OFF	0.3 ppm	25.0 ppm	0.5 ppm
	STEL	5.00 ppm	OFF	4.7 ppm	1.00 ppm	35.0 ppm	1.00 ppm
Operating temperature range ^{*2}		-20 to +50 °C					
Operating humidity range ^{*3}		10 to 90 %RH	10 to 90 %RH	10 to 90 %RH	10 to 90 %RH	20 to 90 %RH	20 to 90 %RH

Carbon dioxide sensor 4 5 / 6 7 (D2,D3)

Smart sensor (non-dispersive infrared type (NDIR))

Detection target gas		Carbon dioxide (CO ₂)	Carbon dioxide (CO ₂)
Sensor model		DES-3311-4	DES-3311-1
Explosion-proof specifications		IECEX/ATEX and Japan Ex	
Display range		0 - 10,000 ppm	0 - 10.00 vol%
Detection range		0 - 10,000 ppm	0 - 5.00 vol%
Resolution		20 ppm	0.02 vol%
Alarm set-points	First alarm	5,000 ppm	0.50 vol%
	Second alarm	OFF	3.00 vol%
	Third alarm	OFF	3.00 vol%
	TWA	5,000 ppm	0.50 vol%
	STEL	OFF	3.00 vol%
Operating temperature range ^{*2}		-20 to +50 °C	
Operating humidity range ^{*3}		0 to 95 %RH	

Combustable gas sensor 4 5 / 6 7 (D2,D3)

Smart sensor (non-dispersive infrared type (NDIR))

Detection target gas		Carbon dioxide (CH ₄)	Isobutane (i-C ₄ H ₁₀)
Sensor model		DES-3311-3	DES-3311-2
Explosion-proof specifications		IECEX/ATEX and Japan Ex	
Display range		0 - 100 %LEL / 100 %LEL - 100.5 vol%	0 - 100 %LEL / 100 %LEL - 30.0 vol%
Detection range		0 - 100 %LEL / 100 %LEL - 100.0 vol%	0 - 100 %LEL
Resolution		1 %LEL / 0.5 vol%	1 %LEL / 0.5 vol%
Alarm set-points	First alarm	10 %LEL	10 %LEL
	Second alarm	50 %LEL	50 %LEL
	Third alarm	OFF	3.00 vol%
	TWA	–	–
	STEL	–	–
Operating temperature range ^{*2}		-20 to +50 °C	
Operating humidity range ^{*3}		0 to 95 %RH	

Combustable gas sensor 4 5 / 6 7 (D2,D3)

Smart sensor (hot-wire semiconductor type)

Detection target gas		Carbon dioxide (CO ₂)	Carbon dioxide (CO ₂)
Sensor model		SHS-8661	
Explosion-proof specifications		IECEX/ATEX and Japan Ex	
Display range		0 - 5,000 ppm	0 - 2,000 ppm
Detection range		0 - 2,000 ppm	0 - 2,000 ppm
Resolution		10 ppm	10 ppm
Alarm set-points	First alarm	5,000 ppm 0.50 vol%	
	Second alarm	–	–
	Third alarm	–	–
	TWA	–	–
	STEL	–	–
Operating temperature range ^{*2}		-20 to +50 °C	
Operating humidity range ^{*3}		20 to 95 %RH	

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*2 With no sudden fluctuations.

*3 With no condensation.

*4 The display range and detection range in benzene select mode for which benzene can be selectively measured using the prefilter tube (sold separately).

*5 Due to export restrictions, concentrations of 0.0 to 0.2 ppm with the HCN sensor are indicated as 0.0 ppm.

Product specifications

Model	GX-6100		
Concentration display	LCD digital (full-dot display)		
Detection method	Pump suction type		
Suction flow rate	Minimum 0.45 L/min (with tube not fitted)		
Display items	Clock, battery level, operation status		
Display languages	Japanese, English, Korean, Chinese (simplified), Chinese (traditional), Vietnamese, Italian, Spanish, Slovak, Czech, German, Turkish, French, Portuguese, Polish, Russian		
Buzzer sound pressure	Approx. 95 dB (mean value at 30 cm from source, with protect cover fitted)		
Gas alarm indication	Lamp flashing, continuous modulating buzzer sounding, gas concentration readout blinking, vibration		
Gas alarm pattern	Self-latching, auto-reset (Default setting: Self-latching)		
Fault alarm/self-diagnosis	Flow rate abnormality, system abnormality, sensor abnormality, low battery voltage, adjustment failure, clock abnormality		
Fault alarm indication	Lamp flashing, intermittent buzzer sounding, detail display		
Fault alarm pattern	Self-latching		
Panic / man down alarm indication ^{*1}	Prealarm: Lamp flashing, intermittent buzzer sounding (prealarm)		
Panic alarm pattern ^{*1}	Self-latching		
Man down alarm pattern ^{*1}	Auto reset		
Communication specifications	Bluetooth Low Energy		
Power source	Lithium-ion battery unit (BUL-6100) or dry battery unit (BUD-6100) (AA alkaline x3)*2		
Continuous operating time ^{*3}	Lithium-ion battery: Approx. 28 hours. Dry battery unit: Approx. 8 hours (at 25 °C, no alarm, no lighting)		
Operating temperature range	-20 to +50 °C (no sudden fluctuations)		
Operating humidity range ^{*4}	0 to 95 %RH (no condensation)		
Operating pressure range	80 to 120 kPa (80 to 110 kPa for explosion-proof range)		
Structure	Dustproof/waterproof, equivalent to IP67 (excluding pipes)		
Explosion-proof construction	Intrinsically safe, flame-proof enclosure		
Explosion-proof class	ECEx: Ex da ia IIC T4 Ga (with new ceramic type sensor) Ex ia IIC T4 Ga (without new ceramic type sensor)	ATEX*5 II 1 G Ex da ia IIC T4 Ga (with new ceramic type sensor) II 1 G Ex ia IIC T4 Ga (without new ceramic type sensor)	Explosion-proof electrical equipment type certified (Japan Ex) Ex da ia IIC T4 Ga (with new ceramic type sensor) Ex ia IIC T4 Ga (with new ceramic type sensor)
Certifications	CE marking		
External dimensions	Approx. 70 mm (W) × 201 mm (H) × 56 mm (D) (excluding projections)		
Weight	Approx. 500 g (with BUL-6100), approx. 450 g (with BUD-6100)		

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*5 Due to export restrictions, concentrations of 0.0 to 0.2 ppm with the HCN sensor are indicated as 0.0 ppm.