

# RIKEN KEIKI GX FORCE

Portable 4 Gas Detector for CH<sub>4</sub> or HC, O<sub>2</sub>, CO and H<sub>2</sub>S

The GX-Force features a robust internal sample pump with 8 meter sampling range. Weighing merely 300 g, it can monitor standard confined space gases such as LEL combustibles, Oxygen, Carbon Monoxide, and Hydrogen Sulfide. Utilizing high-quality micro-sensor technology compatible with GX-3R, GX-3R Pro, 04 Series, and Gaswatch 3 instruments.

This instrument offers versatility with two operating modes. In its Normal Operating mode, the GX-Force is suitable for confined space and safety monitoring, while a Leak Check mode (firmware available Q4) is designed for leak investigations.

Powered by a Li-ion battery, the GX-Force operates for 30 hours and features a large LCD display presenting gas readings, battery level, current time, and automatic backlighting during alarm conditions. It incorporates standard alarm types, including vibration, visual, and audible alarms, with options for latching or non-latching. The microprocessor-controlled GX-Force performs continuous self-checks for sensor connections, low battery, circuit trouble, low flow, and calibration errors.

Users can adjust calibration and bump test intervals and receive reminders, with the flexibility to set alarms or lock the instrument out of normal measurement mode after a calibration period has lapsed. Calibration can be performed individually or in a group. In Leak Check Mode, the GX-Force is capable of monitoring combustibles in the ppm range.

## Features

- ✓ 2 Operating modes
  - Normal and Leak Check (Q4)
- ✓ Internal sample pump with 8 meter sample range
- ✓ 30 hours of operation (Lithium-ion battery)
- ✓ USB Type-C charging & data connection
- ✓ Easy to grip lightweight design
  - Approx. 64 (W) × 173 (H) × 47 (D) mm. Weight approx. 300 g
- ✓ Water and dust resistant design, IP67
- ✓ Field replaceable sensors & filters
- ✓ Impact resistant body
- ✓ Intrinsically safe
- ✓ Large LCD Auto-backlit display
- ✓ 3 Year warranty



## Wide range of safety functions

Gas type	Conversion from CH4 models	Conversion from HC models	Gas type	Conversion from CH4 models	Conversion from HC models	Gas type	Conversion from CH4 models	Conversion from HC models
Methane	-	x	Ethane	○	x	Cyclopentane	○	○
Isobutane	○	-	Ethanol	○	○	Benzene	○	○
Hydrogen	○	○	Propylene	○	○	N-hexane	○	○
Methanol	○	○	Acetone	○	○	Toluene	○	○
Acetylene	○	○	Propane	○	x	Toluene	○	○
Ethylene	○	○	Butadiene	○	○	Xylene	○	○

Gas type	Conversion from CH4 models	Conversion from HC models	Gas type	Conversion from CH4 models	Conversion from HC models
N-nonane	○	○	Methyl isobutyl ketone	○	○
Ethyl acetate	○	○	Tetrahydrofuran	○	○
Isopropyl alcohol	○	○	Normal pentane	○	○
Methyl ethyl ketone	○	○			
Methyl methacrylate	○	○			
Dimethyl ether	○	○			

# Specifications

Model	GX-Force
Sampling method	Suction type
Suction flow rate	Minimum 0.35 L/min (open flow rate)
Gas alarm pattern	Lamp flashing, continuous modulating buzzer sounding, gas concentration display flashing, vibration
Gas alarm reset operation	Self-latching
Fault alarm/self-diagnosis	System, clock, or sensor abnormality; battery voltage drop; calibration failure; pump abnormality; low flow rate
Fault alarm pattern	Lamp flashing, intermittent buzzer sounding, detail display
Fault alarm reset operation	Self-latching
Display	LCD digital (7-segment + 14-segment + icons) with backlight
Individual operations	Operational status, clock, battery level, peak reading, pump status, calibration notification
Sound pressure	Approx. 90 dB (30 cm)
Data logger function	Maximum storage capacity: 3,600 items Interval: 5 minutes (adjustable)
Communication specifications	USB2.0 (for data logger) * Connector: Type-C
Power source	Rechargeable lithium ion battery
Continuous operating time* <sup>1</sup>	Approx. 30 hours (25 °C, fully charged, no alarm, no lighting)
Operating ambient temperature/ humidity range* <sup>2,3</sup>	-40 °C - +60 °C (no sudden changes), 0 - 95 %RH (no condensation)
Explosion-proof construction	Intrinsically safe explosion-proof construction, flame-proof enclosure IECEX (Ex da ia IIC T4 Ga) ATEX/UKEX (II 1 G Ex da ia IIC T4 Ga) Japan EX (Ex da ia IIC T4 Ga)
Certifications	CE/UKCA marking, JIS T 8201, JIS T 8205, JIS T 8206
Protection level	IP67 equivalent
External dimensions/weight	Approx. 64 (W) × 173 (H) × 47 mm (excluding protrusions) / Approx. 280 g

\*1 Varies depending on sensor type installed. Please contact Riken Keiki for more information.

\*2 In temporary ambient conditions for approximately 15 minutes. The operating temperature and humidity ranges for continuous ambient conditions are as follows:

Temperature: -20 °C - +50 °C (no sudden changes) / Humidity: 10 - 90 %RH (no condensation)

\*3 The range of operating temperatures in which explosion-proof performance is maintained is as follows: Temperature: -20 °C - +60 °C (no sudden changes)

## Detection target gas

Detection target gas	Combustible gas (CH <sub>4</sub> or HC)	Oxygen (O <sub>2</sub> )	Carbon monoxide (CO)	Hydrogen sulfide (H <sub>2</sub> S)
Detection principle	New ceramic type (catalytic type)	Electrochemical type		
Display range	0 - 100 %LEL	0.0 - 40.0 vol%	0 - 2,000 ppm	0.0 - 200.0 ppm
Detection range	0 - 100 %LEL	0.0 - 25.0 vol%	0 - 500 ppm	0.0 - 100.0 ppm
Resolution	1 %LEL	0.1 vol%	1 ppm	0.1 ppm
Alarm setpoints (User-defined setting)	1st alarm: 10 %LEL 2nd alarm: 25 %LEL 3rd alarm: 50 %LEL OVER alarm: 100 %LEL	L alarm: 19.5 vol% LL alarm: 18.0 vol% H alarm: 23.5 vol% OVER alarm: 40.0 vol%	1st alarm: 25 ppm 2nd alarm: 50 ppm 3rd alarm: 1,200 ppm TWA alarm: 25 ppm STEL alarm: 200 ppm OVER alarm: 2,000 ppm	1st alarm: 5.0 ppm 2nd alarm: 30.0 ppm 3rd alarm: 100.0 ppm TWA alarm: 1.0 ppm STEL alarm: 5.0 ppm OVER alarm: 200.0 ppm
Response time (T90)	CH <sub>4</sub> : Within 30 seconds, HC: Within 40 seconds	Within 20 seconds	Within 30 seconds	Within 30 seconds

## Type list

Detection target gas/ Sensor		CH <sub>4</sub> or HC	O <sub>2</sub>	H <sub>2</sub> S & CO	H <sub>2</sub> S	CO	Reduced H <sub>2</sub> interference
		NCR-6309	ESR-X13P	ESR-A1DP	ESR-A13i	ESR-A13P i	ESR-A1CP i
4-component	Type A	○	○	○			
3-component	Type B	○	○		○		
3-component	Type C	○	○			○	
3-component	Type CH	○	○				○
2-component	Type D	○	○				

# The Bruusgaard System



TBS is a unique turnkey portable gas detection solution, giving you increased safety and substantial cost savings through standardised instruments, routines, training and procurement.

## Logistic Support

At any given time we know the status of all vessels and sites covered by The Bruusgaard System. We consolidate all shipments and make sure you have everything you need on board until next scheduled delivery. This results in fewer shipments and substantial savings!

- Year round follow up of instruments, spares and consumables
- Handling of all shipments & logistics
- Annual reports per vessel including budgeting



## Safety

QA – strict routines and logging

- Crew are able to use instruments and follow routines correctly
- Instruments are in proper working condition at all times
- Instruments are calibrated at correct intervals
- Sensors and other items are replaced at correct intervals
- Usage of instruments is logged, including abnormal observations
- Traceability – instrument history and usage
- Routines and procedures can merge into the overall QA-system

Effective and proven training is an integrated part of The Bruusgaard System.

## Instruments

All the equipment used for gas detection and calibration is placed in a custom-made wall cabinet. Including Log & Instruction Manual, which are crucial to maintaining the safety integrity.

- Standardised vessel specific gas detector solutions
- Total solutions including all equipment and routines necessary for efficient and safe use, storage and maintenance

## Cost Savings

Some of our customers have been able to go from 8 to 10 suppliers down to 1 – translating into cost savings of up to 40-50%. For one vessel, this could be thousands of dollars annually, and for a whole fleet, the cost savings can be dramatic. This is achieved through:

- One contact for worldwide supply of spares & gases
- All service and calibration can be done on site.
- Reductions of instrument types from 10-12 to 2-3

Reduced maintenance costs through:

- On board calibration
- Fewer instruments on board
- No need for spares on board
- One PO per year
- Increased safety
- Less use of administrative time