

► MGS 400 series

Refrigerant leak detectors



Technical specifications

Detection of refrigerant gases:

R1234yf, R1234ze, R134a, R290, R22, R32, R404A, R407A, R407C, R407F, R410A, R422A, R422D, R427A, R434A, R448A, R449A, R450A, R452A, R454A, 454C, R507A, R513A, R600, R717 (NH₃), R744 (CO₂).

Sensors: Temperature compensated pre-calibrated probes to prevent false alarms.

Integrated audiovisual alarm:

- Status indicator with three-color LED
- Integrated 72 dB (A) alarm at 10 cm

Output :

- 4-20 mA linear analog output
- Modbus RTU digital communication for connection with MGS 408 central or BMS system
- 3 configurable SPDT relays (MGS 450 and MGS 460 models only)

Setup / Configuration:

Via the MGS-400 application and Bluetooth connection.

Operating conditions:

- Operation with temperatures down to -40 °C
- Protection index: IP41 and IP66 (optional)
- Dimensions: MGS 410: 130 x 130 x 68 mm
MGS 450: 165 x 165 x 77 mm (87 mm / IP66)

Power specifications:

Supply voltage: 24 Vac/Vdc (auto select).

Absorbed power:

2W for MGS 410/4 W for MGS 450 and MGS 460

Compliance: Complies with NF EN 378-3: 2017, EN14624 & EEEW (Electrical and electronic equipment waste).

Product description

Bacharach, renowned manufacturer of refrigerant leak measurement and detection instruments offers an innovative range of refrigerant gas detectors with the **MGS 400** range.

Designed to be directly installed in low temperature environments (down to -40 °C), they can be used as stand-alone devices or in conjunction with a gas detection controller or a BMS (Building Management Systems).

► A complete range of refrigerants

The **MGS 400** series refrigerant leak detectors detect a very wide range of **HFOs** (Low GWP fluoro-olefin hydrocarbons such as R1234yf or R1234ze), **HFCs** (hydro fluoro carbones such as R134A, R407C, R410) and **HCFC** (hydro chloro fluoro carbones like R22) as well as hydrocarbons, NH₃ and CO₂ depending on the selected sensor technology.

► Standards & regulations

European regulation **N ° 842/2006** known as F-gas, relating to tightness control, specifies measures and methods to be applied to avoid and minimize greenhouse gas emissions.

When the refrigerant concentration can exceed the practical limit in accordance with **EN 378-1: 2016 annex C**, the detectors must comply with the specified requirements and must at least trigger an alarm.

The **MGS 400 series** detectors meet the **EN14624 & NF EN 378-3: 2017** European standard requirements as well as EEEW (Electrical and electronic equipment waste).

► Application areas

Engine room, cold rooms and freezers, HVAC ventilation and air conditioning systems, refrigeration compressor groups, service tunnels for ventilation and air conditioning, etc.

► 3 models: MGS410, MGS 450 & MGS 460

MGS 410



Basic model with integrated sound alarm 72 dB (A) linear output 4-20 mA & digital Modbus RTU. Preferably to be connected to a controller or BMS system.

MGS 450



IP41 or IP66 stand-alone model with relay outputs, integrated 72 dB (A) sound alarm and linear 4-20 mA & digital Modbus RTU output. Can be used independently or with a controller unit.

► Refrigerant gases available

Refrigerant gas	Technology	Mesure range	MGS400 detector	
			R410	R450
CO2	Infrared	0 - 50 000 ppm	6302-0095	6302-2095
NH3	Electrochemical	0 - 100 ppm	6302-0026	6302-1026
NH3	Electrochemical	0 - 1000 ppm	6302-0028	6302-1028
NH3	Electrochemical	0 - 300 ppm	6302-0029	6302-1029
NH3	Catalytic	0 - 100 % LEL	6302-0070	6302-1070
R1234yf	Semiconductor	0 - 1 000 ppm	6302-0161	6302-2161
R1234ze	Semiconductor	0 - 1 000 ppm	6302-0152	6302-2152
R134a	Semiconductor	0 - 1 000 ppm	6302-0101	6302-2101
R22	Semiconductor	0 - 1 000 ppm	6302-0109	6302-2109
R290	Infrared	0 - 100 ppm	6302-0054	6302-2054
R32	Semiconductor	0 - 1 000 ppm	6302-0155	6302-2155
R404A	Semiconductor	0 - 1 000 ppm	6302-0103	6302-2103
R407A	Semiconductor	0 - 1 000 ppm	6302-0105	6302-2105
R407C	Semiconductor	0 - 1 000 ppm	6302-0123	6302-2123
R407F	Semiconductor	0 - 1 000 ppm	6302-0126	6302-2126
R410A	Semiconductor	0 - 1 000 ppm	6302-0107	6302-2107
R422A	Semiconductor	0 - 1 000 ppm	6302-6105	6302-2105
R422D	Semiconductor	0 - 1 000 ppm	6302-0166	6302-2166
R427A	Semiconductor	0 - 1 000 ppm	6302-0167	6302-2167
R434A	Semiconductor	0 - 1 000 ppm	6302-0159	6302-2159
R448A	Semiconductor	0 - 1 000 ppm	6302-0156	6302-2156
R449A	Semiconductor	0 - 1 000 ppm	6302-0169	6302-2169
R450A	Semiconductor	0 - 1 000 ppm	6302-0160	6302-2160
R452A	Semiconductor	0 - 1 000 ppm	6302-0157	6302-2157
R454A	Semiconductor	0 - 1 000 ppm	6302-0154	6302-2164
R454C	Semiconductor	0 - 1 000 ppm	6302-0170	6302-2170
R507A	Semiconductor	0 - 1 000 ppm	6302-0111	6302-2111
R513A	Semiconductor	0 - 1 000 ppm	6302-0158	6302-2158
R514A	Semiconductor	0 - 1 000 ppm	6302-0152	6302-2152
R600	Semiconductor	0 - 5 000 ppm	6302-0306	6302-2306
R744 (CO2)	Infrared	0 - 10 000 ppm	6302-0091	6302-2091

► MGS 400 series controllers



The **MGS-402** controller unit centralizes up to 2 **MGS 400** sensors connected in series with Modbus communication. A LED strip shows the status of each detector at a glance: power, fault and alarm. Three freely assignable alarm relays are available for servo controls.



The **MGS-408** gas detection unit centralizes up to 8 **MGS 400** sensors connected in series with Modbus communication. The digital display and a group of LEDs provides concentration and status real-time view for each sensor. An intuitive menu allows easy controller configuration which stores the gas alarm history on an SD card. Three freely assignable alarm relays are available for control systems.



- 8-channel gas detection unit - digital Modbus wiring
- 100-240 Vac Power supply
- Status control by LED (green, orange, red)
- 3 alarm relays for servos
- Event recording on SD card
- Modbus RTU slave for BMS (Building Management Systems)
- Audible alarm 72 dB (A) at 10 cm (optional)
- Certifications: CE, UL / CSA / IEC EN 61010-1

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