

MGS-450 Gas Detector

For Safety Compliance in Refrigeration Applications



IP66



IP41

DESCRIPTION

MSA Bacharach's MGS-450 Gas Detector makes compliance with refrigeration safety codes simple and easy, saving time and money on equipment and installation. Using the MGS-400 App, users can intuitively use, commission and maintain their gas detection system without the need for specialty training or tools. Pre-calibrated sensor modules simplify maintenance, take minutes to exchange and do not require the use of calibration gas.

The MGS-450 can trigger additional audio-visual alarms and act as a standalone gas detection system, or integrate easily into a BMS / BAS or with Bacharach's optional MGS-408 Gas Detection Controller.

REFRIGERANT GAS DETECTOR FOR HALOGENATED AND NATURAL REFRIGERANTS WITH DIGITAL AND ANALOG COMMUNICATIONS

Features

Mobile App Interface

Simple Configuration via App

Pre-calibrated Sensors

Semi-automated Calibration

Temperature-compensated Measurement

Analog and Digital Communications

On-board Relays

Audible and Visual Alarms

Multiple Cable Entries and Terminals

Low-temperature Performance

Benefits

Quick, easy and intuitive commissioning, configuration and maintenance requires no special training

No tools required to set alarm behavior and alarm levels

Save time and money on maintenance procedures

Easy process with no potentiometers or volt meters

Mitigates false alarms and optimizes accuracy in refrigeration applications

Integrates with BMS / BAS control systems via Modbus and / or analog outputs

Trigger additional alarm beacons and mechanical ventilation in the event of a refrigerant leak

Comply with ASHRAE 15 / EN 378 - no additional hardware

Quick and easy installation of all wiring; daisy-chain power and digital communications

Suitable for use in all refrigeration applications from machinery rooms to freezers



MORE INFORMATION:

Scan the QR code to learn about the MGS-450 and other MSA Bacharach products.

MGS-450 Gas Detector



Product Attributes	Description		Definition
GASES AND RANGES	Refrigerants		1,000 ppm
	CO ₂		5,000 / 10,000 / 20,000 / 30,000 / 40,000 / 50,000 ppm
	NH ₃		100 / 1,000 / 5,000 / 100% LEL
	O ₂		30 Vol%
	CO		500
	Combustible gases - Semiconductor (R-290, R-600, R-50, R-600a, HC-12a, R-717)		5,000 ppm
	Combustible gases - NDIR (R-600, R-50, R-290)		100% LEL
	Combustible gases - Catalytic (R-600, R-50, R-290, R-717)		100% LEL
	NO ₂		20 ppm
STATUS INDICATOR	Single tri-color LED (green, red, orange)		
BUZZER	72dB @ 10 cm		
OUTPUT	Single configurable analog output	4 to 20 mA, 0 to 5 V, 0 to 10 V, 1 to 5 V, 2 to 10 V	
	Digital	Modbus RTU via RS 485	
POWER SUPPLY	24V AC or DC (auto selecting), 4W (max)		
RELAY	Three relays, SPDT, fixed low / high fault alarms		
	Rating 1 A @ 30 VDC		
ENCLOSURE	IP41, IP66		
SIZE (W×H×D) APPROX.	IP41	6.5" × 6.5" × 3.0" (165 × 165 × 77 mm)	
	IP66	6.5" × 6.5" × 3.4" (165 × 165 × 87 mm)	
WEIGHT APPROX.	1lb, 1oz (480 g)		
APPROVALS	CE, UL / CSA / IEC EN 61010-1		
AMBIENT CONDITIONS	Temperature	Semiconductor	-40 to 122°F / -40 to +50°C
		Electrochemical	NH ₃ 100 / 1,000 ppm: -40 to 40°C
			NH ₃ 5,000 ppm: -20 to 40°C
			CO 500 ppm: -40 to 50°C
			NO ₂ 20 ppm: -20 to 40°C
			O ₂ 30% Volume: -20 to 50°C
			Infrared
		Catalytic Bead	-40 to 122°F / -40 to +50°C
	Humidity	5 to 90 % RH, non condensing	
	Pressure	23.6 to 32.5 inch Hg / 800 to 1,100 mbar	

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MGS-450 IP41 Sensor Specifications



Part Number	Replacement Sensor	Target Gas	Sensor Technology ¹	Fullscale Range	Alarm Range	Low Alarm	High Alarm	Accuracy (% of Range)	Temperature Range
6302-1003	6302-9003	O ₂	EC	30% Volume	4.5%-30% Vol	19.5% Vol	23% Vol	±5%	-20°C to 50°C
6302-1026	6302-9026	NH ₃	EC	100ppm	15-100ppm	50ppm	90ppm	±5%	-40°C to 40°C
6302-1028	6302-9028	NH ₃	EC	1,000ppm	150-1,000ppm	500ppm	900ppm	±5%	-40°C to 40°C
6302-1029	6302-9029	NH ₃	EC	300ppm	10-300ppm	25ppm	150ppm	±5%	-40°C to 40°C
6302-1037	6302-9037	NH ₃	EC	5,000ppm	750-5,000ppm	2,500ppm	4,500ppm	±5%	-20°C to 40°C
6302-1040	6302-9040	CO	EC	500ppm	20-500ppm	25ppm	100ppm	±5%	-40°C to 50°C
6302-1041	6302-9041	NO ₂	EC	20ppm (20,000 ppb)	3,000-20,000ppb	5,000ppb	10,000ppb	±5%	-20°C to 40°C
6302-1052	6302-9052	R-600	IR	100% LEL (1.4% Vol)	15-100% LEL	50% LEL	90% LEL	±5%	-40°C to 50°C
6302-1053	6302-9053	R-50	IR	100% LEL (4.4% Vol)	15-100% LEL	50% LEL	90% LEL	±5%	-40°C to 50°C
6302-1054	6302-9054	R-290	IR	100% LEL (1.7% Vol)	15-100% LEL	50% LEL	90% LEL	±5%	-40°C to 50°C
6302-1069	6302-9069	NH ₃	CT	0-3% Volume	1 - 3.0% Vol	1% Vol	2% Vol	±5%	-40°C to 50°C
6302-1070	6302-9070	NH ₃	CT	0-100% LEL (15% Vol)	15 - 100% LEL	25% LEL	50% LEL	±5%	-40°C to 50°C
6302-1090	6302-9090	CO ₂	IR	5,000ppm	750-5,000ppm	2,500ppm	4,500ppm	±5%	-40°C to 50°C
6302-1091	6302-9091	CO ₂	IR	10,000ppm	1,500-10,000ppm	5,000ppm	9,000ppm	±5%	-40°C to 50°C
6302-1092	6302-9092	CO ₂	IR	20,000ppm	3,000-20,000ppm	10,000ppm	18,000ppm	±5%	-40°C to 50°C
6302-1093	6302-9093	CO ₂	IR	30,000ppm	4,500-30,000ppm	15,000ppm	27,000ppm	±5%	-40°C to 50°C
6302-1094	6302-9094	CO ₂	IR	40,000ppm	6,000-40,000ppm	20,000ppm	36,000ppm	±5%	-40°C to 50°C
6302-1095	6302-9095	CO ₂	IR	50,000ppm	7,500-50,000ppm	25,000ppm	45,000ppm	±5%	-40°C to 50°C
6302-1101	6302-9101	R-134a	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1103	6302-9103	R-404A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1105	6302-9105	R-407A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1107	6302-9107	R-410A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1109	6302-9109	R-22	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1111	6302-9111	R-507A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1123	6302-9123	R-407C	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C

¹ EC = Electrochemical Cell, IR = Infrared, CT = Catalytic Bead, SC = Metal-Oxide Semiconductor

MGS-450 IP41 Sensor Specifications

Part Number	Replacement Sensor	Target Gas	Sensor Technology ¹	Fullscale Range	Alarm Range	Low Alarm	High Alarm	Accuracy (% of Range)	Temperature Range
6302-1126	6302-9126	R-407F	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1152	6302-9152	HFO1234ze	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1155	6302-9155	R-32	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1156	6302-9156	R-448A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1157	6302-9157	R-452A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1158	6302-9158	R-513A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1159	6302-9159	R-434A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1160	6302-9160	R-450A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1161	6302-9161	HFO1234yf	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1163	6302-9163	R-452B	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1164	6302-9164	R-454A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1165	6302-9165	R-422A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1166	6302-9166	R-422D	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1167	6302-9167	R-427A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1169	6302-9169	R-449A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1170	6302-9170	R-454C	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1171	6302-9171	R-454B	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1172	6302-9172	R-455A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-1301	6302-9301	R-290	SC	5,000ppm	750-5,000ppm	800ppm	2,500ppm	-10%/+15%	-40°C to 50°C
6302-1310	6302-9310	R-290	SC	2,500ppm	400-2,500ppm	1,000ppm	2,000ppm	-10%/+15%	-40°C to 50°C

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MGS-450 IP66 Sensor Specifications



Part Number	Replacement Sensor	Target Gas	Sensor Technology ¹	Fullscale Range	Alarm Range	Low Alarm	High Alarm	Accuracy (% of Range)	Temperature Range
6302-2003	6302-9003	O ₂	EC	30% Volume	4.5%-30% Vol	19.5% Vol	23% Vol	±5%	-20°C to 50°C
6302-2026	6302-9026	NH ₃	EC	100ppm	15-100ppm	50ppm	90ppm	±5%	-40°C to 40°C
6302-2028	6302-9028	NH ₃	EC	1,000ppm	150-1,000ppm	500ppm	900ppm	±5%	-40°C to 40°C
6302-2029	6302-9029	NH ₃	EC	300ppm	10-300ppm	25ppm	150ppm	±5%	-40°C to 40°C
6302-2037	6302-9037	NH ₃	EC	5,000ppm	750-5,000ppm	2,500ppm	4,500ppm	±5%	-20°C to 40°C
6302-2040	6302-9040	CO	EC	500ppm	20-500ppm	25ppm	100ppm	±5%	-40°C to 50°C
6302-2041	6302-9041	NO ₂	EC	20ppm (20,000 ppb)	3,000-20,000ppb	5,000ppb	10,000ppb	±5%	-20°C to 40°C
6302-2052	6302-9052	R-600	IR	100% LEL (1.4% Vol)	15-100% LEL	50% LEL	90% LEL	±5%	-40°C to 50°C
6302-2053	6302-9053	R-50	IR	100% LEL (4.4% Vol)	15-100% LEL	50% LEL	90% LEL	±5%	-40°C to 50°C
6302-2054	6302-9054	R-290	IR	100% LEL (1.7% Vol)	15-100% LEL	50% LEL	90% LEL	±5%	-40°C to 50°C
6302-2069	6302-9069	NH ₃	CT	0-3% Volume	1 - 3.0% Vol	1% Vol	2% Vol	±5%	-40°C to 50°C
6302-2070	6302-9070	NH ₃	CT	0-100% LEL (15% Vol)	15 - 100% LEL	25% LEL	50% LEL	±5%	-40°C to 50°C
6302-2090	6302-9090	CO ₂	IR	5,000ppm	750-5,000ppm	2,500ppm	4,500ppm	±5%	-40°C to 50°C
6302-2091	6302-9091	CO ₂	IR	10,000ppm	1,500-10,000ppm	5,000ppm	9,000ppm	±5%	-40°C to 50°C
6302-2092	6302-9092	CO ₂	IR	20,000ppm	3,000-20,000ppm	10,000ppm	18,000ppm	±5%	-40°C to 50°C
6302-2093	6302-9093	CO ₂	IR	30,000ppm	4,500-30,000ppm	15,000ppm	27,000ppm	±5%	-40°C to 50°C
6302-2094	6302-9094	CO ₂	IR	40,000ppm	6,000-40,000ppm	20,000ppm	36,000ppm	±5%	-40°C to 50°C
6302-2095	6302-9095	CO ₂	IR	50,000ppm	7,500-50,000ppm	25,000ppm	45,000ppm	±5%	-40°C to 50°C
6302-2101	6302-9101	R-134a	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2103	6302-9103	R-404A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2105	6302-9105	R-407A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2107	6302-9107	R-410A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2109	6302-9109	R-22	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2111	6302-9111	R-507A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2123	6302-9123	R-407C	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C

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MGS-450 IP66 Sensor Specifications

Part Number	Replacement Sensor	Target Gas	Sensor Technology ¹	Fullscale Range	Alarm Range	Low Alarm	High Alarm	Accuracy (% of Range)	Temperature Range
6302-2126	6302-9126	R-407F	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2152	6302-9152	HFO1234ze	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2155	6302-9155	R-32	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2156	6302-9156	R-448A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2157	6302-9157	R-452A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2158	6302-9158	R-513A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2159	6302-9159	R-434A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2160	6302-9160	R-450A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2161	6302-9161	HFO1234yf	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2163	6302-9163	R-452B	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2164	6302-9164	R-454A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2165	6302-9165	R-422A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2166	6302-9166	R-422D	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2167	6302-9167	R-427A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2169	6302-9169	R-449A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2170	6302-9170	R-454C	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2171	6302-9171	R-454B	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2172	6302-9172	R-455A	SC	1,000ppm	150-1,000ppm	500ppm	900ppm	-10%/+15%	-40°C to 50°C
6302-2301	6302-9301	R-290	SC	5,000ppm	750-5,000ppm	800ppm	2,500ppm	-10%/+15%	-40°C to 50°C
6302-2310	6302-9310	R-290	SC	2,500ppm	400-2,500ppm	1,000ppm	2,000ppm	-10%/+15%	-40°C to 50°C

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