Gas monitor

Belimo refrigerant gas monitors are factory calibrated and monitor one user-selectable refrigerant. They feature audible and visual alarms and CAN bus communication, allowing for standalone operation and the networking of up to 32 devices. Belimo refrigerant gas monitors are used in conjunction with a communication module (C-22G-5A/B/C) and / or a relay unit (C-22G-50) to control external equipment directly. All refrigerant gas monitors are wired in a daisy chain and are backed by a five-year warranty.

Belimo gas monitors are factory calibrated and can monitor up to two gases simultaneously. All monitors feature audible and visual alarms and CAN bus communication, allowing for standalone operation and networking of up to 32 devices. Select models feature relays and analog outputs to control ventilation directly, as well as BACnet MS/TP allowing for integration into a BMS. All gas monitors are wired via a daisy chain and are backed by a five-year warranty.

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2-year warranty

Type Overview

Type	Measured values	Number of relays	Number of analog outputs	Communication
EXT-OP-6021-C	Refrigerant selectable	0	0	CAN bus

Technical data

Electrical Data	Nominal voltage	AC/DC 24 V
	Nominal voltage note	Please see the remarks section for nominal voltage details and nominal voltage range.
	Nominal voltage frequency	50/60 Hz
	Power consumption AC	5 VA
	Power consumption DC	3.7 W
	Cable entry	2 top, 2 bottom, 1 rear – 1/2" EMT
	Cable specification	Power cable: 18...20 AWG [2.5...0.5 mm²] single pair stranded copper cable Communication cable: 22...24 AWG [0.34...0.25 mm²] 1.5 twisted pair, shielded jacketed, low-capacitance stranded cable
	Fuse	Thermal PTC, auto-reset
Data bus communication	Communication	CAN bus
	Number of nodes	Max. 32 (without repeater)
Functional Data	Medium	Air
	Mounting	0.3...0.6 m [1...2 ft] above the floor
	Max. altitude	6562 ft [2000 m] above sea level
	Max. altitude note	Calibration verification is recommended above 2000 ft [610 m]

Technical data

Functional Data	Coverage area	Radius: 10 m [30 ft] Area: 250 m² [2500 ft²] There can be no obstructions such as walls, elevators, stairs, shelving with solid fill, tool chests, etc. Otherwise the TWA for the gas to reach the monitor will increase.
	Display	LCD, with backlight showing gas type, gas concentration, alarm level status
	Alarm	Alarm level 1: Visual alarm (red LED) Alarm level 2: Visual alarm (red LED) Alarm level 3: Visual and audible alarm (flashing white strobe LED and horn) Horn: 80 dB @ 1 m [3.3ft]
	Warm-up time	1 hour
Measuring Data	Measured values	*R134A (Default), R11, R22, R23, R32, R125, R404A, R407A, R407C, R407F, R410A, R448A, R452A, R455A, R507, R513A, R1233zd, R1234yf, R1234ze
Specification gas	Sensing element technology	Non-dispersive infrared (NDIR) dual channel
	Measuring range	0...2000 ppm (gas dependent)
	Calibration	Non-interactive zero and span Sensor modules are required to be calibrated annually.
	Typical response time	<60 s (T90)
Specification temperature active	Measuring range	-4...104°F [-20...40°C]
Specification temperature passive	Accuracy temperature	±7°C @ 23.5°C [13°F @ 74°F] Please see the Remarks section under Application Notice for more information about temperature accuracy
Safety Data	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP20
	Pollution degree	2
	Ambient humidity	15...90% RH continuous, 0...99% RH intermittent, non-condensing
	Ambient temperature	-4...104°F [-20...40°C]
	Overvoltage category	III

Safety Notes

⚠️ This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application. Unauthorized modifications are prohibited.

Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Only authorized specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.

The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Remarks

Nominal voltage range	All Belimo gas monitors, communication modules, and relay units have a nominal voltage range of AC 17...28/DC 21...38 V (not UL or CSA-tested), AC/DC 20.4...26.4 V (UL-tested).
Power cable size and polarity	Terminal blocks can accommodate one 14...20 AWG (2.5...0.5 mm2) or two 18...20 AWG (0.75...0.5 mm2) copper cables in the same terminal. Please take cable and transformer size into account to provide adequate voltage. Maintain the same polarity between devices at full power (AC/DC 24 V).
Communication cable size and polarity	CAN bus and BACnet MS/TP communication cables should be 22...24 AWG (0.34...0.25 mm2), twisted-pair, shield-jacketed, low-capacitance stranded cable. Please consider the CAN bus baud rate (programmable setting No. 68) and BACnet the MS/TP baud rate (programmable setting No. 48) to provide working communications. For all communication wiring, maintain the same polarity and baud rate between all devices on the network.
Application notice for temperature sensor	All Belimo gas monitors and communication modules come with an internal temperature sensor. The purpose of this temperature sensor is to protect an enclosed parking garage from overheating or freezing, by activating relay 1. When using this feature, it is recommended to calibrate the temperature sensor to the ambient temperature (programmable setting No. 50), after the gas monitor has been powered for 24 hours. For freeze protection, it is recommended to set the temperature set point (programmable settings No. 55) at or over 40 °F [4°C].
	Please note that this temperature sensor is located on the gas monitor printed circuit board (PCB). Therefore, it needs to be calibrated after 24 hours of normal operation to offset the heat generated by the PCB. It is not intended to be used as a room temperature sensor because of the limited accuracy and slow response time caused by its location on the PCB. This temperature sensor accuracy of ±13°F @ 74°F [7°C @ 23.5°C] has not been certified by UL.
Application notice for gas sensors	Intended applications include residential, light commercial, and light industrial. Non-intended applications include heavy commercial, heavy industrial, and hazardous locations.
	Refrigerant Gas Leak Detection (Broadband Infrared):
	Mechanical rooms, compressor rooms, locations where refrigerant is stored

Accessories

Electrical accessories	Description	Type
	Communication module, CAN bus, BACnet MS/TP, 1 relay, 2 analog outputs	
	Communication module, CAN bus, BACnet MS/TP, 2 relays	
	Communication module, CAN bus	C-22G-5C
	Relay unit, CAN bus, 4 relays	
	External visual alarm,	A-22G-A15
	External audible alarm	A-22G-A16
	Transformer, 50 VA	A-22G-A50
	Transformer, 100 VA	A-22G-A100
Mechanical accessories	Description	Type
	Splash proof housing	A-22G-A12
	Duct mount housing	A-22G-A13
	Calibration kit,	A-22G-A08

Wiring Diagram

6000-C
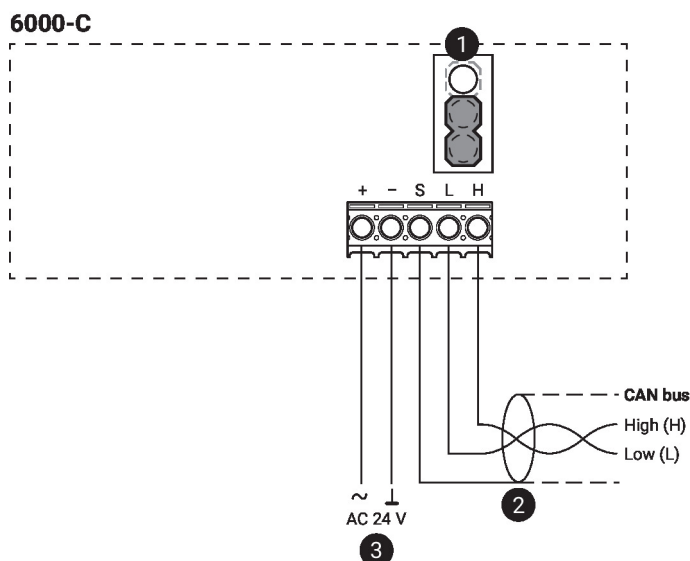
1 End of line (EOL) jumper: CAN bus

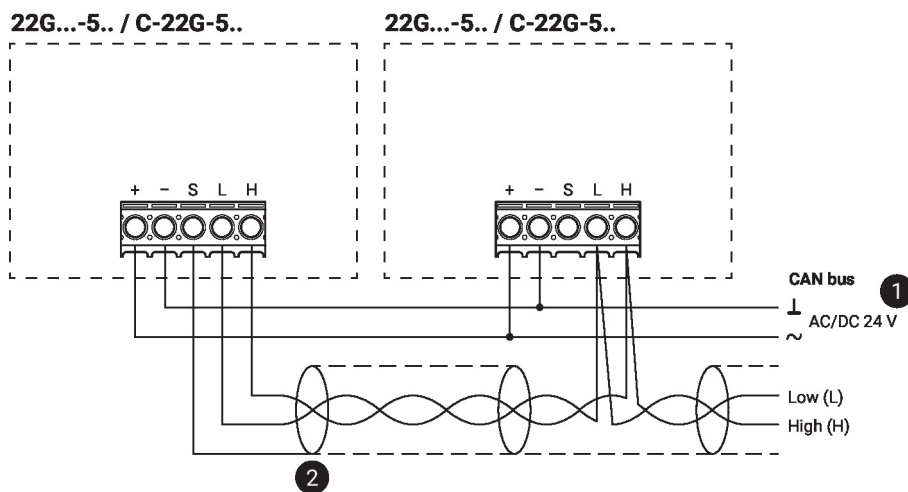Down position: Termination OFF (factory setting)

Up position: Termination ON (first and last unit only should have this jumper in the up position)

2 Shield connected at the first unit only, at others only looped through

3 No connection to the ground

Wiring CAN bus

CAN bus Wiring

22G...-5.. / C-22G-5..   **22G...-5.. / C-22G-5..**

1 No connection to the ground

2 Shield connected at the first unit only, at others only looped through

Dimensions

Top

Offset
0.25 in.
7mm

1.5 in
4 cm

Snap in feet
for mounting
on columns

Front

Back

Side

7.7 in
19 cm

5.5 in
14 cm

4.8 in
12 cm

1.9 in
5 cm