Gas monitor

Methane/Natural gas (CH4) gas monitor for detecting harmful gases in typical commercial HVAC applications.
- Factory calibrated
- Extendable to two gases
- Internal horn and strobe
- ETL listed device
- 5-year warranty

Picture may differ from product

Type Overview

Type	Measured values	Number of relays	Number of analog outputs	Number of binary inputs	Communication
22G05-5A	CH_4	1	2	1	CAN bus, BACnet MS/TP
22G05-5B	CH_4	2	0	1	CAN bus, BACnet MS/TP
22G05-5C	CH_4	0	0	1	CAN bus

Technical data

Electrical Data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 20...25 V / DC 22...34 V
	Power consumption AC	5 VA
	Power consumption DC	3.7 W
	Cable entry	2 top, 2 bottom, 1 rear – 1/2" EMT Refer to remarks section
	Cable specification	Communication cable: 22...24 AWG (0.34...0.25 mm^2) twisted shielded pair, jacketed, 17 pF/ft or less, 100...120 Ω impedance, stranded cable
	Fuse	Thermal PTC, auto-reset
Data bus communication	Communication	CAN bus BACnet MS/TP
Functional Data	Medium	Air
	Analog output	Analogue outputs: 2...10 V or 4...20 mA default
	Relay output	SPDT, 5 A @ AC 125 V or 4 A @ DC 24 V, non-inductive, explosion proof, fail-safe (relay 1 only) Refer to remarks section
	Mounting	1...3 ft [0.3...0.9 m] below the ceiling Refer to installation instructions
	Max. altitude	6562 ft [2000 m] above sea level
	Max. altitude note	Calibration verification is recommended above 2000 ft [610 m]
	Coverage area	Radius: 30 ft [10 m] Area: 2500 ft^2 [250 m^2] There can be no obstructions such as walls, elevators, stairs, shelving with solid fill, tool chests, etc. Otherwise the time weighted average (TWA) for the gas to reach the monitor will increase.

Technical data

Functional Data	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	24 hours
Measuring Data	Measured values	CH_4
Specification gas	Sensing element technology	Catalytic
	Measuring range	CH_4: 0...50% LEL
	Calibration	Non-interactive zero and span Annual calibration required
	Typical response time	<15 s (T90)
Specification temperature active	Measuring range	-4...122°F [-20...50°C] See the remarks section for more information about the temperature sensor
Safety Data	Degree of protection IEC/EN	IP20
	Degree of protection NEMA/UL	NEMA 1
	Agency Listing	ETL listed to UL 61010-1/-2-201, CSA C22.2#61010-1-12/-2-201 BTL listed to BTL-30001
	Pollution degree	2
	Ambient humidity	15...90% RH continuous, 0...99% RH intermittent, non-condensing
	Ambient temperature	14...122°F [-10...50°C]
Materials	Housing	UL94 5VA

Safety Notes

WARNING: Do not combine two catalytic sensor modules (CH4, C3H8, or H2) in the same gas monitor, as this may result in too much power draw and cause the device to malfunction when the gas monitor is operating at full load.

Remarks

Power cable size and polarity

Terminal blocks can accommodate 1x 14...24 AWG (2.5...0.5 mm2) or 2x 18...24 AWG (0.75...0.5 mm2) copper cables in the same terminal. Power cable size is recommended to be 18...20 AWG. Always consider cable size, cable length, and transformer size to provide adequate voltage. Maintain the same polarity at all devices (AC/DC 24 V).

Communication cable size and polarity

Terminal blocks can accommodate 1x 14...24 AWG (2.5...0.5 mm2) or 2x 18...24 AWG (0.75...0.5 mm2) copper cables in the same terminal. CAN bus and BACnet MS/TP communication cables should be 22...24 AWG (0.34...0.25 mm2) twisted shielded pair, jacketed, 17 pF/ft or less, 100... 120 ohm impedance, stranded cable. Maintain the same polarity and baud rate at all devices (CAN bus / BACnet MS/TP).

Cable entry

1/2" EMT (UL certified with flexible metal duct). Maximum torque: 34 Nm [300 in-lb].

Relay rating

Relays are rated to SPDT, 5 A @ AC 240 V or 4 A @ DC 24 V, but are certified to UL 61010-1 to SPDT, 5 A @ AC 125 V or 4 A @ DC 24 V

Remarks

Application notice for temperature sensor

All Belimo gas monitors, communication modules, room units, and door units come with an internal temperature sensor. The purpose of this temperature sensor is to protect a space from overheating by activating alarm 1/relay 1. When using this feature, it is recommended to calibrate the temperature sensor to the ambient temperature (menu No. 50) after the gas monitor has been powered for 24 hours. For freeze protection, it is never recommended to set the temperature setpoint (menu setting No. 55) under 4°C [40 °F].

Application notice for gas monitors

Intended applications include commercial and light industrial. Non-intended applications include heavy industrial and hazardous locations.

Accessories

Replacement sensor modules

Description	Type
Sensor module CH_4 (Methane), 0...50% LEL,	R-G05

Electrical accessories

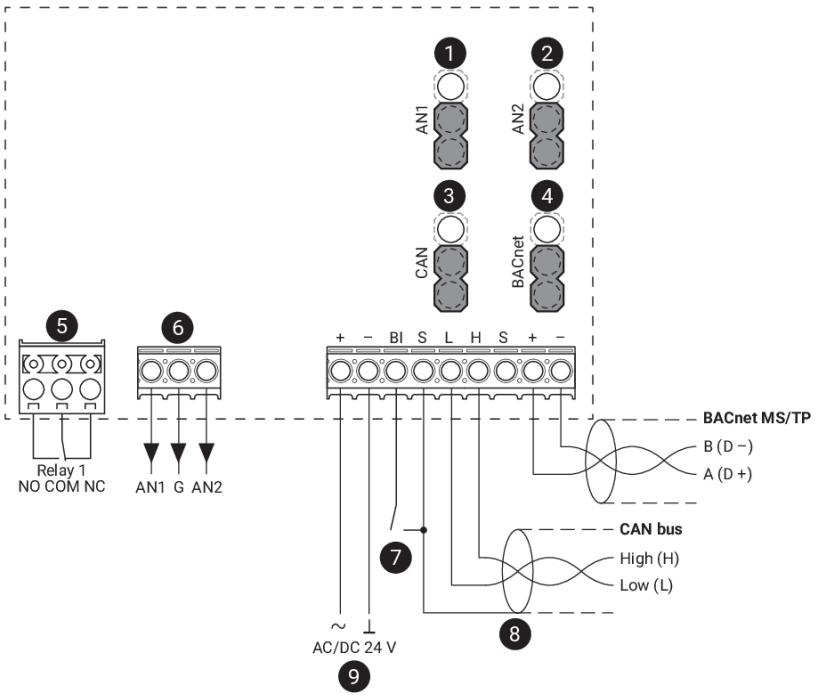
Description	Type
Communication module, CAN bus, BACnet MS/TP, 1 binary input, 1 relay, 2 analog outputs	C-22G-5A
Communication module, CAN bus, BACnet MS/TP, 1 binary input, 2 relays	C-22G-5B
Communication module, CAN bus	C-22G-5C
Relay unit, CAN bus, 4 relays	C-22G-50
High-low mounting kit	A-22G-A14
Transformer, 50 VA	A-22G-A50
Transformer, 100 VA	A-22G-A100
External horn and strobe alarm, Blue	EXT-AS-HS-BLU
External horn and strobe alarm, Amber	EXT-AS-HS-AMB
External horn and strobe alarm, Clear	EXT-AS-HS-CLR

Mechanical accessories

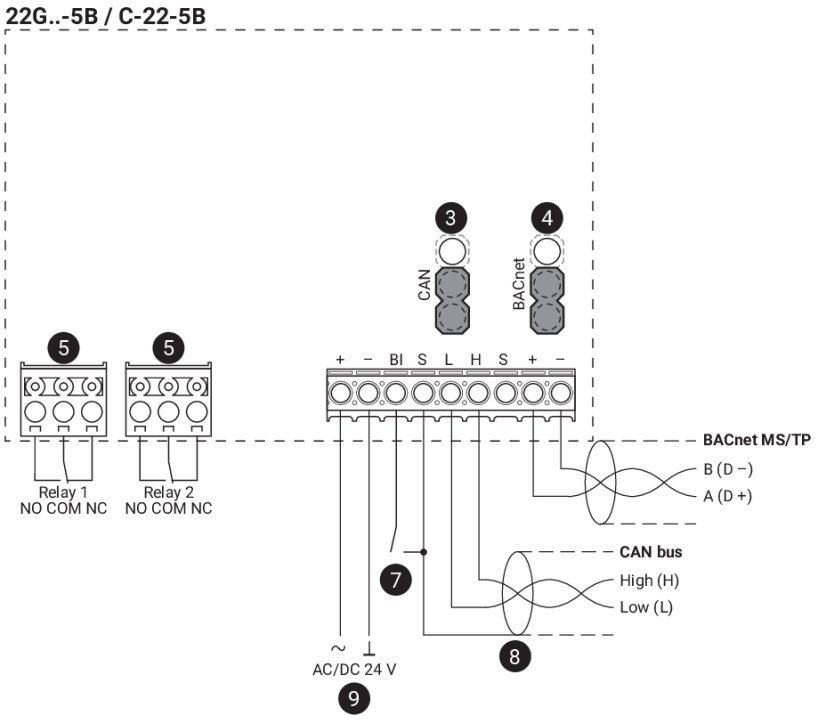
Description	Type
Splash proof housing	A-22G-A12
Duct mount housing	A-22G-A13
Calibration kit	A-22G-A22
Calibration gas bottle, Zero gas, O_2 (Oxygen depletion), 20.9% O_2, Balance air, 105 l, NIST	EXT-OP-GAS-AIR
Calibration gas bottle, CH_4 (Methane), 25% LEL, Balance air, 105 l, NIST	EXT-OP-GAS-CH4
Security screw kit	A-22G-A24
Calibration cap and tube	A-22G-A23

Wiring Diagram

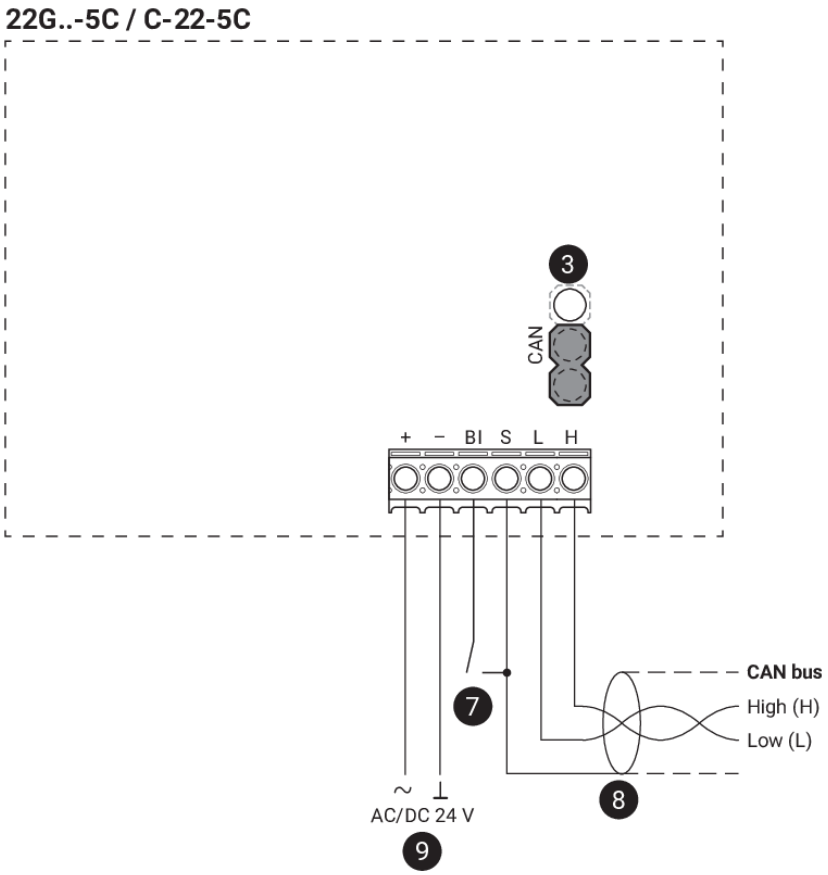
22G..-5A / C-22G-5A



22G..-5B / C-22-5B



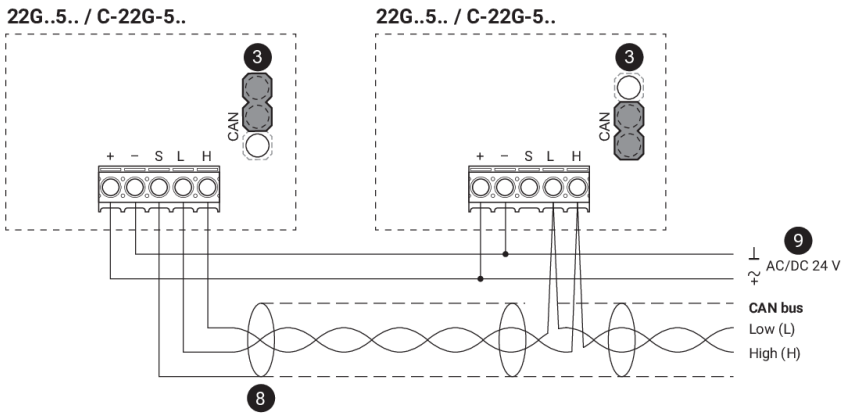
Wiring Diagram



Wiring Diagram

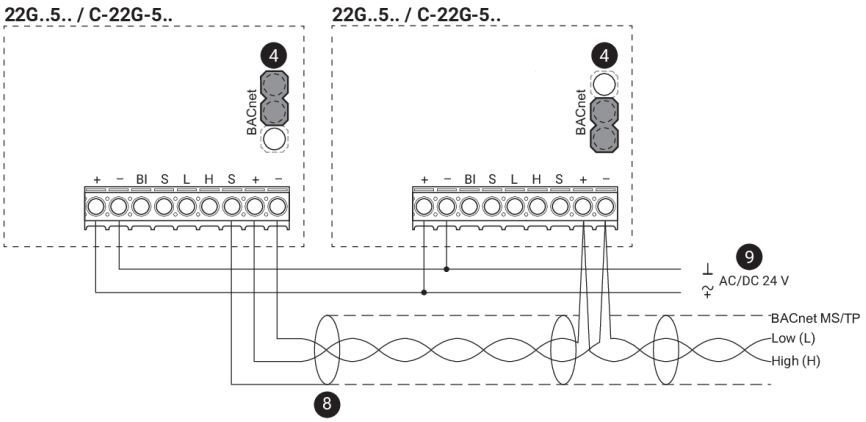
1. **Analog output jumper**: AN1
   Down position: DC 2...10 V (factory setting)
   Up position: 4...20 mA
2. **Analog output jumper**: AN2
   Down position: DC 2...10 V (factory setting)
   Up position: 4...20 mA
3. **End of line (EOL) jumper**: CAN bus
   Down position: Termination OFF (factory setting)
   Up position: Termination ON
   *First and last device on CAN bus network must have this jumper in the up/on position
4. **End of line (EOL) jumper**: BACnet MS/TP
   Down position: Termination OFF (factory setting)
   Up position: Termination ON
   *First and last device on BACnet MS/TP network must have this jumper in the up/on position
5. **Relay**: SPDT, 5A @ AC 125 V or 4A @ DC 24 V, non-inductive, explosion proof, failsafe
6. **Analog outputs**: AN1 and AN2
   DC 2...10 V or 4...20 mA (factory setting)
   *Scalable, min/max selectable
7. **Binary input to limit switch**
8. **Shield**:
   *Connected at the 1st device only, looped through all remaining devices
9. **No connection to the ground**

Wiring CAN bus

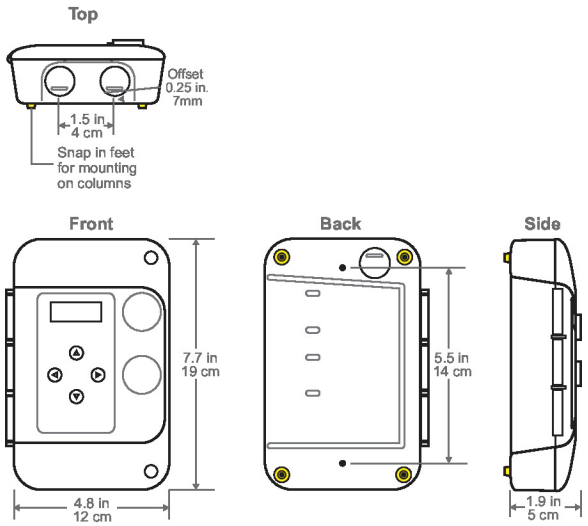


Wiring Diagram

Wiring RS485 BACnet MS/TP



Dimensions



Type	Weight
22G05-5A	0.95 lb [0.43 kg]
22G05-5B	0.95 lb [0.43 kg]
22G05-5C	0.95 lb [0.43 kg]

Further documentation

- Installation instructions
- Operating instructions