

TENDER SPECIFICATION

Refrigerant Gas Monitor

The gas detection system shall monitor selectable refrigerant gases using non-dispersive infrared sensing technology and shall meet the following minimum performance criteria:

Detection & Sensing

Sensing element: non-dispersive infrared (NDIR), dual-channel, with non-interactive zero and span calibration
Measured refrigerants: R11, R22, R23, R32, R125, R134a (default), R404A, R407A, R407C, R407F, R410A, R448A, R452A, R454B, R455A, R507, R513A, R1233zd, R1234yf, and R1234ze
Measuring range: 0...2000 ppm
Typical response time: <60 s (T90)
Calibration: annual calibration required
Warm-up time: 1 hour prior to accurate operation
All sensing elements must be capable of field calibration.

Coverage

Minimum coverage radius: 10 m
Minimum coverage area: 250 m² per unit, under unobstructed conditions (no walls, elevators, stairs, shelving, or other obstructions within the coverage radius)
Mounting height: 0.3...0.9 m below ceiling

Electrical & Power

Nominal voltage: AC/DC 24 V
Nominal voltage range: AC 20...25 V / DC 22...34 V, 50/60 Hz
Power consumption: ≤5 VA (AC) / ≤3.7 W (DC)

Communication & I/O

Native support for CAN bus protocol only
Maximum CAN bus network size: 32 nodes without repeater
Minimum 1 binary input
The 22G21-5C monitor itself provides no analogue outputs and no relay outputs; where analogue or relay outputs are required, these shall be provided through compatible Belimo CAN bus accessories C-22G-5..

Display & Alarm

Onboard LCD display with backlight, indicating selected refrigerant gas type, live concentration, and alarm status
Three-stage alarm sequence:
Level 1: visual alarm (red LED)
Level 2: visual alarm (red LED)
Level 3: combined visual and audible alarm (flashing white strobe LED and horn, minimum 80 dB @ 1 m)

Environmental & Safety

Active sensing temperature range: -20...40°C
Ambient operating temperature range: -20...50°C
Ambient humidity: 15...90% RH continuous, 0...99% RH intermittent, non-condensing

Maximum operating altitude: 2000 m above sea level (calibration verification recommended above 610 m)

Enclosure rating: IP20

Agency listing: ETL listed to UL 61010; BTL listed to BTL-30001

Manufacturer & Product Compliance

The refrigerant gas monitor shall be the Belimo 22G21-5C, with refrigerant selection/configuration appropriate to the project requirements. The selected configuration shall provide the specified refrigerant gas, CAN bus communication, and the required compatible accessories C-22G-5.. where additional relay or analogue outputs or BACnet MS/TP integration are specified.

The equipment shall be manufactured, brand labeled or distributed by Belimo.