

**BID SPECIFICATION FOR AUTOMATIC AND CONTINUOUS  
REFRIGERANT GAS DETECTOR FOR REFRIGERATION MACHINERY ROOMS,  
MECHANICAL ROOMS, CHILLER ROOMS, COLD ROOMS,  
SUPERMARKETS, DATA CENTERS AND FOOD PROCESSING FACILITIES**

Provide a stationary refrigerant gas leak detection system designed to alarm at a specified level of refrigerant gas in monitoring areas. The instrument shall be a wall mounted device with onboard sensor, using a pump to draw aspirated samples through tubing to the sensor, from the areas where refrigerant gases are most likely to concentrate. The instrument shall be capable of sequentially sampling from multiple different areas and report data specific to each monitored channel.

The refrigerant gas monitor shall meet the following specifications:

1. Coverage: single sensor onboard
2. Sensor type: Non-dispersive infrared (NDIR) sensor)
3. Gases detected: HFC, HFO, HCFC, CFC
  - a. The detector shall have an on-board gas library containing calibration data for >50 refrigerant gases, configurable to select a specific refrigerant for optimized accuracy of measurement
  - b. FA188, FC72, H1211, H1233ZD, H1234YF, H1234ZE, H1301, H2402, HFP, N1230, N4710, N7100, N7200, N7300, N7600, R-11, R-113, R-114, R-12, R-123, R-124, R-125, R-134a, R-21, R-22, R-227, R-23, R-236fa, R-245fa, R-32, R-401A, R-402A, R-402B, R-404A, R-407A, R-407C, R-407F, R-408A, R-409A, R-410A, R-422A, R-422D, R-424A, R-426A, R-427A, R-438A, R-448A, R-449A, R-452A, R-452B, R-500, R-502, R-503, R-507, R-508B, R-513A, R-514A
4. Accuracy:  $\pm 1$  ppm  $\pm 10\%$  of reading from 0-1,000 ppm ( $\pm 10$  ppm  $\pm 15\%$  of reading from 0-1,000 ppm for R-11, R-21, R-32, R-113)
5. Response time: T90 = 5 seconds plus sample transport time
6. Sample transport time: 19 seconds per 100 ft
7. Minimum detectable level: One part per million (1 ppm)
8. Automated zero-point calibration: The instrument shall periodically sample clean air and automatically perform a zero-point calibration
9. Number of channels: 1, 4, 8, 12 or 16
10. Operating Temperature: 32°-122°F / 0°-50°C
11. Ambient Humidity: 5% to 90% RH (non-condensing).
12. Sampling Mode: sequential per channel

13. Pump rate: 6 liters per minute
14. Monitoring distance: 1,200 ft max. for combined length of sample and exhaust tubing (each channel)
15. User interface: Display screen and keypad; gas reading simultaneously displayed per channel for all channels
  - a. Optional: Remote Display
16. Alarms: 3 levels
17. Power Status Indicator: Green LED
18. Alarm Status Indicator: Red LED, audible alarm, Modbus register, relay, display screen
19. Fault Status Indication: Yellow LED, Modbus register diagnostics, relay
20. Alarm reset: user selectable to be either manual or automatic
21. Power: 100 to 240 VAC, 50/60 Hz, 20 W
22. Communications:
  - i. Modbus RTU: Baud rate 9,600 or 19,200, configurable
  - ii. 4 x SPDT relays: low alarm, medium alarm, high alarm, fault
  - iii. Optional: dual channel analog output; 4-20mA
  - iv. Optional: BACnet
  - v. Optional: LONWORKS
23. Size: 12.23" x 13.7" x 4.96" (21.0642 cm x 34.7980 cm x 12.5984 cm)
24. Weight: 15 lbs (6.8 kg)
25. Certification: UL 61010-1, CAN/CA 22.2 No. 61010-1; EN61010-1, EN61326, EN14624; CE Mark
26. Manufacturer: Bacharach, model HGM-MZ
27. Warranty: One (1) year.