ANALOG OR MODBUS GAS DETECTORS DATASHEET
# ART Infrared Refrigerant Transmitter

The ART gas detector is a state-of-the-art, fixed, non-dispersive infrared refrigerant transmitter used to detect a wide range of refrigerant gases. The fast-responding sensor accurately detects refrigerant gas leaks without cross interference from other gases. It can be used as a stand alone system or integrated into a building management system (BMS).

The ART can be connected to a gas detection system using analog output wiring or Modbus® network communications wiring. It is compatible with the QCC Quad Channel controller and the FCS Flexible Control System controller as either an anlog or digital transmitter.
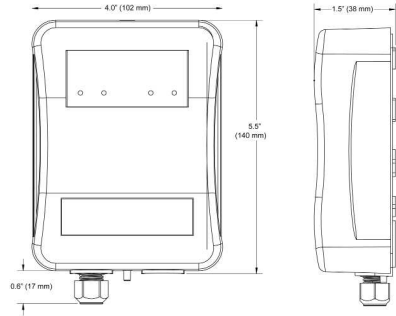
## KEY FEATURES

» Long life, non-dispersive infrared refrigerant sensor allows for accurate, low level leak detection with no cross interferences from other gases
» One relay
» Detects a wide range of refrigerants
» No field calibrations required
» Modbus® RTU interface to connect to BAS/BMS systems
» On-board alarm relay
» Bright, alpha-numeric, LED display with visual and audible alarms
» User selectable, analog output: 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V
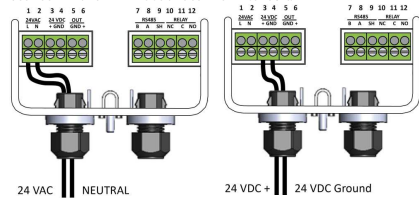» RoHS compliant circuit boards

## APPLICATIONS

» Supermarkets/Convenience Stores
» Refrigerated Mechanical Rooms
» Commercial Chiller Equipment Rooms
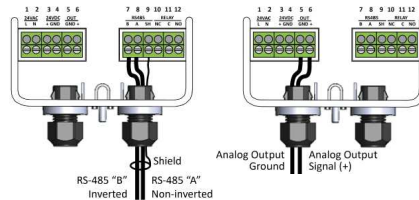» Food Storage/Processing Facilities
» and many more

## TECHNICAL DRAWING



4.0" (102 mm)    1.5" (38 mm)    5.5" (140 mm)    0.6" (17 mm)

## WIRING

Either 24VAC or 24VDC may be used to power the ART. Use two wires between 14 and 22 AWG stranded within conduit.



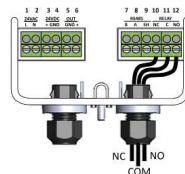24 VAC    NEUTRAL    24 VDC +    24 VDC Ground

For Modbus® network communications wiring, use only 18 to 24 AWG shielded twisted pair wire with 120 ohm characteristic impedance.

For analog output wiring, connect two 18 to 20 AWG wires to terminal block positions 5 and 6, noting ground and signal poalrity.



RS-485 "B" Inverted    RS-485 "A" Non-inverted    Shield

Analog Output Ground    Analog Output Signal (+)

For relay output wiring connect NO, NC or both, using 18 to 20 AWG wires to terminal block positions 10, 11 and 12, noting normally open, closed and common connectors.



NC    NO    COM

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# ART Infrared Refrigerant Transmitter

## TECHNICAL SPECIFICATIONS

### CALIBRATED TO TARGET GAS TYPES

R22, R32, R123, R134a, R404a, R407a, R407c, R407f, R410a, R427a, R448a, R449a, R507, R422a, R422d, R452a, R513a, HFO1234YF, HFO1234Ze, HFO1233ZD

### MECHANICAL

| Enclosure | ABS (UL94V-0 rated) |
|---|---|
| Weight | 180 g (0.40 lbs) (6.3 oz) |
| Size | 102 mm x 140 mm x 38 mm  / 4.0" x 5.5" x 1.5" |

### ELECTRICAL

| Power Requirement | 24 VDC @ 0.15 A min<br>24 VAC, 5VA min @ 50 - 60 Hz, 2.5 W max |
|---|---|
| Communication:<br>Modbus® RTU over<br>RS-485 | Baud rate: 9,600 or 19,200 (selectable)<br>Start bits: 1<br>Data bits: 8<br>Parity: none, odd, even (programmable)<br>Stop bits: 1 or 2 (programmable)<br>Retry time: 500 ms (minimum)<br>End of msg: silent 3.5 characters |

### INPUT / OUTPUT

| Analog Outputs | 4 - 20 mA; 0 - 5 V; 0 - 10 V; 1 - 5 V ; 2 - 10 V |
|---|---|
| Relays | One  relay rated 1 A @ 24 VAC / VDC (0.5A, 125V AC UL rating) |

### SENSOR

| Type | Non-dispersive Infrared |
|---|---|
| Range | 0 - 3,500 ppm |
| Response Time $T_{90}$ | < 5 minutes |

### USER INTERFACE

| Display | Green LED Power ON indicator and bright, alpha-numeric LED real-time display |
|---|---|
| Visual Alarm | Red 4-digit LED display |
| Fault Monitoring | Fault codes presented to user |
| Audible Alarm | Internal buzzer; enable / disable |
| Alarm Delay | Selectable; 0 - 15 minutes |

### ENVIRONMENTAL

| Operating Temperature | -30°C to 40°C (-22°F to 104°F) |
|---|---|
| Humidity | 5 - 90% RH non-condensing |

## PRODUCT CODES

*Single Channel Sensor*

| ART-B-R22 | R22 sensor (0 - 3,500 ppm) |
|---|---|
| ART-B-R32 | R32 sensor (0 - 3,500 ppm) |
| ART-B-R123 | R123 sensor (0 - 3,500 ppm) |
| ART-B-R134A | R134a sensor (0 - 3,500 ppm) |
| ART-B-R404A | R404a sensor  (0 - 3,500 ppm) |
| ART-B-R407A | R407a sensor  (0 - 3,500 ppm) |
| ART-B-R407C | R407c sensor  (0 - 3,500 ppm) |
| ART-B-R407F | R407f sensor (0 - 3,500 ppm) |
| ART-B-R410A | R410a sensor (0 - 3,500 ppm) |
| ART-B-R422A | R422a sensor (0 - 3,500 ppm) |
| ART-B-R422D | R422d sensor (0 - 3,500 ppm) |
| ART-B-R427A | R427a sensor (0 - 3,500 ppm) |
| ART-B-R448A | R448a sensor (0 - 3,500 ppm) |
| ART-B-R449A | R449a sensor (0 - 3,500 ppm) |
| ART-B-R452A | R452a sensor (0 - 3,500 ppm) |
| ART-B-R507 | R507 sensor (0 - 3,500 ppm) |
| ART-B-R513A | R513a sensor (0 - 3,500 ppm) |
| ART-B-HFO1234YF | HFO1234YF sensor (0 - 3,500 ppm) |
| ART-B-HFO1234ZE | HFO1234Ze sensor (0 - 3,500 ppm) |
| ART-B-HFO1233ZD | HFO1233ZD sensor (0 - 3,500 ppm) |

* Special order items. Conditions may apply.

**OPTIONS** *(To be added at the end of the "Part Number" above. )*

| S | Splash cover for wash-down applications |
|---|---|

### CERTIFICATION

CE, UL/CSA/ IEC / EN 61010-1

### ACCESSORIES

| Calibration Kit for 17, 34, 58, 74, 100 L cylinders, 0.5 LPM flow regulator & adapter to fit 17 L cylinder | CET-715A-CK1 |
|---|---|
| Metal protective guard, large, 16 gauge, galvanized | SCS-8000-SPG |



ART shown with splash cover