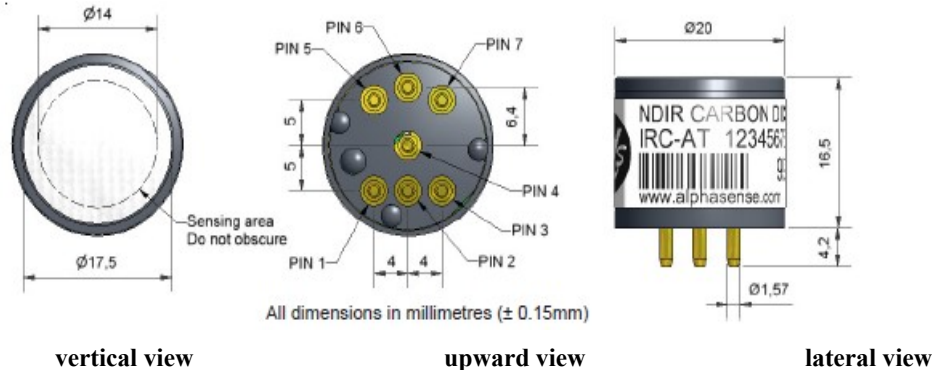


IRC-AT Carbon Dioxide Infrared Sensor Therm- opile Detector



Figure 1 Schematic Diagram of IRC-AT



Pin description:

1. Lightbulbs Return
2. Light bulb 5V power supply
3. Not on the phone
4. Probe output
5. Reference outputs
6. Thermistor output
6. Do not solder the pins directly

make a footnote :

1. Dimensions without tolerance are nominal dimensions
2. Recommended PCB slot: Wearnes Cambion Ltd.
Material code: 450-3326-01-06-00
3. Weight: 15g
4. Take anti-static measures when operating

7. We recommend that sensors be used in stationary equipment, where they can be calibrated and measured locally, and are not affected by acute mechanical stress or temperature changes.

function	
Maximum power consumption requirements	Maximum 5.0 VDC, 60mA (50% duty cycle drive)
Minimum operating voltage	Maximum 2.0 VDC, 20mA (50% duty cycle drive)
Source drive frequency	3 Hz
Output of the working channel ₂ in N	4~7mV @ 3 Hz, 50% duty cycle
Reference channel output in N ₂ (peak to peak)	2~5mV @ 3 Hz, 50% duty cycle
Response time (t90)	<40s @ 20°C environmental temperature under
preheating time	Time to final zero ± 100ppm: <30s @ 20°C Time to steady state: <30 min @ 20°C

life span	
mean free error time	> 5 years

Key specifications and parameters	
Temperature signal	Thermistor (NTC, R ₂₅ = 100kΩ β= 3940 K)
operating temperature range	-20°C ~ +50°C (0~40°C linear compensation)
Storage temperature range	-40°C ~ +75°C
Humidity range	0 ~ 95% rh non-condensable

type	Scope (application)	Accuracy (% FS, using generic lines Sex coefficient)	Zero resolution (ppm)	gamut resolution ratio (ppm)	Zero point consistency (ppm)	gamut consistency (ppm)	General linear coefficient b	General linear coefficient c	Full scale calibration concentration
IAQ	0~5000ppm (air quality)	1	10	50	±20	±50	0.000325	0.9363	4000ppm
other	0~5% vol (safe)	1.5	10	100	±20	±500	0.5411	0.6716	4%
	0~ 20% vol (combustion)	2.5	10	2000	±20	±2500	1.0459	0.2932	16%
	0~100% vol (process control)	indeterminate	10	indeterminate	±20	indeterminate	indeterminate	indeterminate	100%

Figure 2. Beer-Lambert Characteristics

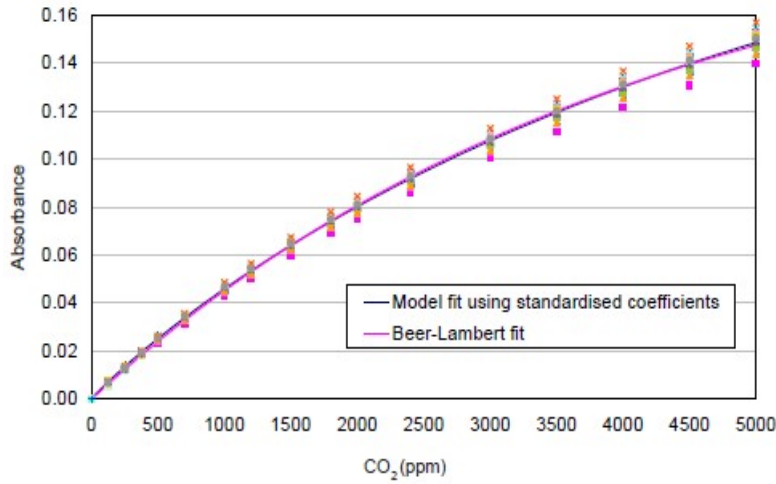
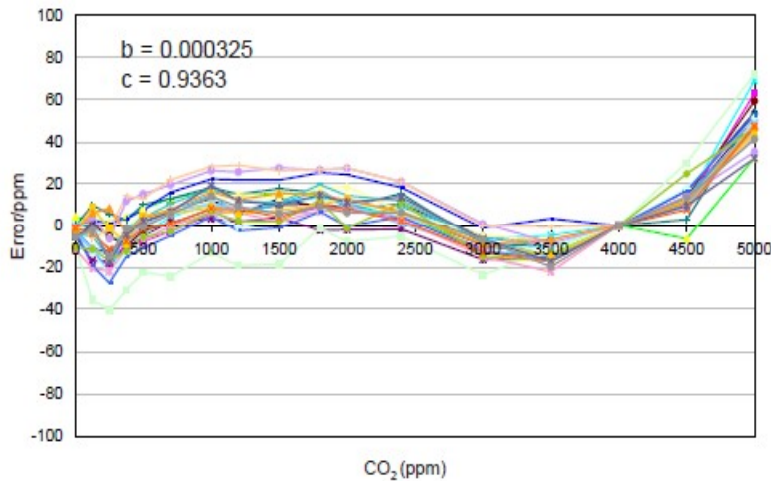


Figure 2 shows the typical response of the sensor at 0-5000 ppm CO₂.

This fitted curve is very close to the theoretical curve predicted by the Beer-Lambert law.

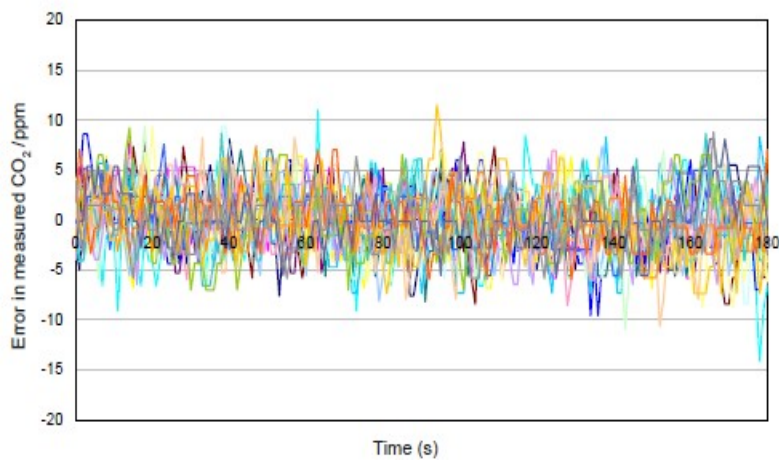
Figure 3 Linearity



IRC-AT does not require linearity. Using a common linearity constant, the consistency between sensors is very good and very convenient to use.

For IAQ applications, the errors obtained after calibration at zero and 4000ppm are shown in the figure: The errors from 0 to 4500ppm are generally less than ± 40 ppm.

Figure 4 Resolution



IRC-AT For The superior stability and resolution of the 1000ppm CO₂ reaction is due to improved design, not the use of more expensive components.

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