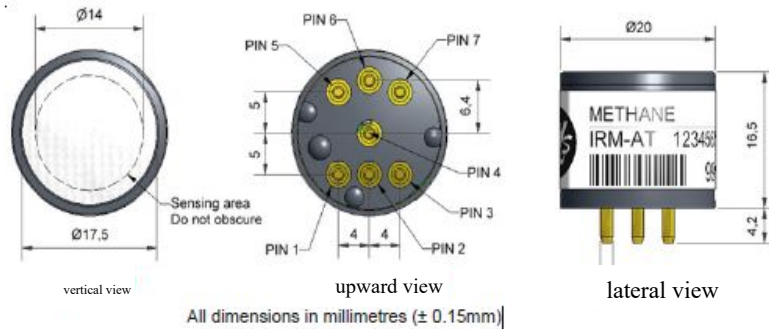


**IRM-AT methane
infrared sensor
thermopile detector**



Figure 1 Schematic Diagram of IRM-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
7. OV power supply

make a footnote :

1. All dimensions without tolerance are nominal
2. Recommended PCB slots: Wearnes Cambion Ltd. Material code: 450-3326-01-06-00
3. Weight: less than 15g
4. Take anti-static measures during operation
5. Do not cut the pins
6. Do not solder the pins directly
7. We recommend that sensors be applied to stationary equipment, where calibration and measurement can be performed on site, and where the sensor is not affected by acute mechanical stress and 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)
driving frequency	Typical 3 Hz, 50% duty cycle
Air working/referring channel output (peak to peak)	2~4mV @ 3 Hz, 50% duty cycle
2.5% CH ₄ Typical working signal variation	Drop 5% (typical) @ 5 V, 3 Hz, 50% duty cycle
100% CH ₄ typical working signal variation	Drop by 30% (typical) @ 5 V, 3 Hz, 50% duty cycle
Reaction time (t90)	<40s @ 20°C environmental temperature under
preheating time	30 min @ 20°C, 5 VDC

life span

Average Time Between Failures @ 5VDC > 3 years

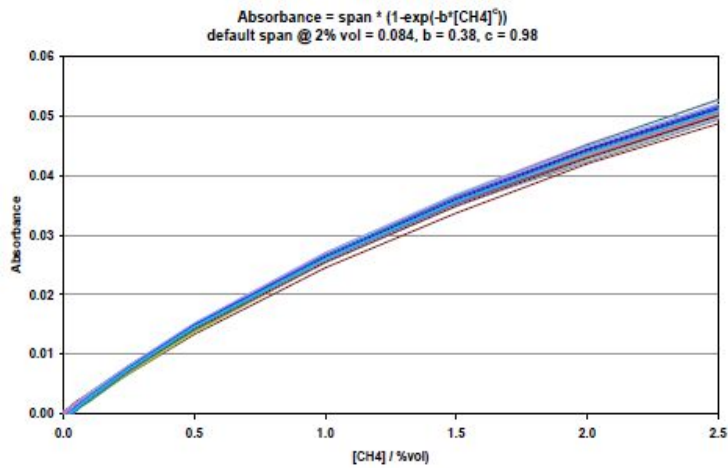
Key specifications and parameters

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

range	0 ~ 2.5%	0 ~ 100%*
accuracy	< ± 500 ppm	< ± 1% vol
Zero resolution	< 200 ppm	< 300 ppm
Full range resolution	< 400 ppm	< 2.5% vol
Zero-point consistency	< ± 500 ppm	< ± 1,000 ppm
Full range consistency	< ± 0.1% vol	< ± 2% vol
Limits of detection	< 500 ppm	< 1,000 ppm
Range coefficient	0.074 ~ 0.094	1.1 ~ 1.3 @ 95%
Linear coefficient b	0.38	0.025
Linear coefficient c	0.98	0.553

* Note: Due to the hot infrared source inside the sensor, do not use this sensor in any environment where there may be or may form methane mixtures and/or other flammable and explosive gas mixtures with oxidizers (such as air).

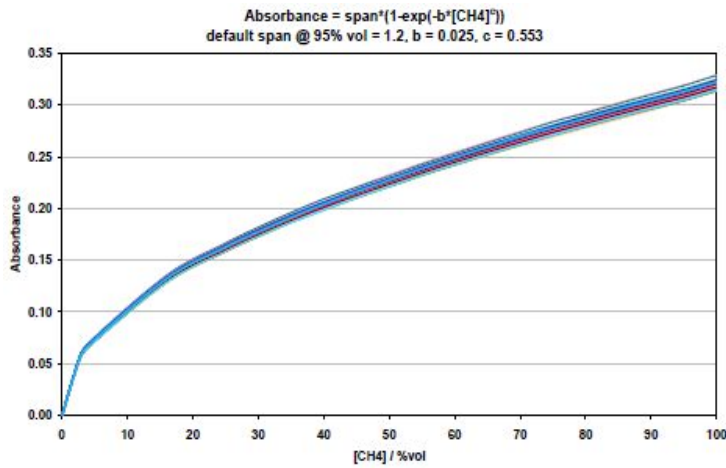
Figure 2 Reaction of 0-2.5% Methane



Due to the use of a patented optical design, the sensor has a repeatable and stable absorption rate in accordance with Beer-Lambert's law.

This allows the use of a universal linearity without relying on a custom electrically erasable read only memory.

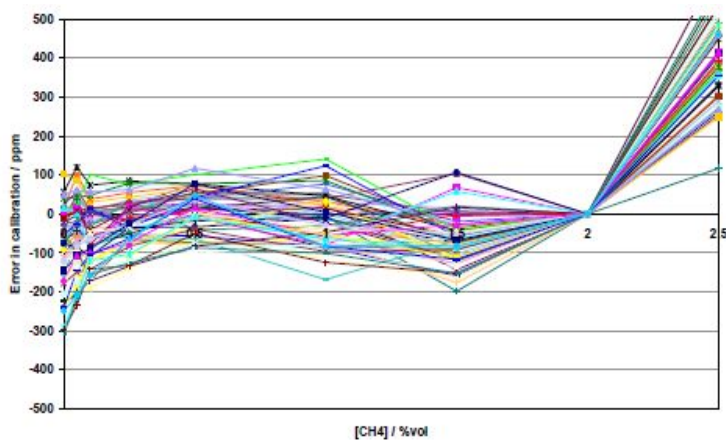
Figure 3 Reaction of 0-100% Methane



The NDIR CH₄ sensor can detect 100%CH₄, but its plastic housing is not explosion-proof certified.

However, in environments where explosive gases are present or may develop into explosive gases, the sensor can be used in a shell that has been certified for explosion protection.

Figure 4 Error of the Calibration Sensor in 0-2.5% Methane



Using the general linearity, the error of IRC-AT will be less than 0.05%CH₄.

However, calibration is required at zero point and at 2% CH₄.

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