





Technical specifications Version 1.0

IRM-AT Methane infrared sensor – thermopile detector

Ø14	PIN 6-	<i>a</i> 22
	PIN 5	-PIN 7
Ø17,5	Sensing area Do not obscure PIN 1	METHANE IRM-AT 123456 50 90 91 57
Top View	Bottom View	Side View
Dimensions are in millimetres (± 0.15mm).		
Pin out details:	Notes:	
 Lamp return Lamp +5V Not connected Detector output Reference output Thermistor output OV supply 	 Dimensions without t Recommended PCB Weight: < 15g Use antistatic precau Do not cut pins Do not solder directl We suggest this sens measurement can be mechanical stress or 	olerances are nominal socket: Wearnes Cambion Ltd. code: 450-3326-01-06-00 utions when handling y to pins or is best used in a fixed site instrument where calibration and e carried out in-situ, and the sensor is not subject to acute changes of temperature.
Performance	Maximum power requirements Minimum operating voltage Source drive frequency Active/Reference output in air (peak-to-pea Typical active signal change for 2.5% CH ₄ Typical active signal change for 100% CH ₄ Response time (t ₉₀) Warm-up time	 5.0 VDC, 60mA max. (50% duty cycle source drive) 2.0 VDC, 20mA max. (50% duty cycle source drive) 3 Hz typical, 50% duty cycle 2 to 4 mV @ 3 Hz, 50% duty cycle 5% drop (typical) @ 5 V, 3 Hz, 50% duty cycle 30% drop (typical) @ 5 V, 3 Hz, 50% duty cycle < 40 s @ 20°C ambient 30 minutes @ 20°C, 5 VDC
Lifetime	MTBF @ 5 VDC	> 3 years
Key Specifications	Temperature signal Operating temperature range Storage temperature range Humidity range	Integral thermistor (NTC, R ₂₅ = 100KΩ B= 3940 K) -20°C to +50°C (linear compensation from 0 to 40°C) -40°C to +75°C 0 to 95% rh non-condensing

Range	0 - 2.5%	0 - 100%*
Accuracy	< ± 500ppm	< ± 1% vol
Resolution at zero	< 200ppm	< 300ppm
Resolution at range	< 400ppm	< 2.5% vol
Zero repeatability	< ± 500ppm	< ± 1,000ppm
FS repeatability	< ± 0.1% vol	< ± 2% vol
Limit of detection	< 500ppm	< 1,000ppm

Span coefficient	0.074 - 0.094	1.1 - 1.3 @ 95%
Linearisation coefficient b	0.38	0.025
Linearisation coefficient c	0.98	0.553

For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. or visit our website at "www.alphasense.com".





Instrument Expert Original factory packaging www.dorgean.com



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Figure 1 Response up to 2.5% volume methane



Patented optical design gives repeatable and stable absorbancy, following the Beer-Lambert Law. This allows universal linearisation, not reliant on custom EEPROMs.

Figure 2 Response up to 100% methane



This NDIR methane sensor responds up to 100% methane but the housing is plastic so is not Ex approved.

However, the sensor could be placed in an Ex approved housing for applications where an explosive atmosphere is present or could develop.

Figure 3 Calibration error to 2.5% methane



Using universal linearisations, the IRC-AT error is less than 0.05% methane.

Zero and 2% methane calibrations are required.

*Note: Due to the incandescent IR source within the sensor, this device should NOT be used for applications where there is a possiblity of the presence or formation of an explosive mixture of methane and/or other flammable gases with an oxidant such as air.

At the end of the product's life, do not dispose of any electronic sensor, component or instrument in the domestic waste, but contact the instrument manufacturer, Alphasense or its distributor for disposal instructions. NOTE: all sensors are tested at ambient environmental conditions unless otherwise stated. As applications of use are outside our control, the information provided is given without legal responsibility. Customers should test under their own conditions, to ensure that the sensors are suitable for their own requirements.

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