

DESCRIPTION

The PGS6000 series measures A2L refrigerant concentration in the air by measuring the change in thermal conductivity of the gas mixture. A2L refrigerant gases and air have different thermal conductivity. A variation in refrigerant concentration results in changes in the thermal conductivity of the gas mixture. As compared to competing detection technologies, thermal-conductivity-based detection offers the benefits of superior long-term reliability (there's no lamp or delicate optical path to break, and it's not reactive to chemical contaminants) and resilience in harsh operating environments.

The PGS6000 series uses Posifa's second-generation MEMS thermal conductivity sensing element. It features a patented "heat transfer cavity" that achieves highly sensitive and repeatable thermal conductivity measurement by eliminating possible occurrences of natural convection inside the cavity. Because thermal conductivity measurement is accomplished completely inside the sensor chip, maximum miniaturization can be realized at the device level. Compact leak detectors are critical for HVAC equipment manufacturers that have to retrofit detectors into existing designs.

To account for changes in thermal conductivity due to humidity and barometric pressure variations, the PGS6000 series incorporates a relative humidity sensor and a barometric pressure sensor for compensation.



The list of supported A2L refrigerants includes R32 and R454B, and will be expanded to support additional refrigerants in the future. The output from the PGS6000 series is RS485 Modbus RTU.

FEATURES

- Long-term reliability: > 15-year lifetime
- Miniaturization
- Fast response time: < 10s
- Accurate, stable, and repeatable

APPLICATIONS

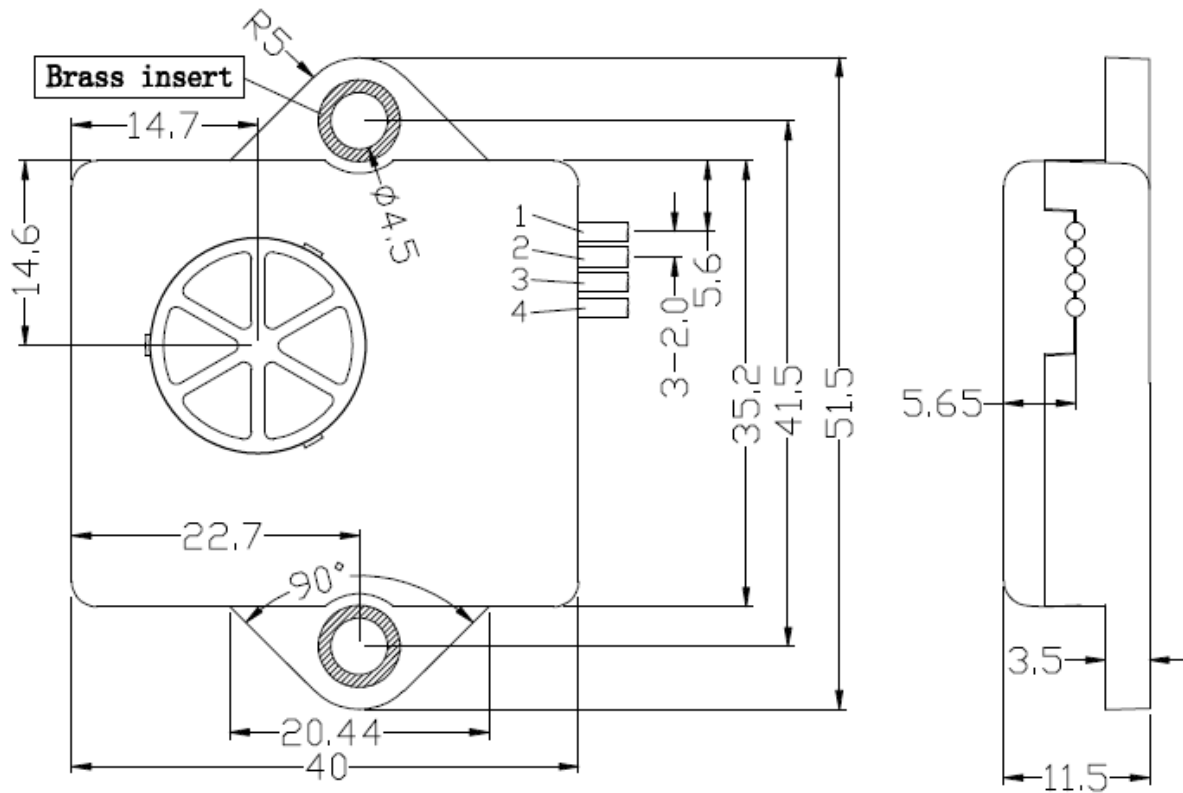
- Residential and commercial air conditioning
- Heat pumps
- Refrigeration equipment

SPECIFICATIONS

PERFORMANCE					
SPECIFICATIONS	MIN	TYP	MAX	UNIT	CONDITIONS
Target gases	R454B, R32 (others available upon request)				
Measurement range	1		100	% LFL	
Warm-up time			5	s	
Response time			10	s	Default, configurable
Accuracy			± 2.5	% LFL	Ambient
			± 5	% LFL	Across operating range
Alarm setpoint		10		% LFL	Default, configurable
Lifetime	15			year	
Communication	RS485 Modbus RTU				
Enclosure protection	IP54				
Compliance	UL 60335-2-40 Annex LL				

ELECTRICAL/ENVIRONMENTAL					
SPECIFICATIONS	MIN	TYP	MAX	UNIT	CONDITIONS
Supply voltage	3.3	5	5.5	Vdc	
Operating current - peak			22	mA	When sensor heater is turned on
Operating temperature	-40		85	° C	
Storage temperature	-40		90	° C	
Operating relative humidity	0		100	% RH	Max. 40 °C dew point
Operating pressure	70		120	kPa	

DIMENSIONS AND PINOUT



PIN	Description	Color
1	+5 Vdc	Red
2	Ground	Black
3	485B-	Blue
4	485A+	Yellow

INSTALLATION

PGS6000 series sensors must be exposed to measured air at all times. The location must be chosen so as to maximize air exchange; dead spaces must be avoided. Preferably, the vent in the module should be facing downward. If this is not possible, it should be vertical. It should never be facing upward, to prevent accumulation of dirt and water.

ORDERING INFORMATION

PART NUMBER	SPECIFICATIONS
PGS6032-R	R32
PGS6454-R	R454B
PGS6032-EVAL	Evaluation kit for R32 A2L refrigeration gas
PGS6454-EVAL	Evaluation kit for R454 A2L refrigeration gas