1SERIES ANALOGUE GAS SENSORS

Compact, future-proof sensors

Honeywell

1SERIES
ANALOGUE GAS SENSORS

Honeywell resets the size standard for gas sensing technology as the 1series demonstrates a significant reduction in size from previous sensing technology.

The 1series gas sensor is a small sensor that enables slim-profile gas detector design. Traditionally, sensors are fitted within instruments, such as portable life safety devices. With the 1series low-profile design, the sensors have turrets to mount into the front of the instrument in order to minimize instrument height. This revolutionary design also simplifies target-gas access to the sensor face and features an option for a replaceable external membrane.

With an extended operating life of five years and extended temperature and humidity range, 1series sensors are also designed to meet over multiple performance standards, including ANSI/ISA 92.00.01-2010, BS EN 45544-1:2015, and AS/NZS 4641-2007.

FEATURES AT A GLANCE

Low profile
- Unique compact square sensor design meets the requirement for thinner more lightweight gas detectors
- Eases instrument design and manufacturing
- **1/3** the height of existing sensors

Enhanced specifications
- Engineered with an operating life of **five years**
- Excels in challenging and extended temperature and humidity extremes

Surface mount spring contacts
- No PCB through holes to maximize sensor mounting flexibility

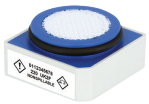
Sensor platform for the future
- Trusted sensor technology uses the same form factor of future platforms

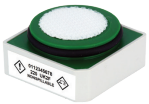
Broad range of gas detection
- Sensors can detect CO, H_2S, O_2, SO_2, NO, NO_2, O_3, Cl_2, LEL combustible gases

Easily identifiable
- Sensors use unique housing color for each gas type

1SERIES
ANALOGUE GAS SENSORS

Table 1: Wave 1 Sensor Specifications




SENSOR	1CO	1H_2S	1O_2	1SO_2	LEL
Target Gas	Carbon Monoxide	Hydrogen Sulfide	Oxygen	Sulfur Dioxide	Combustible Gases***
Technology	Electrochemical	Electrochemical	Lead-free Electrochemical	Electrochemical	Catalytic Oxidation
Measurement Range	0.5 ppm CO to 1000 ppm CO (EN 45544 applications)	0.5 to 200 ppm H_2S	0.6 to 25% vol. O_2	0.1 to 20 ppm SO_2	1% to 100% LEL
Maximum Overload	2000 ppm CO	500 ppm	30% vol. O_2	150 ppm SO_2	
Sensitivity*	50 ±10 nA/ppm	175 ±35 nA/ppm	80 mA to 130 mA in air	160 ±40 nA/ppm	31 mV/%CH_4 ±5 mV/%CH_4
T50 Response Time*	< 15 seconds (@ 20°C)	< 15 seconds (@ 20°C)	< 10 seconds (@ 20°C)	< 10 seconds (@ 20°C)	
T90 Response Time*	Typically < 20 seconds	Typically < 30 seconds	Typically < 15 seconds	Typically < 30 seconds	< 20 seconds (methane) at 20°C
Recommended Load Resistor	5 Ohm to 10 Ohm	5 Ohm to 10 Ohm	10 Ohm	10 Ohm	
Bias Voltage	No bias	No bias	-600 mV ±10 mV	No bias	Consult LEL electrical specs
Expected Operating Life	5 years in air	5 years in air	5 years in air	5 years in air**	5 years in air
Weight	< 5 g	< 5 g	< 5 g	< 5 g	< 5 g
Contact Material	Gold plated	Gold plated	Gold plated	Gold plated	Gold plated
Orientation Sensitivity	None	None	<0.5% signal	None	None
Operating Temperature Range	-40°C to +60°C	-40°C to +60°C	-40°C to +60°C	Continuous: -20°C to +50°C Intermittent: -40°C to +55°C	-40°C to +60°C
Operating Pressure Range	600 mbar to 1200 mbar	600 mbar to 1200 mbar	600 mbar to 1200 mbar	600 mbar to 1200 mbar	600 mbar to 1200 mbar
Long Term Output Drift*	< 5% signal loss per annum	< 10% signal loss per annum	< 5% signal loss over operating life	< 10% signal loss per annum	< 3% signal/month
Filter Information	Activated carbon cloth filter with high surface area: • Removes acid gases such as SO_2, NO_2, and H_2S • 25,000 ppm hours H_2S filter capacity • Protects from exposure to alcohol, such as methanol, ethanol, and IPA (1000 ppm hours)	No filter	No filter	Removes H_2S 400 ppm hours @ 25 ppm H_2S	Removes H_2S (Consult LEL table below for information regarding additional filters)
Standards	Designed to meet global performance standards: ANSI/ISA 92.00.01-2010, BS EN 45544-1:2015, AS/NZS 4641-2007	Designed to meet global performance standards: ANSI/ISA 92.00.01-2010, BS EN 45544-1:2015, AS/NZS 4641-2007	Designed to meet global performance standards: ANSI/ISA 92.04.01:2007, BS EN 50104:2010, AS/NZS 4641-2007	Designed to meet global performance standards: ANSI/ISA 92.00.01-2010, BS EN 45544-1:2015	UL 60079, IEC 60079, CENELEC EN 60079, CSA C22.2 No. 60079, (Parts 0, 1, and 11); CENELEC EN50303:2000; DEMKO 16 ATEX 1557
Catalog Listings	AB010-R01A-CIT	AC400-R00A-CIT	AAW85-07WA-CIT	AD300-R04A-CIT	Consult LEL Table 2***

* Specifications are valid at 20°C, 50% RH, and 1013 mBar, using Honeywell's recommended circuitry. Performance characteristics outline the performance of sensors supplied within the first three months. Output signal can drift below the lower limit over time.

** Depends on environmental conditions

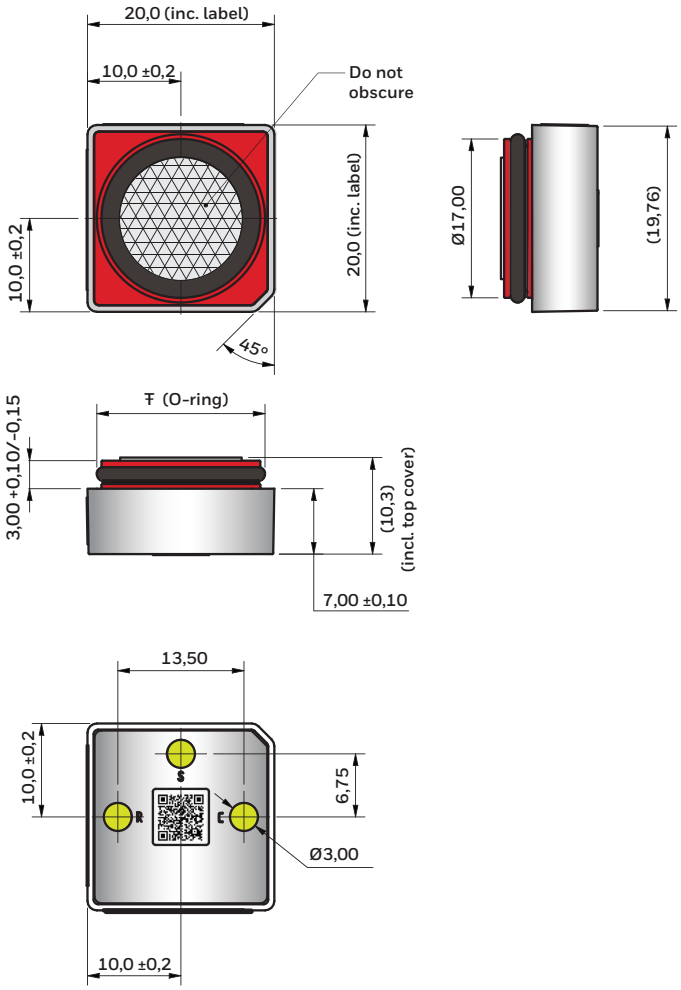
Table 2: LEL***

SENSORS	1LEL75	1LEL75C	1LEL75M
Target Gas	Combustible gases and vapors	Combustible gases and vapors up to C6	Methane and hydrogen
Inboard Filter	Removes H_2S	Removes H_2S	Removes H_2S
Additional Filter	None	Silica filter to improve silicone resistance	Carbon cloth filter to improve silicone resistance
Catalog Listing	M979-600-CIT	PM989-600-CIT	PM999-600-CIT

1SERIES
PRODUCT DIMENSIONS

1CO, IH$_2$S, 1O$_2$, 1SO$_2$ Sensors

All dimensions in mm
All tolerances ±0.15 mm unless otherwise stated



LEL Sensors

All dimensions in mm
All tolerances ±0.15 mm unless otherwise stated

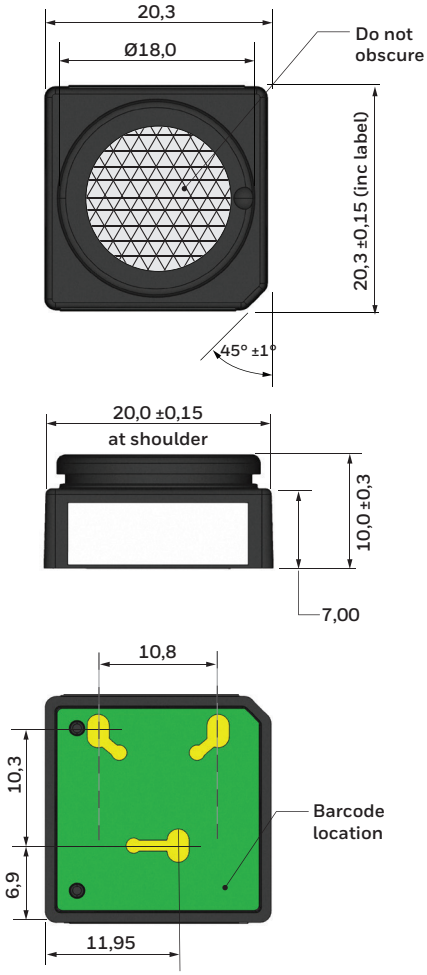


Table 3: Pinout

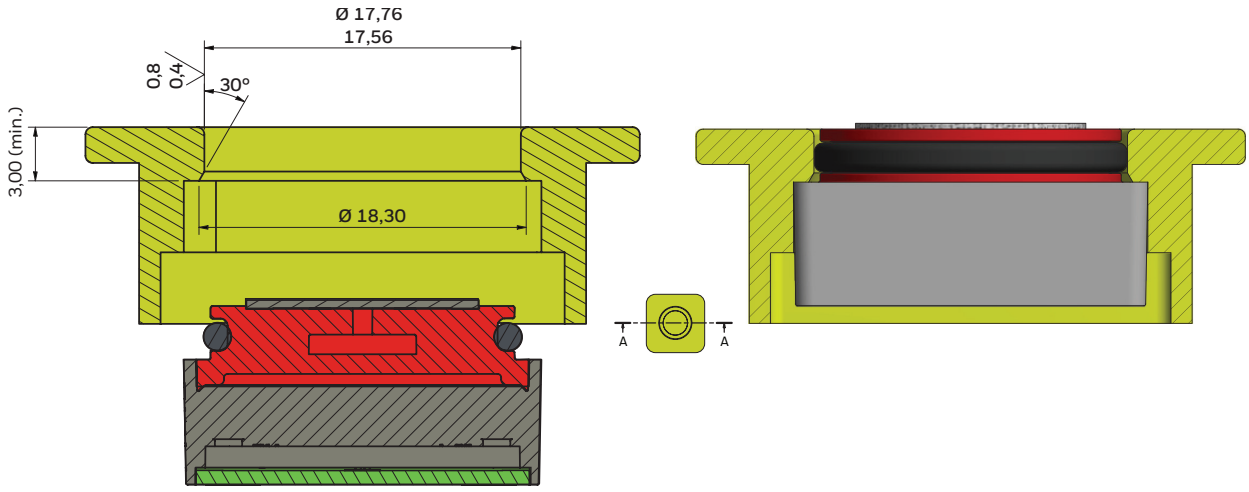
PIN	LABEL	DESCRIPTION
1	S	Sensing electrode
2	R	Reference electrode
3	C	Counter electrode

Table 4: LEL Electrical Specifications

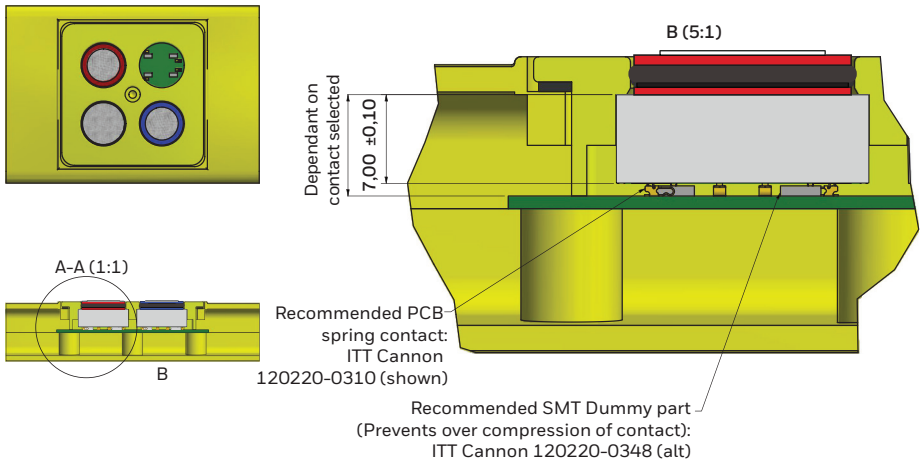
DESCRIPTION	MEASUREMENT
Operating voltage	3.3 Vdc ±0.05 Vdc
Operating current	84 mA maximum
Power requirement	280 mW maximum

Recommended Sensor Instrument Integration

Sensor turret provides IP68 sealing



PCB Mounting



WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is buyer's sole responsibility to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Honeywell assumes no responsibility for its use.

⚠ WARNING
MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

SAFETY NOTE

This sensor is designed to be used in safety critical applications. To ensure that the sensor and/or instrument in which it is used, are operating properly, it is a requirement that the function of the device is confirmed by exposure to target gas (bump check) before each use of the sensor and/or instrument. Failure to carry out such tests may jeopardize the safety of people and property.

FOR MORE INFORMATION

Honeywell Advanced Sensing Technologies services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing, or the nearest Authorized Distributor, visit sps.honeywell.com/ast or call:

USA/Canada	+302 613 4491
Latin America	+1 305 805 8188
Europe	+44 1344 238258
Japan	+81 (0) 3-6730-7152
Singapore	+65 6355 2828
Greater China	+86 4006396841

Honeywell
Advanced Sensing Technologies
830 East Arapaho Road
Richardson, TX 75081
sps.honeywell.com/ast

SC-1SERIESGASSNSRS-EN | 1 | 07/22

Honeywell