K·Detect·iON
Calibration-Free Sensing

K-Detect-iON

Flammable Gas Sensor

Features

- ETL listed to UL2075
- Detects over 10 types of flammable gases
- Calibration free over its life span
- 0-100% LEL detection of flammable gases
- Detects electrolyte vapours (VOC)
- Very fast response time*: T90* <30 secs
- 3 Programmable relays
- RS485 communication - Modbus RTU protocol
- Wide operating temp range

* T90 response time is defined as the time required for the sensor to reach 90% of the final / maximum value.

Description

K-Detect-iON is an advanced self calibrating Flammable Gas Sensor. The patented self calibrating mechanism ensures that the detector is always operating at its optimum performance levels throughout its lifetime.

K-Detect-iON is capable of detecting multiple flammable gases including Methane (CH_4), Hydrogen (H_2) as well as other Hydrocarbon gases - see Sensor Metrics table.

K-Detect-iON is also capable of detecting Volatile Organic Compounds (VOC) these are key indicators of potential problems in Li-ion batteries. VOCs are emitted during critical situations like electrolyte leaks or overcharging and can lead to fires or explosions if not detected early enough.

K-Detect-iON is unique in its ability to detect VOC and Hydrogen in the same sensor making it the ideal solution for protection of Battery Energy Storage Solutions (BESS).

K-Detect-iON provides three programmable volt free changeover relay outputs for signalling status or controlling other equipment. Each relay can be programmed with a delay and a minmum running time. The minimum running time will determine how long the relay remains active once the trigger threshold is reached.

An LED status indicator is provided on the sensor which clearly indicates the current sensor status.

The K-Detect-iON sensor can be directly interfaced to an Industrial Controller (ICS) or modbus controller using the RS485 connection and Modbus RTU protocol, this allows configuration of the sensor and monitoring of real time data.

Specification

Ordering Code & Description:	
KD-FLAM-GAS	Flammable Gas Sensor

Sensor Metrics:		
Internal temperature measurement range	-40°C to 125°C (-40°F to 257°F)	
Internal temperature accuracy	±0.48°C (0.86°F)	
Internal relative humidity measurement range	0 to 100% RH (non-condensing)	
Internal relative humidity accuracy	2% RH	
VOC measurement output range	0-500 VOC Index	
VOC repeatability	<±5 VOC index points or % mass volume (m.v.)	
Accuracy	Butane (C_4H_{10}), Ethane ($C2H_6$), Hydrogen (H_2), Isobutane (CH_3), Methane (CH_4), Pentane (C_5H_{12}), Propylene (C_3H_6)	±5% LEL
	Propane (C3H8)	±6% LEL
	Octane (C_8H_{18}), Toluene (C_7H_8), Xylene (C_8H_{10})	±12% LEL

Specification continued overleaf.

Kentec Electronics Ltd

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Specification (continued)

Sensor Metrics:	
Response time (T90)	<30s
Detection Range	0-100% LEL
Detection method	Spectrometer

Technical Specifications:	
Relay outputs	3 (Normally Open)
Relay switching current	up to 0.5A
Input Voltage	12-24V DC
Power usage	672mW
Status Indicator Tri-colour LED:	Normal condition - Green Warning - Amber Down - Red Fault - Red
Protocol	Modbus RTU over RS485
Life span	up to 15 years

Environmental Specifications:	
Hydrogen (H_2):	
Operating temperature range	-40°C to 75°C (-40°F to 167°F)
Humidity (operating and storage)	0 to 100% RH (non-condensing)
Methane (CH_4):	
Operating temperature range	-40°C to 70°C (-40°F to 158°F)
Humidity (operating and storage)	0 to 100% RH (non-condensing)

Physical Specifications:	
Sensor enclosure	Steel enclosure, industrial grade
IP rating	IP20*
Mounting option	OU rack, DIN rail, magnetic, or wall mountable
Dimensions	71mm (2.79”) x 70.5mm (2.77”) x 30 mm (1.18”)
Weight	193g (0.43lbs)

* This is a declared IP rating by Kentec Electronics and has not been independently verified.

Certification and Calibrations:
ETL listed to UL2075
IEC60068-2-30, IEC60068-2-6, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6
Compliant with EMC directive (EU) 2014/30 - EN50270:2015, EN55032:2015, EN55035:2017
Compliant with Low Voltage Directive (EU) 2014/35 - EN61010:2010
REACH compliant
RoHS 3 compliant