

Gas leak detection essay



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These sensors usually employ an audible alarm to alert people when a dangerous gas has been detected. Common sensors used today include Infrared Point Sensor, ultrasonic gas detectors, electrochemical gas detectors, and Semiconductor Sensors. More recently, Infrared Imaging sensors have come into use. All of these sensors are used for a wide range of applications, and can be found in industrial plants, refineries, wastewater treatment facilities, vehicles, and around the home.

HISTORY Gas leak detection methods became a concern after the effects of harmful gases on human health were discovered.

Before modern electronic sensors, early detection methods relied on less precise detectors. Through the 19th and early 20th centuries, coal miners would bring canaries down to the tunnels with them as an early detection system against life-threatening gases such as carbon dioxide, carbon monoxide and methane. The canary, normally a very sinful bird, would stop singing and eventually die in the presence of these gases, signaling the miners to exit the mine quickly.

Before the development of electronic household carbon monoxide detectors in the 1950s and 60s, carbon monoxide presence was detected with a chemically infused paper that turned brown when exposed to the gas. Since then, many technologies and devices have been developed to detect, monitor, and alert the leakage of a wide array of gases. **GASEOUS DANGER** Here is a gas leak detector circuit that detects the leakage of ALP gas and alerts the user through audio-visual indications.

The circuit operates off a 9V battery.

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Keener diode ZED is used to convert V into V_{DC} to drive the gas sensor module. The gas leakage circuit uses the SEEN-1327 gas sensor module from Orthodoxy. Its output goes high when the gas level reaches or exceeds certain point.

A preset in the module is used to set the threshold. Interfacing with the sensor module is done through a 4-pin SIP header. Pin details of the gas sensor module are shown in Fig. 2.

An MS-6 gas sensor is used in the gas sensor module. The sensor can also be used to detect combustible gases, especially methane.

Gas leak detector schematic ESSENCE gas sensor pin details and picture
Whenever there is ALP concentration of 1000 ppm (parts per million) in the area, the OUT pin of the sensor module goes high. This signal drives timer IC 555, which is wired as an astable multivibrator. The multivibrator basically works as a tone generator. Output pin 3 of IC 555 is connected to L1ED and speaker-driver transistor SOIL through current-limiting resistors RE and RE, respectively.

L1ED glows and the alarm sounds to alert the user of gas leakage.

The pitch of the tone can be changed by varying preset IVR. Use a suitable heat-sink for transistor SOIL. The SEEN-1327 ALP Gas Sensor Module is designed to enable ALP detection interface to microelectronics without ADS channels.

It allows determining when a preset ALP gas level has been reached or exceeded. Interfacing with the sensor module is done through a 4-pin SIP

header and requires One I/O pin from the host microelectronic. Starts to measure ALP sensor output. If it found the ALP contents above settee value, it will inform the Host controller by pulling the Output Pin to High and Starts to blink onboard status LED.