



Description

The WiFi Natural gas module is a factory calibrated battery operated gas detection device designed for detection of natural gas (methane) in concentrations below 100% LEL (4.4% CH₄ in air). The sensor is not suitable for measuring propane and butane. The sensor is equipped with a WiFi module enabling the communication over a wireless connection. It also includes a test button as well as an audible alarm and an embedded buzzer.

The gas sensor device is an SGX low power MeMs flammable gas sensor part no.MP-7227 which supports the Gas Module low power operation. The Gas Module is equipped with a visual (LED) and audible (buzzer) alarms to inform the user of a potential gas leakage, it also has the ability to transmit data related to the functional status of the module and the concentration of gas when configured to access a wireless network type 802.11 b/g/n. The estimated maintenance-free operation on 3xAA (2800mAh) batteries is 6 months, with one WiFi transmission per day. Please note: more daily transmissions will reduce the battery life.

Power consumption

The typical current consumption of the module is <0.6mA on average, with 50mA (180mA in WiFi transmission state) peak current consumption at 2.5V-5V power supply.

Module operation

The Natural gas module monitors and detects the concentration of methane in an air atmosphere. The sensor is equipped with buzzer and LED status indicators. Depending on actual gas concentration the sensor behaves as indicated in table below:

Gas concentration	Module behavior
< I alarm level (normal state)	Green LED blinking
< II alarm level	Red LED blinking
> II alarm level	Red LED lit all the time + audible sound via buzzer

The module is equipped with „TEST“ button which allows for test triggering of the alarm thus providing the means to test the alarming functionality and the correct circuitry operation.

RS232 communication

In addition to visual and audible communication the module allows to monitor the operation using RS232 terminals. Each 21 seconds the module transmits the measurements data. The RS232 communication channel also provides means to calibrate the sensor if required.

Transmission parameters

Baud rate	Adaptable
Parity	8N1

WiFi communication

The WiFi NGM provides means to propagate information on the status of the module as well as send information on alarm or low battery situation. The set-up of wireless module is realized using RS232 connection.

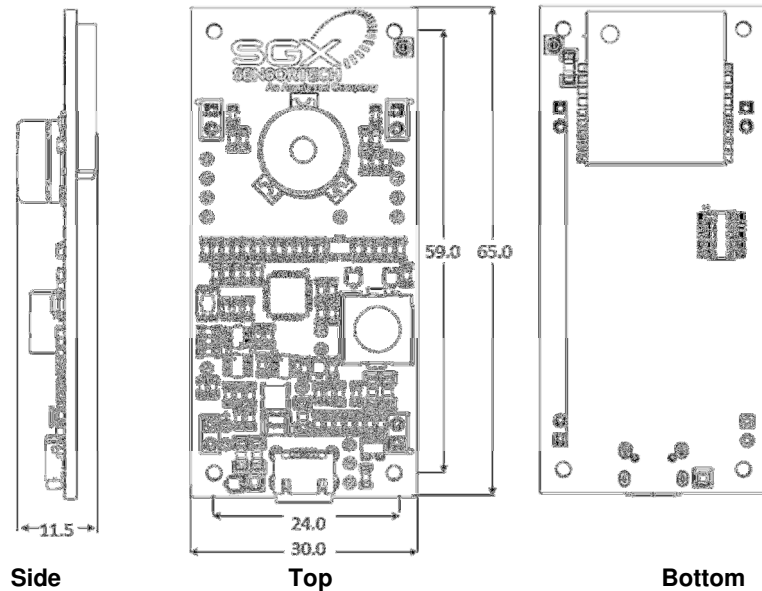
TECHNICAL PARAMETERS

Detectable gases	methane
Maximum concentration	5% v/v.
Sensor sensitivity	>10 mV/% CH ₄
Sensor response time	<30 s
Zero drift	<0.1%v/v /month
Sensitivity drift	<0.1%v/v /month
Power supply	5V DC when connected to USB port 2.5V-5.0V DC when operated from battery.
Suggested batteries	2x1.5V or 3x1.5V AA in series (min. 2600mAh)
Operating current	<0.6mA _{avg} (in measurement mode, battery operated) ~120mA _{avg} (in wireless transmission cycle)
Transmission	USB (RS232, CDC Class), WiFi (WROOM-02, 802.11 b/g/n, 2.4 GHz)
Weight	13 g
Dimensions [w x l x h]	30 x 65 x 11.5 mm

Detailed information on module configuration, calibration can be found in WiFi Natural Gas Module

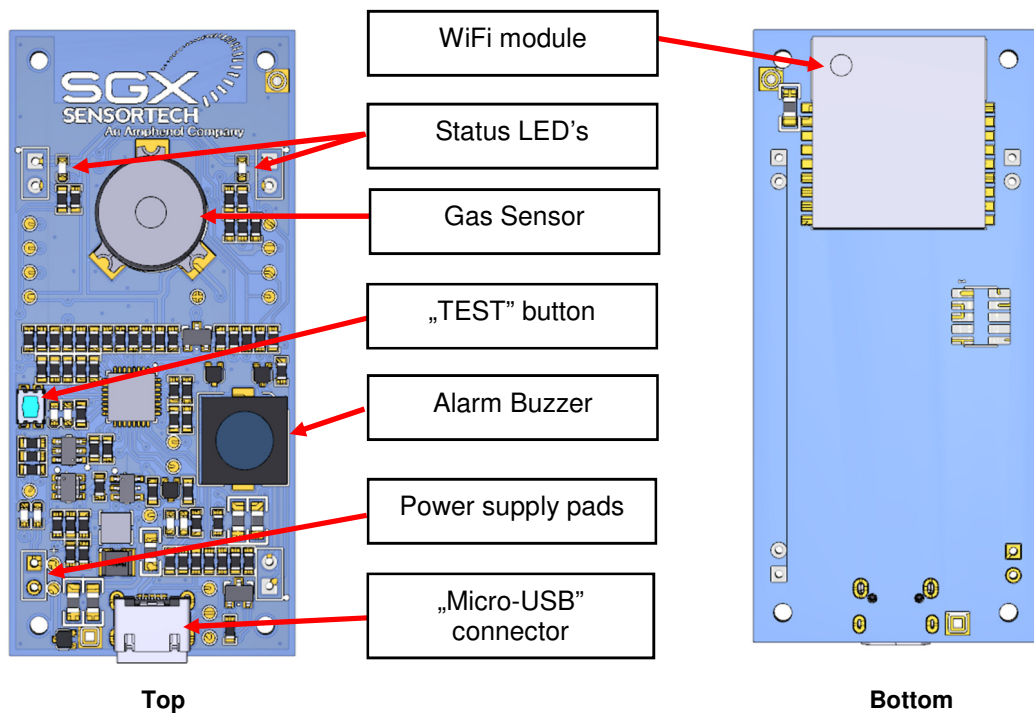
Application Note.

Module dimensions



All dimensions are in millimeters unless stated otherwise.

Main components



Special notes on the correct operation:

The gas sensor should not be subjected to high concentrations of agents containing silicon, sulfide and chlorine compounds (Furniture or spray polishes, bleach, toilet cleaning agents, silicon greases). If longer exposition to any of the above the overall performance of the sensor might be affected causing limited response to gas. The performance of the module is warranted for 3 months without calibration.

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