LPG Detect Board Datasheet

An add-on board with MQ5 sensor.

Contents

1. Introduction

LPG Gas is very dangerous that can be the reason for many unpleasant events. Thus the detection of LPG gas is an important thing in many Industrial or standard applications. For this LPG gas detection purposes, this peripheral board uses the MQ5 gas sensor that detects the gas level when exposed to LPG gas.
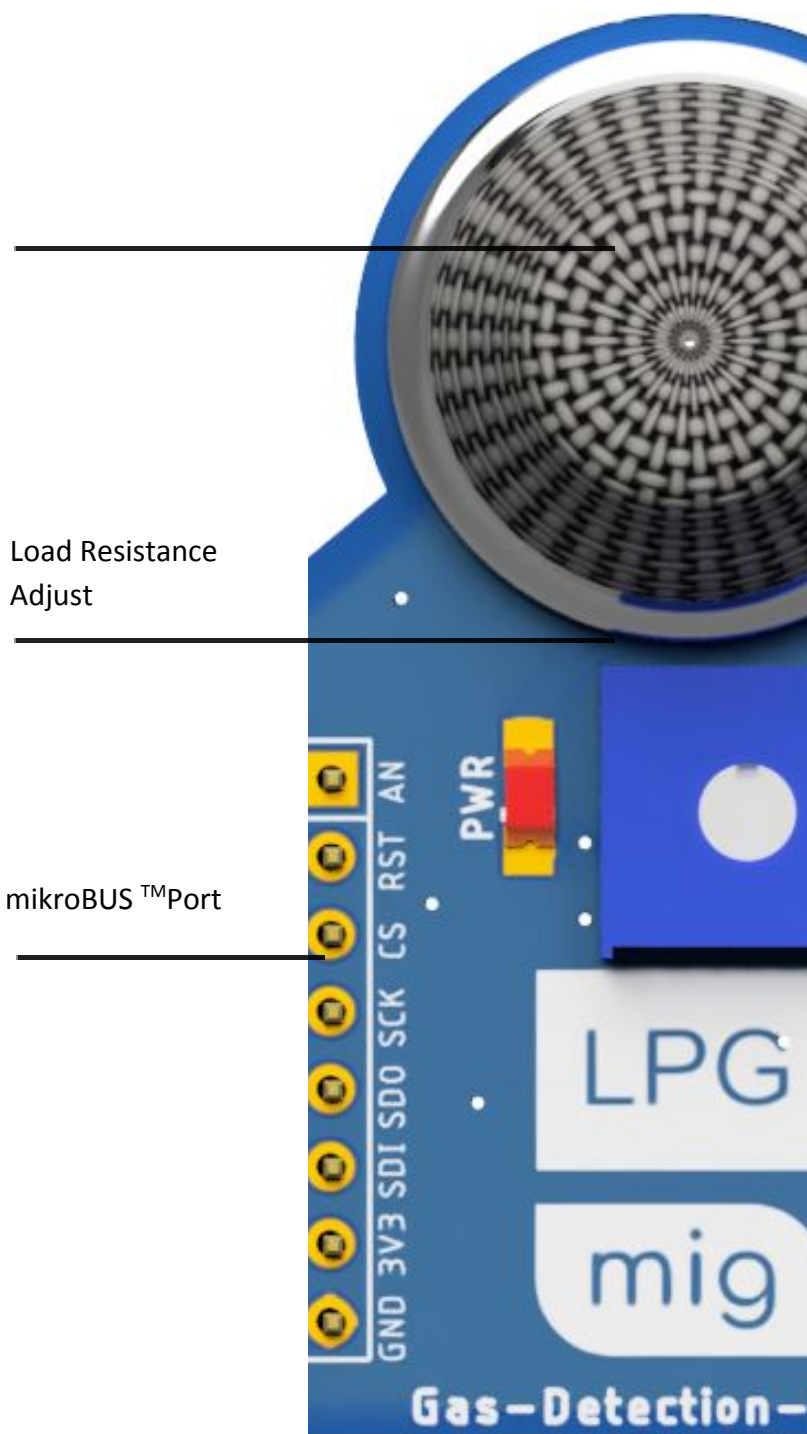
The Peripheral Board is designed using popular mikroBUS™ standards from MikroElektronika and ensures a wide range of development board compatibility.

It also supports the Micro IoT Gateway platform.

For additional hasslefree support of integration, it is advisable to use this sensor with the EmMate platform.

2. Board Overview

MQ - 5 LPG Sensor

Load Resistance
Adjust

mikroBUS ™Port

Symbol of
Voltage Level

3. Specification

MQ5 based LPG Detection Peripheral Board is specified to sense LPG gas to a specified level. The Peripheral Board uses Analog communication and 5.0V operational voltage.

As this board uses MQ5 as the main sensor, the operating specification is highly dependable on the specification of the MQ5.

The below table can be useful to identify the key parameters of this MQ5 based LPG Gas Detection Peripheral Board.

Type	Description
Board Type	Gas Detection (LPG)
On Board Module	MQ-5
Key Features	LPG Detection, Natural Gas detection.
Interface	Analog
Size	25.4mm x 48mm
Input Voltage	5.0V

Note 1: See the reference document section to know the detailed features of this MQ5 based LPG detection module board.

4. Absolute maximum rating.

Using this module above the maximum rating could potentially damage the sensor. Therefore, it is essential to know the limitations and maximum rating of the Peripheral Board before integrating with the hardware platform.

Description	Min	Typ	Max	Unit
Power Supply Voltage	5	-	5.5	VDC
Heating Voltage	5	-	5.5	VDC
Load Resistance		20		Kilo-Ohms
Preheat time		>24		Hours
Sensing Range	200		10000	ppm
Sensing Resistance	10	-	60	Kilo-Ohms
Temperature	-10		50	degree C

Note: Kindly go through the reference document section for more info about MQ5 Sensor.
WARNING 1: Do not use the module over 5.5VDC.
WARNING 2: Do not use the module to detect LPG gas beyond the maximum sensing range.
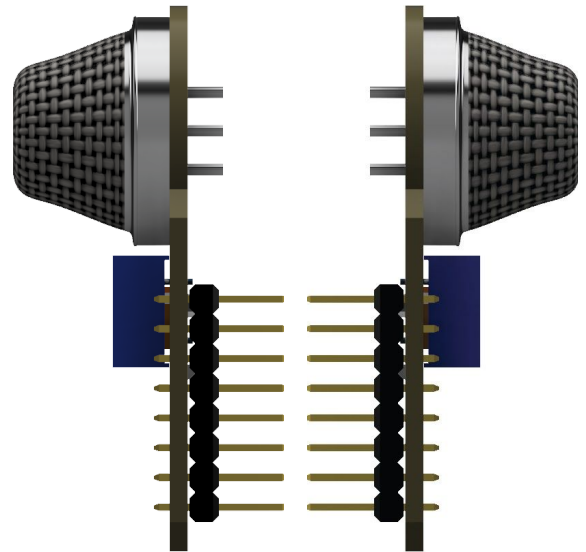
5. Pinout Diagram

The LPG Detection Peripheral Board uses the mikroBUS ™ standard. Thus, the pinout is the same as other mikroBUS ™ boards.

Four pins are associated with this Peripheral Board, three for the Power related operations and the other one for DATA communication.

The Board uses .254" Berg header pins. One can use Berg Wires to connect the board with other development boards where mikroBUS ™ ports are not available.

If a wired connection is used, make sure to connect all GND connections.

To know more about the pinout diagram, use the table below.

Notes	Pin	mikroBUS				Pin	Notes
Data	**Sense**	1	AN	PWM	16	NC	
	NC	2	RST	INT	15	NC	
	NC	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	NC	
	NC	6	MOSI	SDA	11	NC	
	NC	7	3.3V	5V	10	**+5V**	Power Supply
Ground	**GND**	8	GND	GND	9	**GND**	Ground

# 6. Onboard Setting, Symbols and indicators

The Click Board has a potentiometer of 2.2 Kilo-Ohms to control the Load Resistance value for desired application. Kindly use this potentiometer to adjust the Load Resistance.

There is a Power LED Indicator on the board. Use this LED as an indication that the board is powered up.

7. How to use this Peripheral Board

Attaching the Peripheral Board in the mikroBUS socket is effortless.

Before proceeding with the hardware interfacing, make sure that the development board has a clean 5V Power Output.
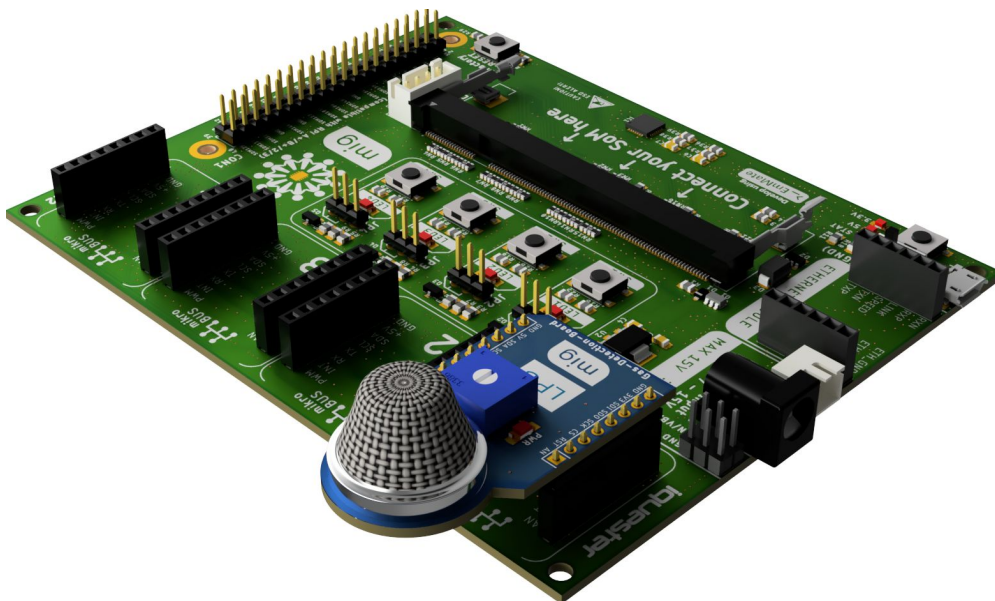
Connect the board carefully without putting a lot of pressure on the development board.

Note 1: - Use the board cutout marking in Peripheral and development boards to find out the orientation.

To setup the development board use the "hardware setup guide" guide for quick and effortless installation of this peripheral board. For "hardware setup guide" video,
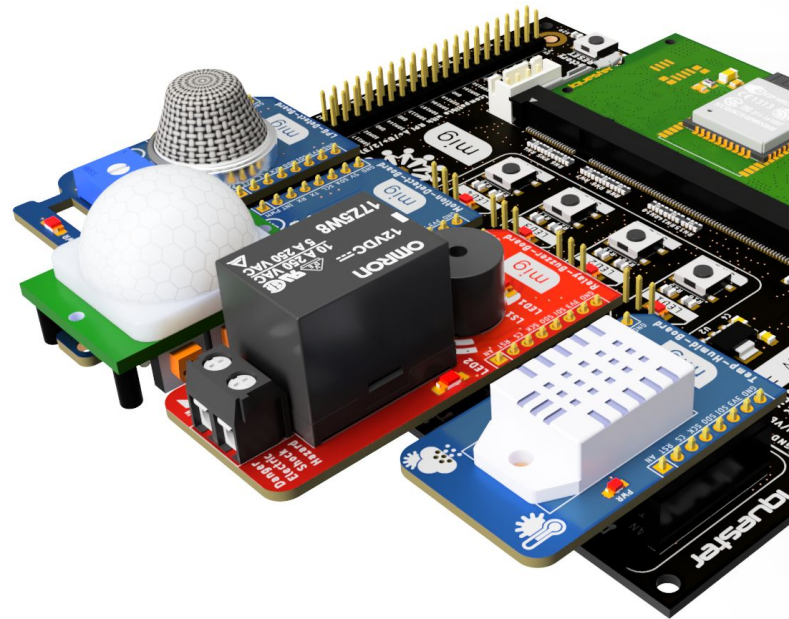Go to - ***https://mig.iquesters.com/video/hw-setup.mp4***

After connecting everything on the development board, kindly power up the board. For detail information on how to power up the board use "Power up your hardware" guide on the below link -

Go to - **https://mig.iquesters.com/video/power-up-hw.mp4**

Use EmMate or your desired development platform to integrate the sensor.

8. Reference Documentation

mikroBUS™ Standard and Specification

https://download.mikroe.com/documents/standards/mikrobus/mikrobus-standard-specification-v200.pdf

EmMate Documentation

https://mig.iquesters.com/?s=embedded&p=documentation

MQ5 Datasheet

https://www.parallax.com/sites/default/files/downloads/605-00009-MQ-5-Datasheet.pdf

LPG Detect Peripheral Based Application and Firmware

https://gitlab.com/micro-iot-platform/projects/lpg-gas-detector

Schematic Diagram

https://mig.iquesters.com/section/somthing/static/schematic/peripheral/lpg-click.pdf

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