

# SGM595 Gas Sensor



## SGM595 Natural Gas / Propane Sensor

4-20mA

IP55



Natural Gas

Propane

## SPECIFICATION

### Power

Power Supply	12-24V DC $\pm$ 10% from controller
Power Consumption	80mA at 13.8V
Relay contact range	

### Technical Specification

Gas(es) Detected	L.P.G or Natural Gas
Sensor Technology	Catalytic
Dimensions	Width 76mm   Height 176mm   Depth 57mm
LED indicator	Green: Power ON
Mounting	Wall Mounted
Output Signal	4-20mA
Device Precision	1% FS
Clean Air Shift	< $\pm$ 3% LEL
Reaction Time	<10 seconds
Autosetting	Yes
Working Temperature	-10°C to 50°C
Functioning Humidity	
Protective Rating	IP55

### Peripheral Specification

Maximum Sensor Distance	100m
Cable Diameter for Sensors	1mm <sup>2</sup> CSA (Screened and earthed at the controller end)

### Compatibility

Controller Compatibility	All Conventional Duomo Controllers (Not Addressable BX132)
Calibration Gas Compatibility	Duomo test Gases

### Approvals, Certifications and Guarantee

Approvals	CE Certification: No.96125
Guarantee	2 Year as Standard 3 Year by Registering at <a href="http://www.duomo.co.uk">www.duomo.co.uk</a> Expected Lifespan 5 years

## FEATURES

- Natural Gas or Propane detection sensor
- Catalytic Sensor Technology
- 4-20mA signal sensor output
- Automatic Calibration
- Sintered Head
- IP55 Protective Rating
- CE Certified and approved to EN50194
- 2 Year Guarantee - 3 Year by Registering at [duomo.co.uk](http://duomo.co.uk)

## APPLICATION

Duomo is recognised within the gas industry for providing a comprehensive range of low cost, high reliability gas detection for many applications. We have installed and commissioned natural gas and carbon monoxide sensors in applications such as boiler rooms, kitchens, car parks, factories and shopping centres. The SGM595 is the gas sensor used with the complete range of Duomo detector panels. All Duomo products are manufactured to meet relevant European Normatives and proposals for explosive and toxic gases.

## OPERATION

When the SGM595 senses the presence of gas it sends a 4 - 20mA signal to the detector proportional to the level of gas. The detector then operates a prealarm relay - used for remote sirens or visual indicators if the level of gas continues to rise then the main alarm relay is activated to break the electrical supply to a safety shut off valve, and is fixed at 20% LEL of Natural Gas or LPG.

The SGM595 microprocessor conducts both self diagnostics and automatically calibrates the sensor when ambient conditions vary, thus avoiding false alarms.



## Precautions and Maintenance

Check the integrity of the unit after having removed it from the box.  
Check that the data written on the box correspond to the type of gas used.

When doing the electrical connections, follow the drawing closely.

Any use of the detector for purposes other than the intended one is considered improper and as a result of which Duomo (UK) therefore disclaims any responsibility for possible damages caused to people, animals or objects.

Do not allow the sensor to become wet.

The product is not waterproof either when immersed in water or exposed to high levels of humidity.

Every six months must perform a function check of the sensor and connected controller. Suitable test gas must be used to avoid damaging the sensor. Disabling the sensor or the controller must be carried out by a suitably trained technician.

Every year a more accurate check must be performed by qualified personnel. Please call Duomo (UK) on 01905 797989

## Important Notes



**IMPORTANT:** Assembly / maintenance of the appliance must be carried out by qualified personnel and in accordance with applicable laws and regulations.

The manufacturer assumes no responsibility for the use of products that have to comply with particular environmental and / or installation standards.

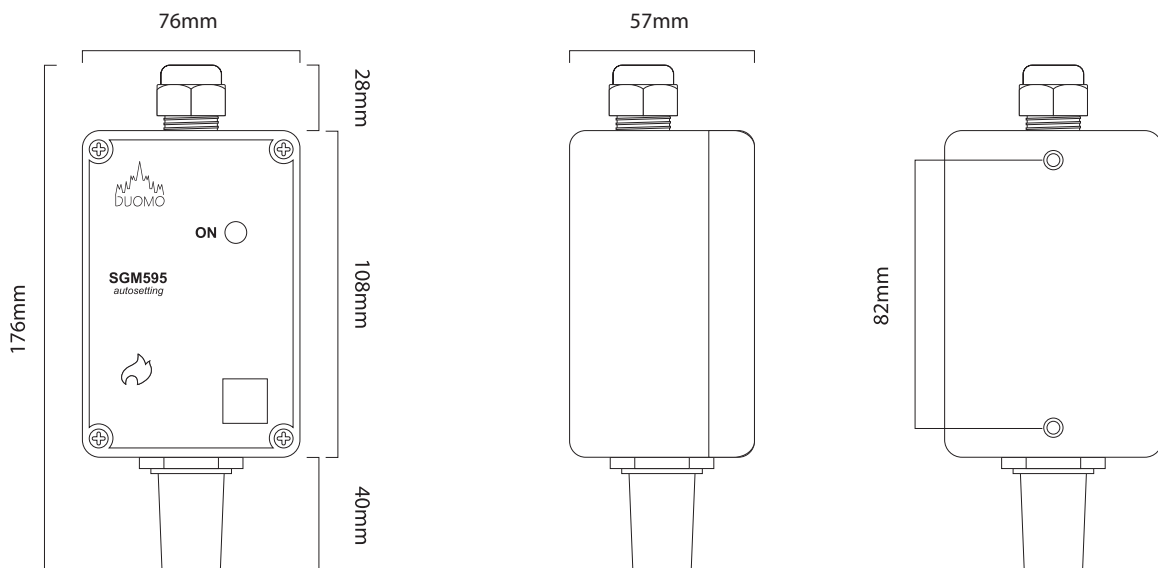
**IMPORTANT:** Before connecting the equipment, it is recommended that you read the instruction manual carefully and keep it for future reference.

## Electrical Connections



**IMPORTANT:** Before connecting to the mains power, ensure the voltage is correct. Carefully follow the instructions and the connections according to Regulations in force, keeping in mind that the signal cables should be laid separate from the power cables.

## Overall Dimensions (mm)



## Connections and LED indicator

### Important Notes



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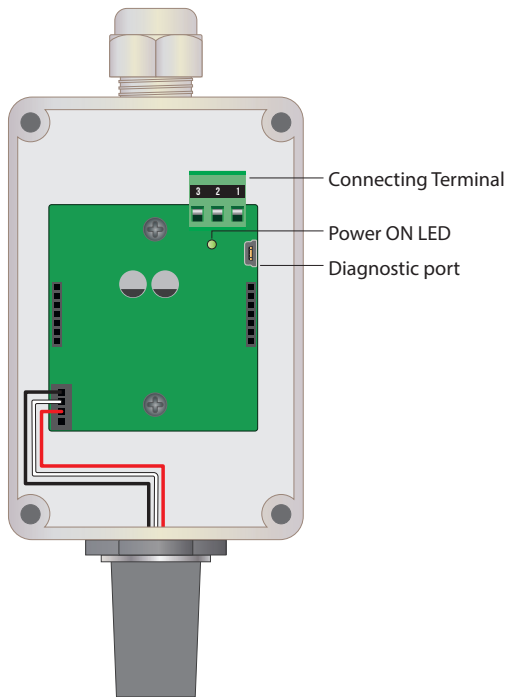
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#### CONNECTING TERMINAL

1. Positive Supply Voltage
2. 0V
3. Return Sensor Voltage

#### POWER ON LED

This LED illuminates Green when power is ON and the sensor has a power supply from the controller.

Flashing red indicates gas is being detected.

Constant red indicates alarm state.

Constant Amber indicates fault condition.

#### DIAGNOSTIC PORT

This can be connected to a A hand-held datalogger that can printout information about the sensor (serial number, powering up information, sensor condition, alarm activations, expected lifespan, auto adjusts made and the preset calibration state.



### Tuning the Sensor to the Installation

Upon completion of the install measure the DC voltage between terminals 2 and 3 in the sensor plug. This is located at the top right hand corner of the SGM595 printed circuit board. If the reading is not between 0.8 - 0.9vDC you will need to trim JP1.

JP1 is located on the PCB to the left of the PCB lower securing screw. Using a wire link briefly short the two terminals of JP1 until the power green LED flashes. When the power green LED flashes remove the link. Once the LED has stopped flashing recheck the voltage between terminals 2 and 3 on the sensor plug. If the voltage is still outside 0.8-0.9vDC conduct the procedure again.

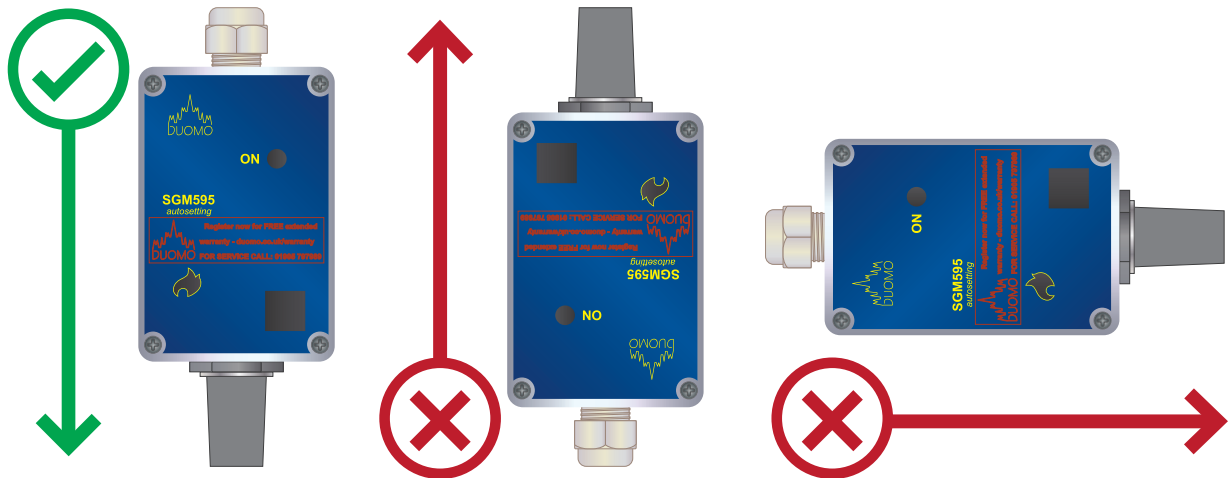
## Compatible Controllers

Please consult the below table for a list of compatible controllers along with a comparison of key features and options available.

						
	BX150	GS100M	GS300M	GS300Mc	BX444Mc	BX316
Channels	1	1	3	3	4	2
Maximum Sensors	1	1	3	3	4	16
Addressable	-	-	-	-	-	-
Display	-	-	-	 Colour Change Digital Display	 Colour Change Digital Display	 Illuminated Digital Display
Mounting	Panel	Wall & Panel	Wall & Panel	Wall & Panel	Wall & Panel	Wall
Power	12V or 230V	230V	230V	230V	230V	230V
4-20mA Input	✓	✓	✓	✓	✓	✓
Self Diagnostic	✓	✓	✓	✓	✓	✓
Manual Test	✓	✓	✓	✓	✓	✓
Internal Alarm	✓	✓	✓	✓	✓	✓
Emergency Stop Function	-	-	-	✓	✓	✓
Alarm Stages	Pre Alarm Main Alarm	1 <sup>st</sup> Alarm 2 <sup>nd</sup> Alarm Main Alarm	1 <sup>st</sup> Alarm 2 <sup>nd</sup> Alarm Main Alarm	1 <sup>st</sup> Alarm 2 <sup>nd</sup> Alarm Main Alarm	1 <sup>st</sup> Alarm 2 <sup>nd</sup> Alarm Main Alarm	Pre Alarm Main Alarm
O <sub>2</sub> Monitoring	-	-	-	✓	✓	✓
Positive Safety	✓	✓	✓	✓	✓	✓
IP Rating	IP42	IP44	IP44	IP44	IP44	IP65
Extended Guarantee *	3 Year	3 Year	3 Year	3 Year	3 Year	3 Year

## Sensor Orientation

The sensors must be mounted as shown below with the sintered head pointing vertically down.

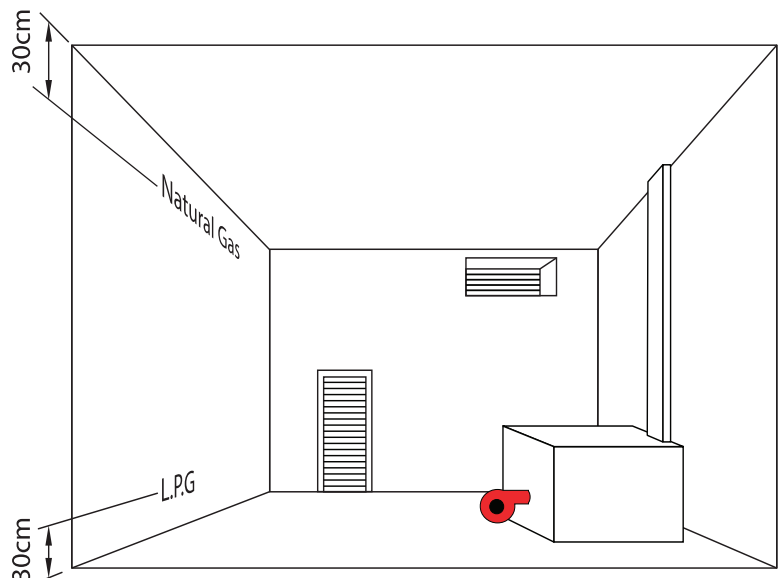


## Sensor Positioning

The SGM595 sensor should be mounted in accordance with certain considerations. Do not position next to burners, heaters or ovens where temperatures above the room ambient may be experienced. It is, if possible, better to mount the sensors on the opposite wall. This is, of course, dependant on the size of the protected area.

LPG is heavier than air, therefore the SGM595 sensor should be mounted 30cm from the lowest point on floor of the protected area. Natural Gas is lighter than air and the SGM595 should be mounted 30cm from the highest point from ceiling of the protected area.

If you require assistance regarding locating sensors please call our Droitwich factory on (01905) 797989 or email us: [sales@duomo.co.uk](mailto:sales@duomo.co.uk)



## Important Notes

Always check the wiring before powering up the system.

When replacing sensors never separate a sensing head from its PCB. The sensor will have been calibrated using this particular board and therefore will not function correctly with any other.

Do not test this sensor with anything other than Duomo test gas. Concentrations above this will damage the sensor and shorten sensor life.

The installation of this gas sensor does not release the user from observing all the regulations concerning the characteristics of the installation and use of gas appliance, the ventilation of the protected environment and the removal of the products of combustion. Duomo (UK) will not be held responsible or liable for any damage caused to people, property or animals resulting from incorrect connection, installation or application of this gas sensor.

To ensure correct function after installation Duomo provide a commissioning service using calibrated test gases. For this service call +44 1905 797989.

## In case of alarm

Extinguish any naked flames.

Do not switch lights or electrical devices on or off.

Open all windows and door to increase ventilation.

- If the ALARM LED is off the levels of gas have dropped. A responsible, qualified person is now safe to find the cause of the alarm.
- If the alarm sound remains constant and the cause is not evident or not possible to eliminate turn off the emergency isolation valves to the area and contact your gas provider emergency line. They will advise accordingly.

## Troubleshooting

### The Problem

### The Solution

**The sensor does not power up**

Check that the 12/24 VDC power is present, and that positive and negative polarity has not been inverted.

**This is a working document and will be updated as new troubleshooting and FAQs become apparent. If your issue is not listed here please call Duomo (UK) on 01905 797989 and inform us so we can list your issue and associated solution here.**

### Still experiencing difficulties?

If you have made the checks above and are still experiencing difficulties then please call **Duomo (UK) Ltd** on **+441905 797989** for technical assistance.





## SGM595 11032021 rev2

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