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# VQ600 Datasheet

## Pellistor Gas Sensor for Hazardous Areas

**(Fixed Systems)**

The VQ600 Series is designed to detect and monitor various gases in the range 0 to 100% LEL for combustible gases and 0 to 100% volume in thermal conductivity mode when using the SGX range of pellistor gas sensors.

The VQ600 Series is designed for use as an integral part of a fixed gas detection system. The head comprises a stainless steel flameproof enclosure constructed with an integral stainless steel sinter which allows the safe entry of the atmosphere being tested.

There are three types of mounting thread available to allow easy fixing to the junction box of the fixed system and the facility to attach accessories to the sensor via an external M46 thread.

## FEATURES

- Designed for fixed gas detection systems
- For detection of the following:
  - Combustible gases
    **(Catalytic Sensors)**
  - Light gases (e.g. hydrogen and helium).
    **(Thermal Conductivity Sensors)**
- LEL and % Volume Monitoring
- Diffused gas sampling via sinter
- Three thread options available
- Operational in varying temperature, pressure and humidity
- Fast response
- Rugged stainless steel construction
- No moving parts
- Resistance to corrosion
- Low maintenance
- Accessories available for field applications
- ATEX certified
- CSA certified (Canada and US)

## OPERATION

The pellistor used in the head should be operated in the manner recommended in the appropriate data sheet. In general it is recommended that the detector and compensator be run in a Wheatstone Bridge circuit so that a difference signal may be obtained. A suitable circuit is shown in Fig. 1.

In use, the bridge supply voltage should not be allowed to vary by more than the specified +0.1 V, or the output in clean air may change in sympathy.

The head must be mounted so that the cable is protected. This is normally achieved by mounting it into a port in a suitable junction box.

Although SGX generally recommends that pellistors should be run with a constant voltage supply to the bridge, it is possible to use a constant current supply provided that the voltage across the bridge in clean air remains within the recommended limits.

It is essential that the head be efficiently earthed (grounded). This may be achieved by mounting it either into an earthed metal junction box, or into a non-metallic junction box fitted with an earth continuity plate used in accordance with the box manufacturer's instructions. There are no internal connections to the sensing head body.

## TECHNICAL SPECIFICATION

### Mechanical

| | |
|---|---|
| **Dimensions** | See Outline on Page 4 |
| **Body material** | Stainless Steel |
| **Weight** | 435g |

### Environmental

| | |
|---|---|
| **Ambient temperature range**<br>**for operation (ATEX):**<br>**for operation (CSA):**<br>**storage:** | <br>-20°C to +60°C<br>-20°C to +65°C<br>-20°C to +60°C |
| **Operational pressure range** | 700kPa to 1300kPa |
| **Humidity range for operation and storage** | 0 to 100% RH<br>*(Non-condensing)* |
| **Gases Detected** | Combustible, Light Gases |

### Electrical

| | |
|---|---|
| **DC supply to detectors** | See Configurations Table on Page 2 |
| **Typical power** | Refer to Pellistor Type Datasheet |

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## CONFIGURATIONS

| Base Sensor Type | Pellistor Type (See Note 1) | Operating Voltage (V) (See Note 3) | Typical Current (mA) | Type | Thread Code (See Table Below) | | | Gas Types |
|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 3 | |
| **601** | VQ1B | 2.0 | 300 | Catalytic | Yes | Yes | Yes | All Flammable Gases |
| **603** | VQ3B | 2.5 | 330 | Catalytic | Yes | Yes | Not Available (See Note 2) | All Flammable Gases |
| **605M** | VQ5MB | 2.0 | 175 | Thermal Conductivity | Yes | Not Available (See Note 2) | Not Available (See Note 2) | Light Gases (e.g. $H_2$, $He_2$) |
| **606M** | VQ6MB | 2.0 | 300 | Thermal Conductivity | Yes | Not Available (See Note 2) | Yes | Light Gases (e.g. $H_2$, $He_2$) |
| **621T** | VQ21TB | 2.0 | 300 | Catalytic | Yes | Yes | Yes | All Flammable Gases |
| **621TS** | VQ21TSB | 2.0 | 300 | Catalytic | Yes | Not Available (See Note 2) | Yes | All Flammable Gases |
| **622T** | VQ22TB | 2.0 | 175 | Catalytic | Yes | Yes | Yes | All Flammable Gases |
| **623** | VQ23TB | 2.5 | 335 | Catalytic | Yes | Not Available (See Note 2) | Not Available (See Note 2) | All Flammable Gases |
| **625** | VQ25B | 2.0 | 300 | Catalytic | Yes | Yes | Yes | Most Flammable Gases (Not including Methane) |
| **631M** | VQ31MB | 3.5 | 90 | Thermal Conductivity | Yes | Yes | Yes | Light Gases (e.g. $H_2$, $He_2$) |
| **635M** | VQ35MB | 4.2 | 55 | Thermal Conductivity | Yes | Yes | Yes | Light Gases (e.g. $H_2$, $He_2$) |
| **641TS** | VQ41TSB | 2.0 | 100 | Catalytic | Yes | Not Available (See Note 2) | Yes | Most Flammable Gases (Not including Methane) |

***Note 1: Refer to the datasheet for each Pellistor Type for more information.***
***Note 2: If the desired Thread Type is listed as "Not Available" please contact SGX.***
***Note 3: Thermal Conductivity sensors can be operated at voltages different to stated above depending upon target gas type.***

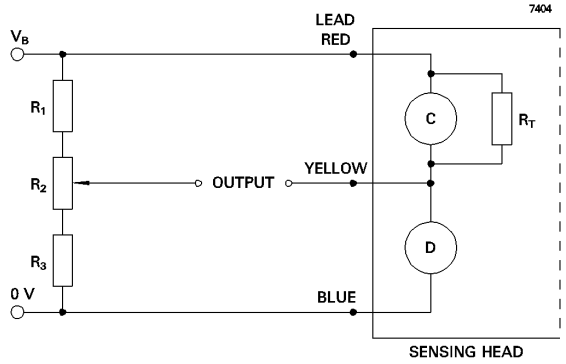
## THREAD CODES

The sensing head is supplied with one of three different mounting threads at the user's choice (see outline on Page 4).

| Thread code | Thread | Dimension X (mm) |
|---|---|---|
| 1 | Metric 20 x 1.5 mm | 16.00 |
| 2 | ANP (Taper) ½" - 14 NPT | 19.85 |
| 3 | ANP (Taper) ¾" - 14 NPT | 20.16 |

Taper threads are manufactured in accordance with ANSI/ASME B1.20.1.

## OPERATING CIRCUIT




$R_1 = R_3 = 500$ to $5000\ \Omega$, $R_2 \cong R_1/5$

$R_2$ provides zero adjustment and may be omitted if not required.