



## Air velocity sensor

## QVM62.1

### Use

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This sensor is used to control the air velocity to a constant value, or to balance out pressure fluctuations (supply or extract air control), or to monitor the flow in air ducts. It primarily is used for modulating fan control in primary plants to set the basic volume flow.

### Action

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The QVM62.1 records the air velocity as a measured value and converts it to an active DC 0...10 V output signal.

Three measuring ranges are available:

0...5 m/s, 0...10 m/s, and 0...15 m/s.

The sensor measures a point, i.e., it measures the values at a specific location in the flow profile. For recording the mean air velocity in the duct, the sensor's immersion depth is the key measure. The immersion depth depends on the flow profile.

The measurement principle is based on the anemometric measurement principle.

The specially developed thin film sensing element of the QVM62.1 is to a big extent independent from the flow direction and is nearly insensitive to any kind of dirt in the airflow.

### Ordering

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When ordering, indicate the name and type designation :

Air velocity sensor **QVM62.1**

The air velocity sensor consists of:

- Immersion stem with sensor head and sensing element
- Extension pipe with fitting
- Immersion stem end with flow direction arrow
- Adjustable connecting flange
- Transducer
- Connection cable, screened, four-core, 1 m long

A scale with 0.5 cm grating on the immersion stem and the extension pipe indicates the immersion depth.

The connecting flange is used to attach and seal the immersion stem on the duct wall.

A plastic housing with removable cover accommodates the transducer. It can be screwed to a flat surface.

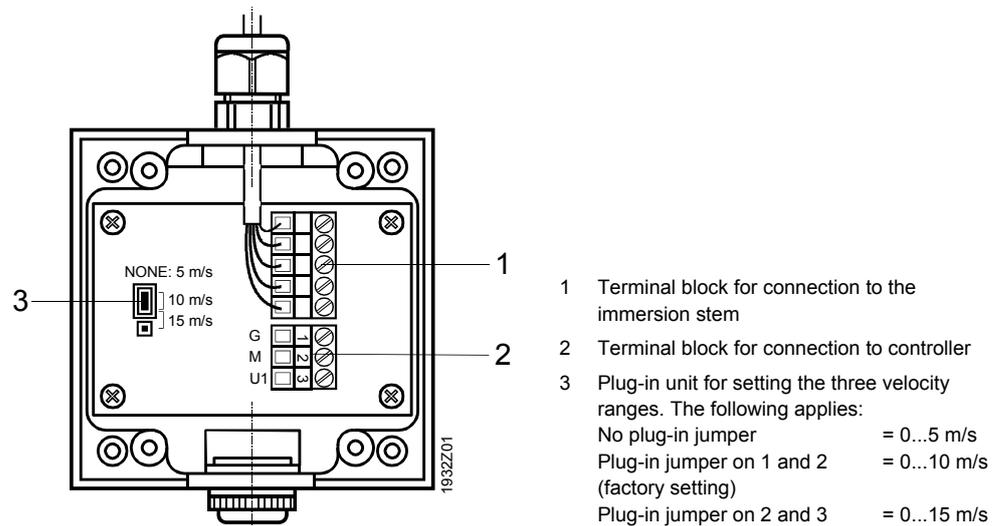
The sensor cable is connected; the sensor and the transducer together represent a unit.

The measuring ranges are selected by inserting or removing a plug-in jumper.

- Protection against false wiring is provided related to own voltages, i.e., measuring output U1 is short-circuit proof.

The sensor head connections are not protected against AC 24 V operating voltage.

Wiring and setting elements



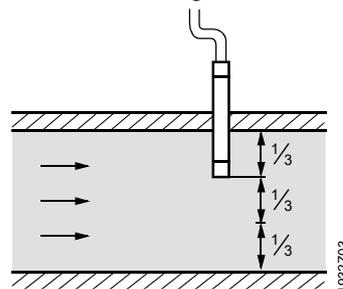
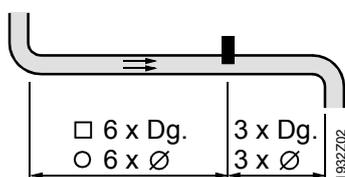
Technical data

|                  |  |   |
|------------------|--|---|
| Power supply     | Operating voltage                                | AC 24 V ±20 %   |
|                  | Frequency  | 50/60 Hz  |
|                  | Power consumption                                | ≤5 VA (max. 200 mA)                                     |
| Measuring data   | Measuring ranges, adjustable                     | 0...5 m/s<br>0...10 m/s (factory setting)<br>0...15 m/s |
|                  | Measuring accuracy at 20 °C, 45 % r.h., 1013 hPa |   |
|                  | 0...5 m/s  | ±(0.2 m/s + 3 % of measured value)                      |
|                  | 0...10 m/s                                       | ±(0.2 m/s + 3 % of measured value)                      |
|                  | 0...15 m/s                                       | ±(0.2 m/s + 3 % of measured value)                      |
|                  | Permissible air velocity                         | 20 m/s  |
|                  | Direction dependence                             | <0.3 % of measured value at<br><±10°                    |
|                  | Time constant t <sub>90</sub> at 10 m/s          | ca. 4 s   |
| Signal output U1 | Voltage  | DC 0...10 V   |
|                  | Current  | ±1 mA   |

|                          |   |  |
|--------------------------|---|--|
| Line length              | Perm. line length to controller at                          |  |
|                          | 0.6 mm dia copper cable                                     | 50 m   |
|                          | 1 mm <sup>2</sup> copper cable                              | 150 m  |
|                          | 1.5 mm <sup>2</sup> copper cable                            | 300 m  |
| Connections              | Line length to the sensor head                              | 1 m (prewired)                               |
|                          | Mechanical:   | screw connection                             |
| Degree of protection     | Electric:   | screw terminal, max. 2 × 1.5 mm <sup>2</sup> |
|                          | Degree of protection provided                               |  |
| Environmental conditions | by enclosures as per EN 60 529                              |  |
|                          | Transducer  | IP 42  |
|                          | Sensor head   | IP 20  |
|                          | Degree of protection as per EN 60 730                       | III  |
|                          | Operation (transducer and immersion stem)                   | IEC 721-3-3                                  |
|                          | Climatic conditions   | class 3K5                                    |
|                          | Temperature   | -5...+45 °C                                  |
|                          | Humidity (non-condensing)                                   | <95 % r.h.                                   |
|                          | Mechanical conditions                                       | class 3M2                                    |
|                          | Chemical conditions   | class 3C2                                    |
| Materials and colours    | Storage (transducer and immersion stem)                     | IEC 721-3-1                                  |
|                          | Climatic conditions   | class 1K3                                    |
|                          | Temperature   | -5...+45 °C                                  |
|                          | Humidity (non-condensing)                                   | <95 % r.h.                                   |
|                          | Mechanical conditions                                       | class 1M2                                    |
|                          | Transport (transducer and immersion stem)                   | IEC 721-3-2                                  |
|                          | Climatic conditions   | class 2K3                                    |
|                          | Temperature   | -25...+70 °C                                 |
|                          | Humidity (non-condensing)                                   | <95 % r.h.                                   |
|                          | Mechanical conditions                                       | class 2M2                                    |
| Standards                | Housing bottom  | polycarbonat, RAL 7001 (silver-grey)         |
|                          | Housing cover   | polycarbonat, RAL 7035 (light-grey)          |
|                          | Sensor pipes  | polycarbonat, RAL 7001 (silver-grey)         |
|                          | Sensor head, extension, end                                 | polycarbonat, RAL 7035 (light-grey)          |
|                          | Connecting flange   | polycarbonat, RAL 7001 (silver-grey)         |
|                          | Sensor, total   | silicon-free                                 |
| Weight                   | Product safety  |  |
|                          | Automatic electrical controls for household and similar use | EN 60 730-1                                  |
|                          | Electromagnetic compatibility                               |  |
|                          | Immunity  | EN 61000-6-2                                 |
|                          | Emissions   | EN 61000-6-3                                 |
| Weight                   | CE conformity   |  |
|                          | Electromagnetic compatibility                               | 2004/108/EC                                  |
| Weight                   | With packaging  | 0.352 kg                                     |

## Engineering notes

Place the sensor on the measuring path in a location where the air flow is quiet. Thus: do not place it close to dampers, registers, and duct direction changes.



Use a transformer with safety extra-low voltage (SELV) with separate winding for 100% ON-time. Observe all local safety rules and regulations pertaining to sizing and protecting transformers.  
 Note the permissible line length to the controller.

### Mounting and installation notes

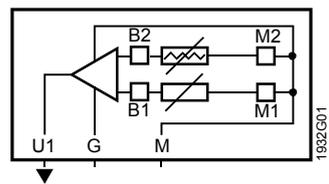
Mount the immersion stem so that the air flows through the opening at the sensor head. The immersion stem is premounted and wired to the transducer on delivery. The sensor pipes and the end with the direction arrow are prearranged on the connecting cable-fit them together (use the direction-oriented snap-on connections). If the extension pipe is not required, remove it from the cable. The connecting flange is not attached on delivery.

The sensor is supplied with mounting instructions.

### Commissioning notes

Check the wiring and the air velocity range settings prior to commissioning.  
 Check the immersion stem position in the air duct (mounting instructions!).

### Diagrams



- G Operating voltage AC 24 V
- M Measuring neutral / operating voltage ground
- U1 Output signal DC 0...10 V

### Dimensions (All dimensions in mm)

