

Air velocity sensor

QVM62.1-HE



To control air velocity

- To control air velocity to a constant value
- To compensate for pressure variations
- To monitor air flow in air ducts

Application

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

Functions

Mode of operation

The QVM62.1-HE records the air velocity as a measured value and converts it to an active DC 0...10 V or 4...20 mA output signal.

Three measuring ranges are available::

- 0...5 m/s
- 0...10 m/s
- 0...20 m/s ¹

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

The measurement process is based on the anemometer measuring principle.

The specially developed, robust sensing element is nearly insensitive to any kind of dirt in the airflow.

¹ The measuring range for sensors with index D is 0...15 m/s.

Technical design

Mechanical design

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, shielded, 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 X1 is short-circuit proof.
- The sensor head connections are not protected against AC/DC 24 V operating voltage.

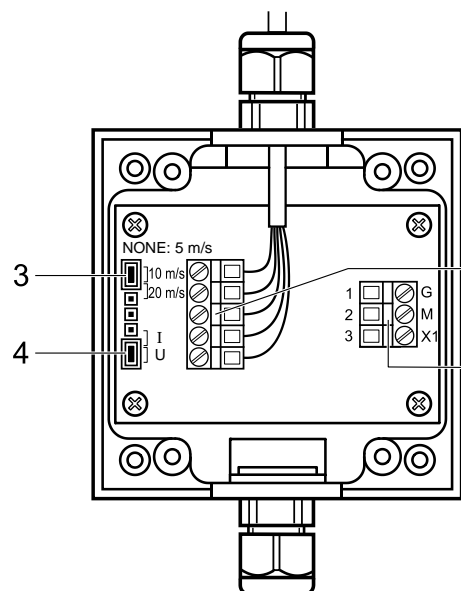
Basic design

Wiring and setting elements

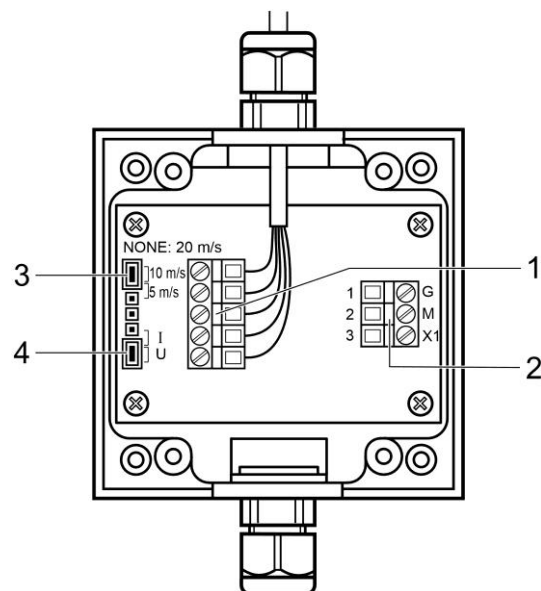


The measuring ranges and their settings differ between sensors with index D and index E.
The default setting of 0...10 m/s is the same for both indexes.
The change from index D to index E takes place in January 2024.

Index D



Index E



- 1 Terminal block for connection to the immersion stem
- 2 Terminal block for connection to controller
- 3 Plug-in unit for setting the three measuring ranges. The following applies:
 - No plug-in jumper = 0...5 m/s
 - Plug-in jumper on 1 and 2 = 0...10 m/s (factory setting)
 - Plug-in jumper on 2 and 3 = 0...15 m/s
- 4 Terminal block for selection of the output signal:
 - Pos I = DC 4...20 mA
 - Pos U = DC 0...10 V

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 - Pos I = DC 4...20 mA
 - Pos U = DC 0...10 V

Type summary

Designation	Order number	Type
Air velocity sensor	S55720-S536	QVM62.1-HE

Ordering

Please specify the quantity, order number, and type when ordering:

Air velocity sensor, S55720-S536, **QVM62.1-HE**

Product documentation

Installation instructions for the air velocity sensor are including on the inside of the packaging.



A CE declaration is included in German and English.

Related documents such as the environmental declarations, CE declarations, etc., can be downloaded from the following Internet address:

<https://siemens.com/bt/download>

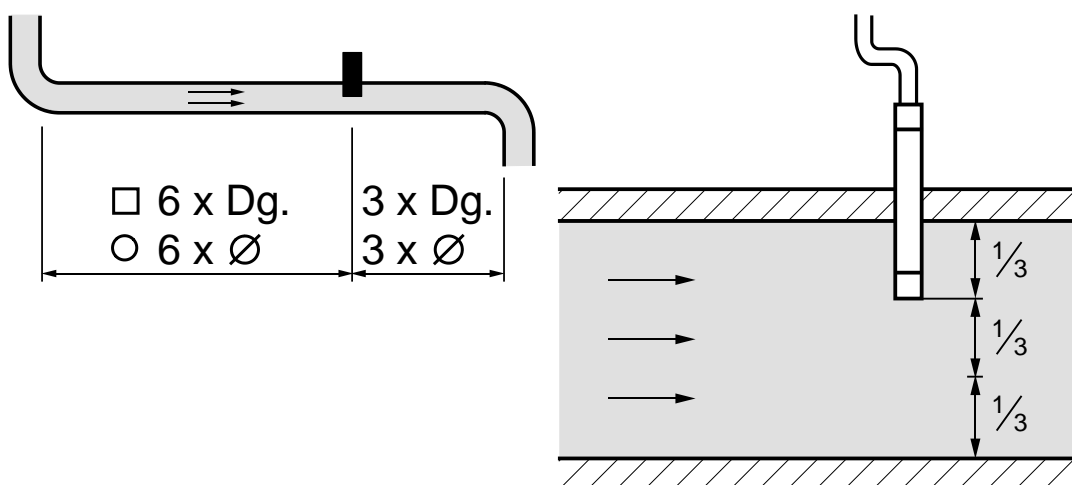
Notes

Safety

 CAUTION	
	National safety regulations Failure to comply with national safety regulations may result in personal injury and property damage. <ul style="list-style-type: none">Observe national provisions and comply with the appropriate safety regulations.

Engineering

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



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.

Installation

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 piece with the direction arrow are prearranged on the connecting cable, fit them together (use the direction-oriented snap-on connections). The connecting flange can be removed from the cable if not needed. The connecting flange is not attached on delivery.

Installation instructions for the air velocity sensor are including on the inside of the packaging.

Commissioning


Check the wiring, the air velocity range settings and correct placement prior to commissioning the immersion stem (mounting instructions!).

Maintenance

NOTICE	
	Residual water Water can short the life of the air velocity sensor.

In very dusty environments, clean the air velocity sensor on a regular basis. Select a maintenance interval based on how dirty the plant is.

Disposal

	This symbol or any other national label indicate that the product, its packaging, and, where applicable, any batteries may not be disposed of as domestic waste. Delete all personal data and dispose of the item(s) at separate collection and recycling facilities in accordance with local and national legislation. For additional details, refer to Siemens information on disposal .
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Warranty service

The application-specific technical data is guaranteed only in combination with the Siemens products listed in the 'Device combinations' section. If third-party products are used, any guarantee provided by Siemens will be invalidated.

Power supply	
Operating voltage	AC/DC 24 V ± 20 % (SELV)
Frequency	50/60 Hz
Current	AC: Max. 190 mA DC: Max. 70 mA
External fusing of supply line(s)	Non-renewable fuse, slow to a max. 10 A or Circuit breaker max. 13 A Characteristic B, C, D per IEC 60898-1 or Power source with current limitation of max. 10 A

Measured data		
Measuring ranges, adjustable	0...5 m/s 0...10 m/s (factory setting) 0...20 m/s ¹	
Measuring accuracy at 20 °C 45 % r.F., 1013 hPa	0...5 m/s 0...10 m/s 0...20 m/s ¹	$\pm(0.2 \text{ m/s} + 3 \% \text{ of measured value})$ $\pm(0.2 \text{ m/s} + 3 \% \text{ of measured value})$ $\pm(0.2 \text{ m/s} + 3 \% \text{ of measured value})$
Permissible air velocity	30 m/s	
Direction dependence	<3 % of measured value at $< \pm 10^\circ$	
Time constant t_{90} at 10 m/s	ca. 4 s	

¹ The measuring range for sensors with index D is 0...15 m/s.

Signal output x 1	
Voltage output	DC 0...10 V, ± 1 mA
Current output	DC 4...20 mA, 0...500 Ω

Line lengths		
Perm. line length to controller at	Ø 0.6 mm dia copper cable 1 mm ² copper cable 1.5 mm ² copper cable	50 m 150 m 300 m
Line length to the sensor head		1 m (fixed wiring)

Connections	
Mechanical	Screw connection
Electrical	Screw terminal, max. 2 x 1.5 mm ²

Safety class and degree of protection	
Protection class	III
Degree of protection of housing to EN 60529 Transducer Sensor head	IP65 IP20

Environmental conditions	
Operation (transducer and immersion stem) Climatic conditions <ul style="list-style-type: none"> • Temperature • Humidity (non-condensing) Mechanical conditions Chemical conditions	IEC/EN 60721-3-3 Class 3K23 -5...+70 °C <95 % r.h. Class 3M11 Class 3C2
Storage (transducer and immersion stem) Climatic conditions <ul style="list-style-type: none"> • Temperature • Humidity (non-condensing) Mechanical conditions	IEC/EN 60721-3-1 Class 1K22 -40...+70 °C <95 % r.h. Class 1M2
Transportation (transducer and immersion stem) Climatic conditions <ul style="list-style-type: none"> • Temperature • Humidity (non-condensing) Mechanical conditions	IEC/EN 60721-3-2 Class 2K12 -40...+70 °C <95 % r.h. Class 2M4

Materials and colors	
Housing base	polycarbonate, RAL 7001 (silver-gray)
Housing cover	polycarbonate, RAL 7035 (light-gray)
Sensor tubes	polycarbonate, RAL 7001 (silver-gray)

Materials and colors	
Sensor head, wiring, end piece	polycarbonate, RAL 7035 (light-gray)
Connecting flange	polycarbonate, RAL 7001 (silver-gray)
Sensor, total	Silicone-free

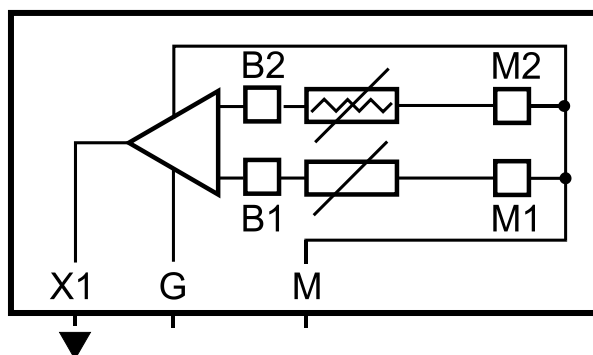
Standards, directives and approvals	
Electromagnetic compatibility (field of use)	For residential, commercial and industrial environment
EU conformity (CE)	See EU conformity (CE) *)
UK compliance (UKCA)	UK compliance (UKCA) *)
EAC compliance	Eurasian compliance

Environmental compatibility	
The product environmental declaration *) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).	

Dimensions (weight)	
With packaging	0.352 kg

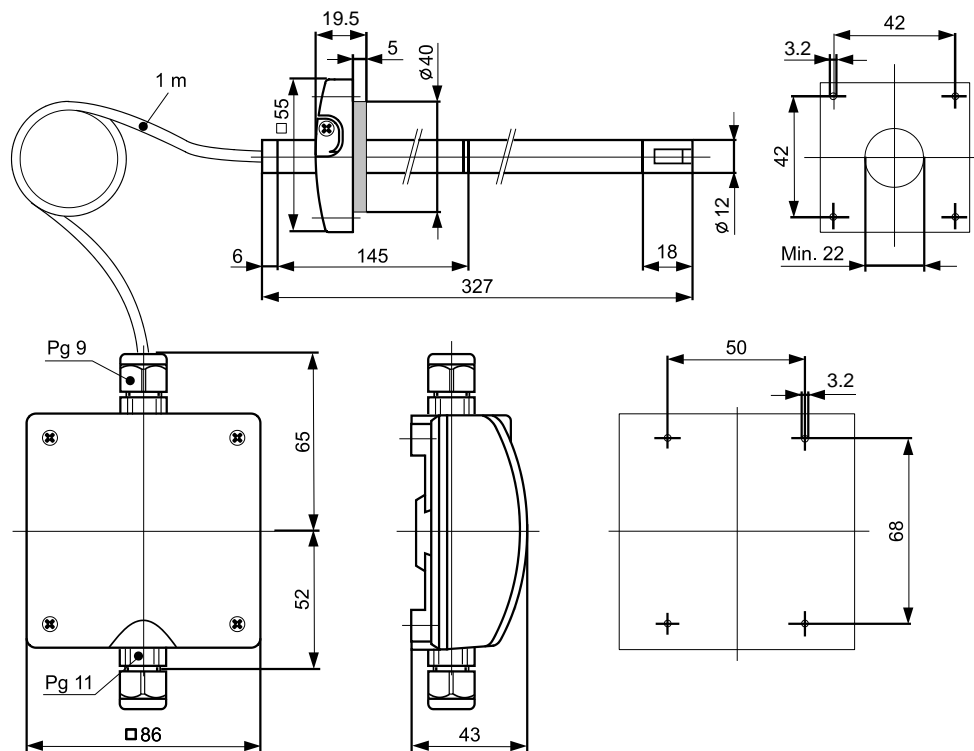
*) The documents can be downloaded at <https://siemens.com/bt/download>.

Wiring diagrams



- G Operating voltage AC/DC 24 V
- M Measuring neutral/ operating voltage ground
- X1 Output signal: DC 0...10 V or 4...20 mA

Dimensions (in mm)



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