

Differential pressure
Temperature
Humidity
Air flow

Measuring instruments and controllers for ventilation and air-conditioning



air2guide

WIKAI
Part of your business

About us



**Alexander Wiegand,
Chairman and CEO, WIKA**

As a family-run business acting globally, with 9,300 highly qualified employees, the WIKA group of companies is a worldwide leader in pressure and temperature measurement. The company also sets the standard in the measurement of level and flow, and in calibration technology.

Founded in 1946, WIKA is today a strong and reliable partner for all the requirements of industrial measurement technology, thanks to a broad portfolio of high-precision instruments and comprehensive services.

With manufacturing locations around the globe, WIKA ensures flexibility and the highest delivery performance. Every year, over 50 million quality products, both standard and customer-specific solutions, are delivered in batches of 1 to over 10,000 units.

With numerous wholly owned subsidiaries and partners, WIKA competently and reliably supports its customers worldwide. Our experienced engineers and sales experts are your competent and dependable contacts locally.

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WIKA – your partner for ventilation and air-conditioning

The precise measurement and control of the operating state of ventilation and air-conditioning systems is essential for achieving the comfort requirements and also for maintaining higher energy efficiency.

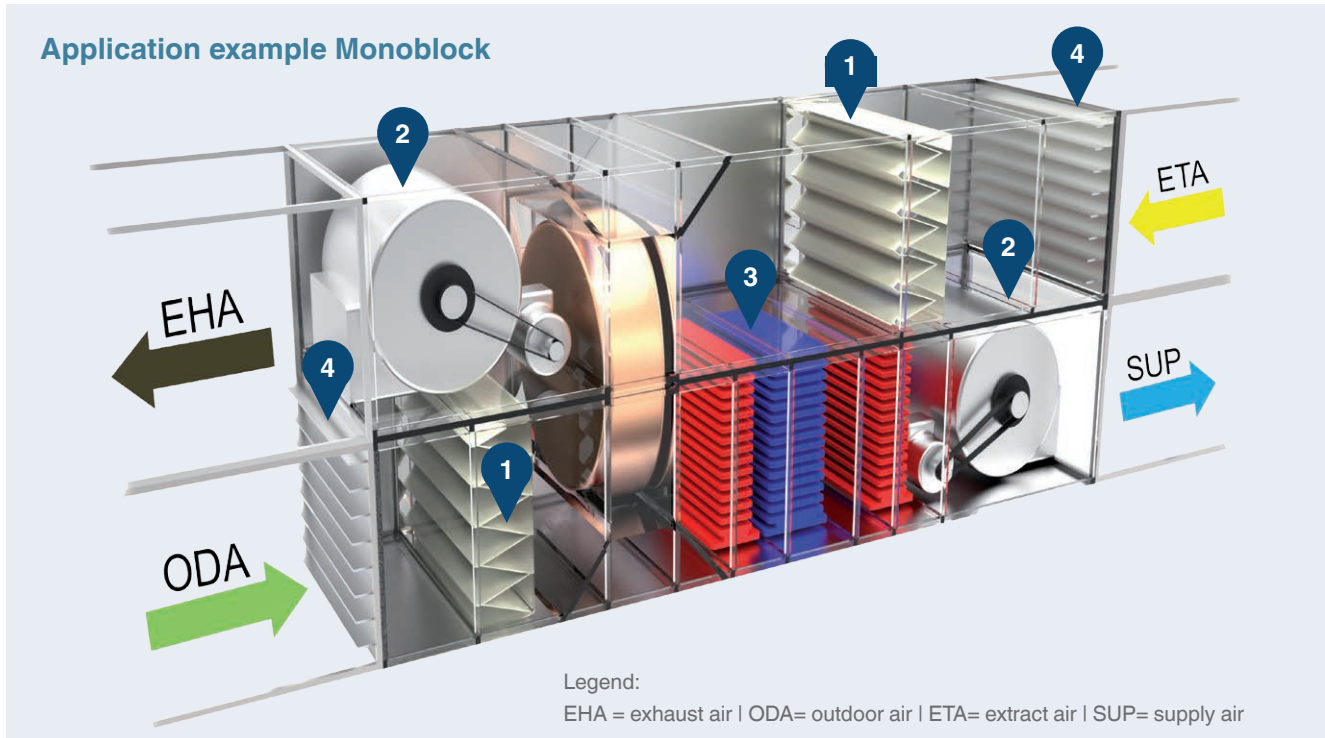
With the measurement and control instruments from WIKA, we offer you robust products with long-term reliability which are perfectly matched to each other and provide you with an optimal price/performance ratio.

Depending on the application, you can choose between traditional analogue indicators, electrical instruments with analogue output signals in voltage (V) or current (mA), or advanced Modbus® technology.

Products of the air2guide family cover all measurands in ventilation and air-conditioning applications.

- Differential pressure
- Temperature
- Humidity
- Air quality
- Air velocity
- Air flow

Aspects of ventilation and air-conditioning



In the filter section (❶) of the application there are analogue differential pressure gauges, switches and transmitters fitted. For the ventilator unit (❷) there are specifically developed air flow meters and PID control instruments available. Air velocity transmitters measure the air flow and the air velocity in air ducts and air-conditioning systems.

Using a frost protection thermostat additionally prevents frost damage to the heat exchangers (❸) by monitoring the air-side temperature.

For temperature, air quality and carbon dioxide measurement in the ventilation duct or the central unit (❹) WIKA offers a wide ranging product portfolio of sensors in various designs.

The WIKA instrumentation for air-handling applications fulfils and exceeds the requirements which are placed every day on instruments within ventilation and air-conditioning technology. Quick installation and simple commissioning, paired with effective materials and modern design, characterise this product family.

Energy efficiency of ventilation and air-conditioning systems

Filter pressure loss

With the adoption of the Kyoto Protocol, the European Union has committed itself to reduce CO₂ emissions up to 2020 by at least 20 %. In order to reach this climate goal, in 2005 the EU adopted the EuP (Energy using Products) directive. This was renamed the ErP (Energy related Products) directive in 2009. Often people simply speak of the eco-design directive. Specifically, it is the 2009/125/EC directive.

In everyday life, for example, one encounters this in the abolition of filament light bulbs or the energy-efficiency labels on refrigerators, washing machines and the like. Through current European legislation, the efficiency requirements play a very important role, especially for ventilation and air-conditioning technology. Central air-handling units must have implemented the increased efficiency requirements with the corresponding ErP Directive as of 01 January 2016. Further tightening will occur on 01 January 2018.

The energy consumption of a ventilation/air-conditioning plant depends, to a large extent, on the pressure losses of the entire system. Air filters play a decisive role in the resource-conserving operation of a V/AC (ventilation/air-conditioning) plant. Air filters are the determining component when it comes to achieving and maintaining a defined room air quality. Air filters are divided into filter classes, depending upon their range of application and performance. One differentiates between fine and coarse dust filters (in accordance with DIN EN 779:2012) and also particulate filters (in accordance with DIN EN 1822:2011).

If the service life of the air filter is exceeded and the degree of pollution is too high, the energy consumption of the ventilator increases excessively in order to overcome the additional pressure losses. The simple and accurate reading of the pressure loss across the air filters by the plant constructor, and later the operator, enables the timely exchange of the filters to ensure hygienic and energy-efficient conditions.

The operation of air filters in the optimal pressure loss range reduces the life-cycle costs of an air-handling unit enormously.

In the full cost calculation (LCC = life-cycle costs) of an air-handling unit, the following partial costs are included:

- Air filter
- Operating hours
- Power consumption
- Cleaning of ducts, thermal recovery, heat exchangers, etc.
- Efficiency loss of the heat exchangers
- Disposal costs of old filters



Life-cycle costs

Along with the largest contributor to energy costs – the ventilation duct network – the pressure loss in the filters can total as much as 30 % of the overall energy costs.

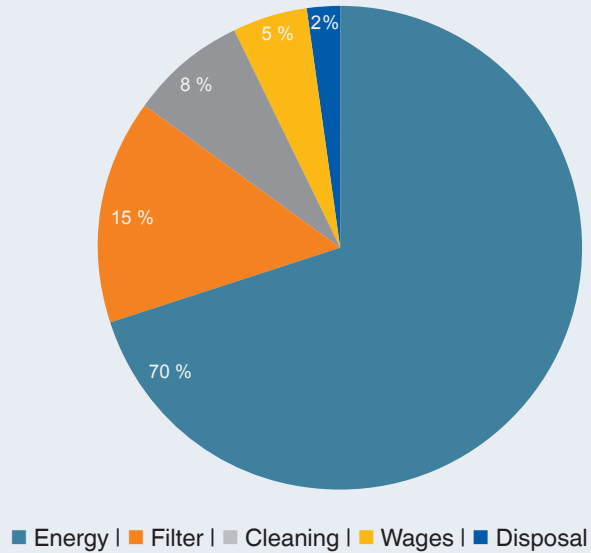
The energy costs of an air-handling unit are calculated as follows:

Percentage distribution of the life-cycle costs of an air-handling unit

$$K = \frac{\dot{V} \times \Delta p \times t \times P}{\eta_{\text{FAN}} \times 1000 \times 3600}$$

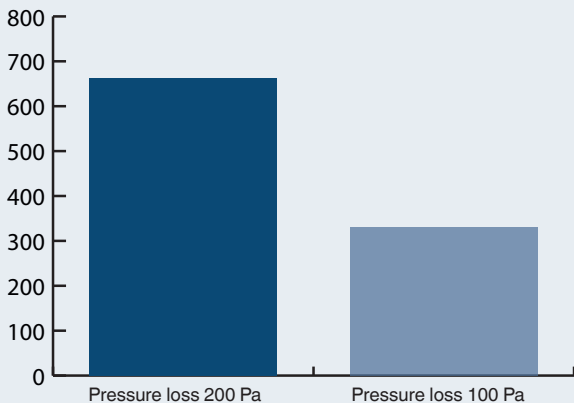
Legend:

\dot{V} = air flow ($\frac{\text{m}^3}{\text{s}}$)
 K = overall energy costs in a year ($\frac{\text{€}}{\text{a}}$)
 Δp = average pressure loss (Pa)
 t = hours of operation ($\frac{\text{h}}{\text{a}}$)
 P = energy costs ($\frac{\text{€}}{\text{kWh}}$)
 η_{FAN} = ventilator efficiency



The effects of excessive pressure losses on energy costs are illustrated by the following two calculations:

Example energy costs without/with filter maintenance



Calculation 1

Energy costs with 200 Pa average pressure loss

- Hours of operation: 1 year = 8,760 h
- Air flow: 3,400 m³/h
- Average pressure loss: 200 Pa
- Ventilator efficiency: 50 %
- Energy costs: 0.20 €/kWh

Filter energy costs: 662.00 €

Calculation 2

Energy costs with 100 Pa average pressure loss

- Hours of operation: 1 year = 8,760 h
- Air flow: 3,400 m³/h
- Average pressure loss: 100 Pa
- Ventilator efficiency: 50 %
- Energy costs: 0.20 €/kWh

Filter energy costs: 331.00 €

These example calculations also confirm the fluid dynamics proportionality. If the filter pressure drop doubles, then the energy costs also double.

Thus, reliable instrumentation not only contributes to compliance with hygienic conditions in ventilation and air-conditioning systems, but also has a significant impact on the ongoing operating costs. It ensures sustainable operation and thus actively contributes to the protection of our environment.

Filter monitoring using visual displays is therefore also included bindingly in various standards and statutes.

VDI 6022 sheet 1

This guideline (acknowledged rule of technology in Germany and Switzerland) describes the hygienic requirements for air-handling units and instruments. In point 4.3.9.2, "Design requirements on air filters", the directive describes the necessity of differential pressure measurement technology in such a way that each air filter stage with an air flow of greater than 1,000 m³/h must be fitted with a suitable differential pressure measuring instrument. Furthermore, the VDI 6022 defines requirements for the clear readability of the measuring instrument to be used.

Air flow measurement and control

The dimensioning and the operation of almost every ventilation system – regardless of the application – happens based on the air volume flow. This air volume flow is dependent upon the thermal and/or material loads and is used as the basis for the dimensioning of every system.

The actual control of the air flow during commissioning, or even during the operation of the system, is generally not made using the actually extracted air flow. Ventilation systems are frequently put into service without air flow control – a measurement during commissioning is usually omitted. However, even after commissioning, control by the user is not possible, since fixed measuring instruments are often not provided for during the plant planning.

Would anyone drive a car without a speedometer and simply rely on their 'gut feeling' while driving? This is all-too-common practice in ventilation systems.

Air flow measuring and control instruments offer the operator of a ventilation and air-conditioning system the security that their plant is running in the designed operating condition and thus the requirements on energy efficiency are being met continuously.

EN 13053

The European standard EN 13053-6.9.2 standardises the requirements for central air-handling units. In accordance with point 6.9.2, for each air filter stage, differential pressure measuring instruments with local display must be used.

EU regulation 1253/2014/EC

For air-handling units, the EU 1253/2014/EC regulation is relevant, which came into force on November 26, 2014. On 01 January 2018, with the specific requirement that ventilation systems with a filter must be equipped with a visual filter-change display, differential pressure instrumentation will become a legal requirement in the European Union.

Room air quality

Carbon dioxide (CO₂) as an indicator of room air quality

The concentration of CO₂ in internal spaces mainly serves as an indicator for the overall level of organic emissions of people and odours. As a product from human breathing, the CO₂ content of the air in a room directly expresses the intensity of the use of that space.

The German hygienist Pettenkofer (1819 - 1901) established and justified, based on numerous studies, the maximum concentration of CO₂ to be 1,000 ppm as the transition from pleasant to unpleasant air quality. People connect concentrations of CO₂ under 800 ppm with very good air conditions.

The detection of carbon dioxide content in demand-oriented ventilation and air conditioning systems is becoming more and more standard. Carbon dioxide absorbs strong infra-red light with a wavelength of 4.2 µm. This feature is used by sensors in order to determine the concentration of CO₂ in air. Thus, the CO₂ concentration is a perfect measure for the operation of a ventilation system with variable air volume flow. The operation of a ventilation and air-conditioning system is therefore not needed with a fixed air volume flow, rather the system can be operated as demand-oriented and thus highly efficiently, using suitable CO₂ sensors for the measured value registration. If only half the air volume flow is needed due to a low presence of people, this results in the following positive effects (based on the fluid dynamics proportionality rule):

- ½ air volume flow
- ¼ of the pressure loss in the system
- ⅛ of the energy usage

Differential pressure gauges



	Differential pressure gauge Eco	Differential pressure gauge	Differential pressure gauge with electrical output signal	Differential pressure gauge, nominal size 63	Differential pressure gauge with pressure switch
Model	A2G-05	A2G-10	A2G-15	A2G-mini	A2G-90
Application	Analogue display and monitoring of low differential pressures in ventilation and air-conditioning applications and in cleanrooms	Analogue display and monitoring of low differential pressures in ventilation and air-conditioning applications and in cleanrooms	Analogue display and electrical measured value transmission of low differential pressures in ventilation and air-conditioning applications and in cleanrooms	Analogue display and monitoring of differential pressures with minimal space requirements	Analogue display and monitoring of differential pressures via an integrated switch in ventilation and air-conditioning applications and in cleanrooms
Special	<ul style="list-style-type: none"> Required in accordance with VDI 6022 with all filter stages in ventilation and air-conditioning systems > 1,000 m³/h Very small insertion depth (42 mm), therefore ideally suited for recessed installation in doors, case panels and walls Also available as a silicone-free version 	<ul style="list-style-type: none"> Required in accordance with VDI 6022 with all filter stages in ventilation and air-conditioning systems > 1,000 m³/h Tool-free installation when using the built-in version Also available as a silicone-free version 	<ul style="list-style-type: none"> Tool-free installation when using the built-in version On the back, two G E" IG connections for the matching threaded pressure connections Integrated sealing element for direct installation in a ventilation duct 	<ul style="list-style-type: none"> Specifically developed for small and medium-sized central air-handling units Fulfilling the ErP 2018 directive with respect to filter display 	<ul style="list-style-type: none"> Optical and electrical monitoring of differential pressures Compact and elegant black case Ingress protection IP65, therefore ideal for outdoor application UV stabilised
Special features	<ul style="list-style-type: none"> Simple and quick mounting Integrated sealing element for direct installation in a ventilation duct Fixed back mount process connection in angular form for pressure measurement hoses of Ø 4 ... 6 mm Maintenance-free Maximum operating pressure 20 kPa 	<ul style="list-style-type: none"> Simple and quick mounting Two-part construction (measuring element and case) Integrated sealing element for direct installation in a ventilation duct or instrument panel Available as a built-in or add-on version Maximum operating pressure 20 kPa 	<ul style="list-style-type: none"> Electrical output signal 0 ... 10 V (3-wire) Simple and quick mounting Two-part construction (measuring element and case) Available as a built-in or add-on version Maximum operating pressure 20 kPa 	<ul style="list-style-type: none"> Optimal readability with minimal space requirements All-metal design Simple and quick mounting Silicone-free 	<ul style="list-style-type: none"> Compact indicator and pressure switch fitted within a plastic case Single-pole micro switch (change-over contact) Switch point adjustable when installed All connections already pre-assembled
Measuring range	0 ... 50 Pa to 0 ... 12,500 Pa, -25 ... +25 Pa to -1,500 ... +1,500 Pa, further ± ranges on request	0 ... 50 Pa to 0 ... 12,500 Pa, -25 ... +25 Pa to -1,500 ... +1,500 Pa, further ± ranges on request	0 ... 50 Pa to 0 ... 12,500 Pa, -25 ... +25 Pa to -1,500 ... +1,500 Pa, further ± ranges on request	0 ... 250 Pa 0 ... 500 Pa 0 ... 750 Pa 0 ... 1,000 Pa	0 ... 250 Pa to 0 ... 6,000 Pa
Ingress protection	IP54 (optional IP65)	IP54 (optional IP65)	IP54 (optional IP65)	IP68	IP65
Details	Page 10	Page 12	Page 14	Page 16	Page 18



Inclined tube manometer	Differential pressure switch	Differential pressure transmitter/switch with display	Differential pressure transmitter	Dual differential pressure transmitter	Differential pressure transmitter Eco
A2G-30	A2G-40	A2G-45	A2G-50	A2G-52	A2G-55
Analogue display and monitoring of low differential pressures in ventilation and air-conditioning applications	For monitoring the differential pressure of air and other non-flammable and non-aggressive gases	Electrical measured value transmission and monitoring of differential pressures via an integrated switch in ventilation and air-conditioning applications and in cleanrooms	Electrical measured value transmission of differential pressures in ventilation and air-conditioning applications and in cleanrooms	Electrical measured value transmission of differential pressures in ventilation and air-conditioning applications and in cleanrooms	Electrical measured value transmission of differential pressures in ventilation and air-conditioning applications and in cleanrooms
<ul style="list-style-type: none"> ■ No escape of measuring liquid with overpressure ■ Simple zero adjustment ■ Incl. pressure limit label 	<ul style="list-style-type: none"> ■ Cost-effective mechanical differential pressure switch ■ Simple setting of the switch point ■ Switching function as normally closed or normally open contact 	<ul style="list-style-type: none"> ■ Optionally available with automatic zero adjustment and second relay ■ Freely configurable switch point for rising and falling pressure ■ Freely configurable hysteresis for the switch point 	<ul style="list-style-type: none"> ■ Three pressure variants, each with eight different pressure ranges ■ Available as Modbus® version ■ Piezoresistive measuring principle ■ Automatic zero adjustment (option) 	<ul style="list-style-type: none"> ■ Modbus® output signal ■ Pressure measurement of two different control points ■ By using the input interface, up to two temperature transmitters or an analogue 0 ... 10 V signal can be connected directly to the measuring instrument. 	<ul style="list-style-type: none"> ■ Compact and robust design ■ Ingress protection IP65, therefore ideal for outdoor application
<ul style="list-style-type: none"> ■ Easy to install and remove ■ Leakage protection ■ Easy-to-read logarithmic scale 	<ul style="list-style-type: none"> ■ Easy to install and assemble ■ Very reliable ■ Robust case and practical design 	<ul style="list-style-type: none"> ■ Electrical output signal 0 ... 10 V (3-wire) ■ Simple and quick mounting ■ Maintenance-free ■ Maximum operating pressure 20 kPa 	<ul style="list-style-type: none"> ■ Electrical output signal 0 ... 10 V or 4 ... 20 mA can be selected directly at the instrument via jumpers ■ Simple and fast installation and commissioning ■ LC display (option) ■ Maintenance-free ■ Maximum operating pressure 20 kPa 	<ul style="list-style-type: none"> ■ Simple mounting ■ Two differential pressure sensors in one instrument ■ Two inputs for temperature sensors or analogue signal ■ With Modbus® interface ■ Two-line LC display for the direct reading of both pressure values 	<ul style="list-style-type: none"> ■ Output signal 0 ... 10 V or 4 ... 20 mA ■ Maintenance-free ■ Easy to use ■ High accuracy
0 ... 600 Pa	20 ... 200 Pa to 500 ... 4,500 Pa	-500 ... +500 Pa (-100 ... +100 Pa, -250 ... +250 Pa, -300 ... +300 Pa) or 0 ... 2,500 Pa (0 ... 100 Pa, 0 ... 250 Pa, 0 ... 1,000 Pa)	- 50 ... +50 Pa to 0 ... 7,000 Pa	-250 ... +2,500 Pa and -250 ... +7,500 Pa	0 ... 250 Pa to 0 ... 5,000 Pa
IP54	IP54	IP54	IP54	IP54	IP65
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Differential pressure gauge Eco Model A2G-05

- Required in accordance with VDI 6022 with all filter stages in ventilation and air-conditioning systems > 1,000 m³/h
- Very small insertion depth (42 mm), therefore ideally suited for recessed installation in doors, case panels and walls
- Also available as a silicone-free version



Applications

- For monitoring the differential pressure of air and other non-inflammable and non-aggressive gases
- Differential pressure monitoring in filters
- Differential pressure monitoring in clean rooms

Special features

- Simple and quick mounting
- Integrated sealing element for direct installation in a ventilation duct
- Fixed back mount process connection in angular form for pressure measurement hoses of Ø 4 ... 6 mm
- Maintenance-free
- Maximum operating pressure 20 kPa

Scope of delivery

- Differential pressure gauge
- Mounting ring

Accessories

	Duct connector for hose 4 and 6 mm		Weather protection
	40217507		40241564

Specifications

Nominal size	110 mm
Accuracy	±3 % (±5 % with scale range ≤ 0 ... 125 Pa)
Measuring range	0 ... 50 Pa to 0 ... 12,500 Pa, -25 ... +25 Pa to -1,500 ... +1,500 Pa, other ±ranges on request, also available in the measuring units kPa, inWC, mmWC and mbar
Permissible temperatures	Ambient temperature: -30 ... +80 °C Medium temperature: -16 ... +50 °C
Ingress protection	IP54 (optional IP65)
Process connection	Fixed connection in angular form for hoses with inner diameter 4 mm or 6 mm
Separating diaphragm	Silicone (EPDM with silicone-free version)
Movement	Contact-free transmission (SWISS MOVEMENT)
Dial	Aluminium
Pointer	Plastic (red signal pointer, optional)
Window	Polycarbonate (UV stabilised)
Basic case, built-in and add-on case	Plastic, glass-fibre reinforced
Weight	240 g
Standard accessories	3 mounting screws
Data sheet	PM 07.42

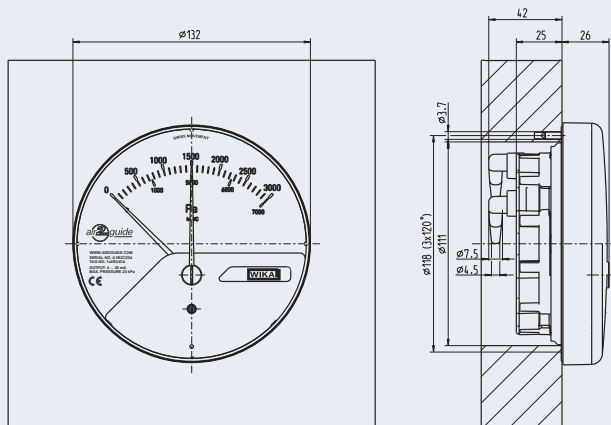
Order numbers

Scale range	Without mark pointer				With mark pointer			
	Ingress protection IP54		Ingress protection IP65		Ingress protection IP54		Ingress protection IP65	
	Standard diaphragm	Silicone-free diaphragm	Standard diaphragm	Silicone-free diaphragm	Standard diaphragm	Silicone-free diaphragm	Standard diaphragm	Silicone-free diaphragm
-250 ... +250 Pa	42500001	42500011	42500021	42500031	42500041	42500051	42500061	42500071
0 ... 250 Pa	42500002	42500012	42500022	42500032	42500042	42500052	42500062	42500072
0 ... 500 Pa	42500003	42500013	42500023	42500033	42500043	42500053	42500063	42500073
0 ... 600 Pa	42500004	42500014	42500024	42500034	42500044	42500054	42500064	42500074
0 ... 750 Pa	42500005	42500015	42500025	42500035	42500045	42500055	42500065	42500075
0 ... 1,000 Pa	42500006	42500016	42500026	42500036	42500046	42500056	42500066	42500076
0 ... 1,500 Pa	42500007	42500017	42500027	42500037	42500047	42500057	42500067	42500077
0 ... 2,000 Pa	42500008	42500018	42500028	42500038	42500048	42500058	42500068	42500078
0 ... 3,000 Pa	42500009	42500019	42500029	42500039	42500049	42500059	42500069	42500079
0 ... 10,000 Pa	42500010	42500020	42500030	42500040	42500050	42500060	42500070	42500080

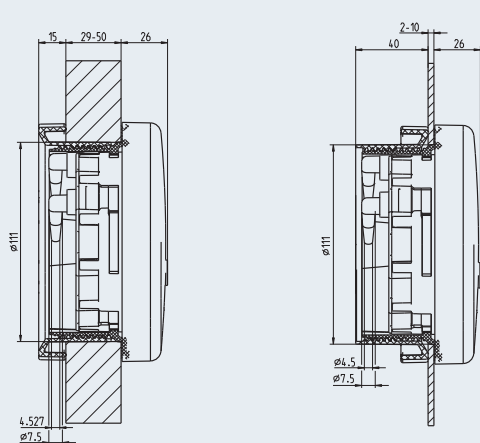
Other units and measuring ranges on request

Dimensions in mm

Back mount -standard-

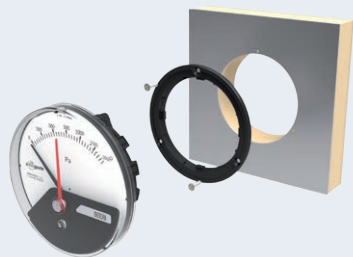


Back mount -optional-

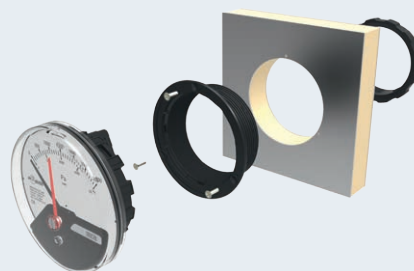


Built-in version

Standard



Optional



Differential pressure gauge Model A2G-10

- Required in accordance with VDI 6022 with all filter stages in ventilation and air-conditioning systems > 1,000 m³/h
- Tool-free installation when using the built-in version
- Also available as a silicone-free version



Applications

- For monitoring the differential pressure of air and other non-inflammable and non-aggressive gases
- Differential pressure monitoring in filters and clean rooms

Special features

- Simple and quick mounting
- Two-part construction (measuring element and case)
- Integrated sealing element for direct installation in an ventilation duct or instrument panel
- Available as a built-in or add-on version
- Maximum operating pressure 20 kPa

Specifications

Nominal size	110 mm
Accuracy	±3 % (±5 % with scale range ≤ 0 ... 125 Pa)
Measuring range	0 ... 50 Pa to 0 ... 12,500 Pa, -25 ... +25 Pa to -1,500 ... +1,500 Pa, other ±ranges on request, also available in the measuring units kPa, inWC, mmWC and mbar
Permissible temperatures (standard)	Ambient temperature: -30 ... +80 °C Medium temperature: -16 ... +50 °C
Ingress protection	IP54 (optional IP65)
Process connection	G 1/8 female, for hoses with inner diameter 4 or 6 mm
Separating diaphragm	Silicone (EPDM with silicone-free version)
Movement	Contact-free transmission (SWISS MOVEMENT)
Dial	Aluminium
Pointer	Plastic (red signal pointer, optional)
Window	Makrolon (UV stabilised)
Basic case, built-in and add-on case	Plastic, glass-fibre reinforced
Weight	235 g
Standard accessories	3 mounting screws
Data sheet	PM 07.40



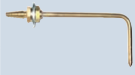



Scope of delivery

- Differential pressure gauge
- Case (built-in or add-on version)
- Screw-in connections

Screw-in connections

Set	
2 x Straight 4 mm	42501991
2 x Straight 6 mm	42501992
2 x Angular 4 mm	42501993
2 x Angular 6 mm	42501994

Accessories

Process connections		
With mounting thread G 1/8 for pipes 6.35 mm/1/4"		40232867
Combi hose connection for pressure measurement hoses Ø 4 - 7 mm		40232484
Static duct probes with combi hose connection for pressure measurement hoses Ø 4 - 7 mm		
Insertion length 100 mm		40232981
Insertion length 150 mm		40232999
Insertion length 200 mm		40233006
Measuring hoses		
PVC hose inner Ø 4 mm/roll at 25 m		40217841
PVC hose inner Ø 6 mm/roll at 25 m		40217850
Silicone hose inner Ø 4 mm/roll at 25 m		40208940
Silicone hose inner Ø 6 mm/roll at 25 m		40208958
Duct connector for hose 4 and 6 mm		40217507
Weather protection		40241564

Order numbers

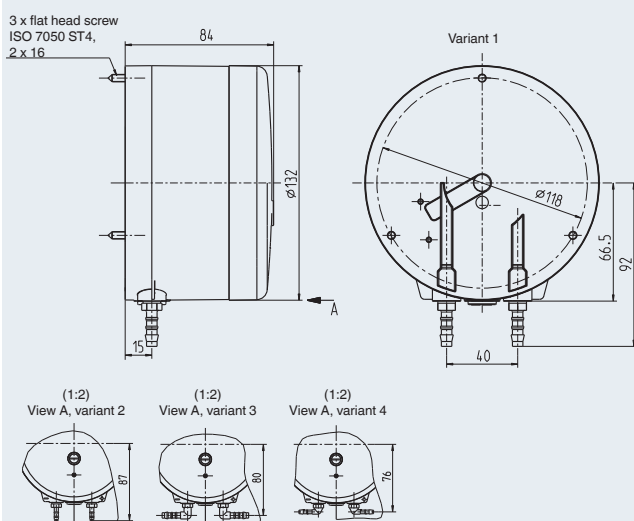
In addition, for your instrument, select a connection from the "Accessories" table on page 10

Built-in version								
Scale range	Without mark pointer				With mark pointer			
	Ingress protection IP54		Ingress protection IP65		Ingress protection IP54		Ingress protection IP65	
	Standard diaphragm	Silicone-free diaphragm	Standard diaphragm	Silicone-free diaphragm	Standard diaphragm	Silicone-free diaphragm	Standard diaphragm	Silicone-free diaphragm
-250 ... +250 Pa	42500201	42500211	42500221	42500231	42500241	42500251	42500261	42500271
0 ... 250 Pa	42500202	42500212	42500222	42500232	42500242	42500252	42500262	42500272
0 ... 500 Pa	42500203	42500213	42500223	42500233	42500243	42500253	42500263	42500273
0 ... 600 Pa	42500204	42500214	42500224	42500234	42500244	42500254	42500264	42500274
0 ... 750 Pa	42500205	42500215	42500225	42500235	42500245	42500255	42500265	42500275
0 ... 1,000 Pa	42500206	42500216	42500226	42500236	42500246	42500256	42500266	42500276
0 ... 1,500 Pa	42500207	42500217	42500227	42500237	42500247	42500257	42500267	42500277
0 ... 2,000 Pa	42500208	42500218	42500228	42500238	42500248	42500258	42500268	42500278
0 ... 3,000 Pa	42500209	42500219	42500229	42500239	42500249	42500259	42500269	42500279
0 ... 10,000 Pa	42500210	42500220	42500230	42500240	42500250	42500260	42500270	42500280
Add-on version								
-250 ... +250 Pa	42500341	42500351	42500361	42500371	42500381	42500391	42500401	42500411
0 ... 250 Pa	42500342	42500352	42500362	42500372	42500382	42500392	42500402	42500412
0 ... 500 Pa	42500343	42500353	42500363	42500373	42500383	42500393	42500403	42500413
0 ... 600 Pa	42500344	42500354	42500364	42500374	42500384	42500394	42500404	42500414
0 ... 750 Pa	42500345	42500355	42500365	42500375	42500385	42500395	42500405	42500415
0 ... 1,000 Pa	42500346	42500356	42500366	42500376	42500386	42500396	42500406	42500416
0 ... 1,500 Pa	42500347	42500357	42500367	42500377	42500387	42500397	42500407	42500417
0 ... 2,000 Pa	42500348	42500358	42500368	42500378	42500388	42500398	42500408	42500418
0 ... 3,000 Pa	42500349	42500359	42500369	42500379	42500389	42500399	42500409	42500419
0 ... 10,000 Pa	42500350	42500360	42500370	42500380	42500390	42500400	42500410	42500420

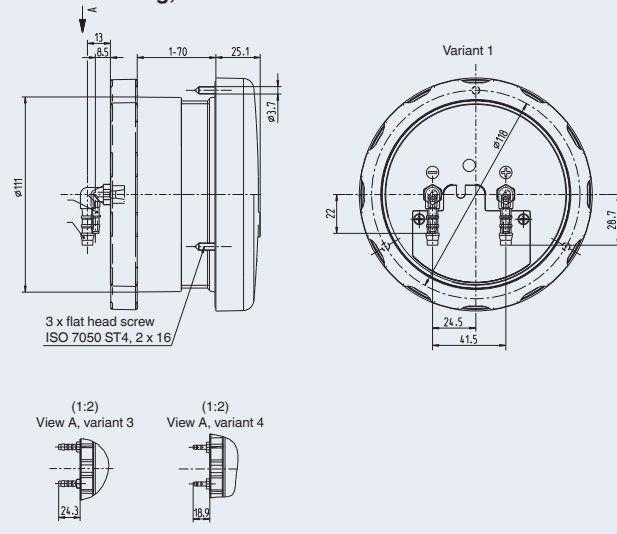
Other units and measuring ranges on request

Dimensions in mm

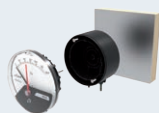
Wall mounting, lower mount



Panel mounting, back mount



Add-on version



Built-in version ¹⁾



Legend	
Variant 1	Angular connection Ø 6
Variant 2	Angular connection Ø 4
Variant 3	Straight connection Ø 6
Variant 4	Straight connection Ø 4

Differential pressure gauge with electrical output signal, model A2G-15

- Tool-free installation when using the built-in version
- On the back, two G E" IG connections for the matching threaded pressure connections
- Integrated sealing element for direct installation in a ventilation duct



Applications

- For monitoring the differential pressure of air and other non-inflammable and non-aggressive gases
- Differential pressure monitoring in filters and clean rooms

Special features

- Electrical output signal 0 ... 10 V (3-wire)
- Simple and quick mounting
- Two-part construction (measuring element and case)
- Available as a built-in or add-on version
- Maximum operating pressure 20 kPa

Specifications

Nominal size	110 mm
Accuracy	±3 % (±5 % with scale range ≤ 0 ... 125 Pa)
Measuring range	0 ... 50 Pa to 0 ... 12,500 Pa, -25 ... +25 Pa to -1,500 ... +1,500 Pa, other ±ranges on request, also available in the measuring units kPa, inWC, mmWC and mbar
Permissible temperatures (standard)	Ambient temperature: -30 ... +80 °C Medium temperature: -16 ... +50 °C
Ingress protection	IP54 (optional IP65)
Process connection	G 1/8 female, for hoses with inner diameter 4 or 6 mm
Separating diaphragm	Silicone (EPDM with silicone-free version)
Movement	Contact-free transmission (SWISS MOVEMENT)
Dial	Aluminium
Pointer	Plastic (red signal pointer, optional)
Window	Makrolon (UV stabilised)
Basic case, built-in and add-on case	Plastic, glass-fibre reinforced
Output signal	0 ... 10 V, 3-wire
Power supply U _B	DC 15 ... 35 V
Electrical connection	Cable gland M12
Weight	255 g
Standard accessories	Cable gland M12, 3 mounting screws
Data sheet	PV 17.40


Scope of delivery

- Differential pressure gauge
- Case (built-in or add-on version)
- Screw-in connections (must be selected in accordance with "Screw-in connections" table)

Screw-in connections

Set	
2 x Straight 4 mm	42501991
2 x Straight 6 mm	42501992
2 x Angular 4 mm	42501993
2 x Angular 6 mm	42501994

Accessories

Process connections		
With mounting thread G 1/8 for pipes 6.35 mm/1/4"		40232867
Combi hose connection for pressure measurement hoses Ø 4 - 7 mm		40232484
Static duct probes with combi hose connection for pressure measurement hoses Ø 4 - 7 mm		
Insertion length 100 mm		40232981
Insertion length 150 mm		40232999
Insertion length 200 mm		40233006
Measuring hoses		
PVC hose inner Ø 4 mm/roll at 25 m		40217841
PVC hose inner Ø 6 mm/roll at 25 m		40217850
Silicone hose inner Ø 4 mm/roll at 25 m		40208940
Silicone hose inner Ø 6 mm/roll at 25 m		40208958
Duct connector for hose 4 and 6 mm		40217507
Weather protection		40241564

Order numbers

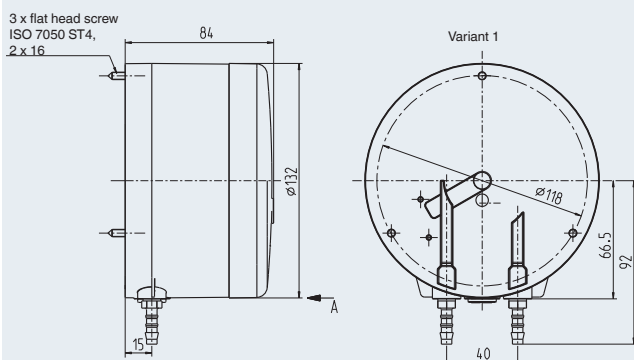
In addition, for your instrument, select a connection from the "Accessories" table on page 12

Built-in version								
Scale range	Without mark pointer				With mark pointer			
	Ingress protection IP54		Ingress protection IP65		Ingress protection IP54		Ingress protection IP65	
	Standard diaphragm	Silicone-free diaphragm	Standard diaphragm	Silicone-free diaphragm	Standard diaphragm	Silicone-free diaphragm	Standard diaphragm	Silicone-free diaphragm
-250 ... +250 Pa	42500481	42500491	42500501	42500511	42500521	42500531	42500541	42500551
0 ... 250 Pa	42500482	42500492	42500502	42500512	42500522	42500532	42500542	42500552
0 ... 500 Pa	42500483	42500493	42500503	42500513	42500523	42500533	42500543	42500553
0 ... 600 Pa	42500484	42500494	42500504	42500514	42500524	42500534	42500544	42500554
0 ... 750 Pa	42500485	42500495	42500505	42500515	42500525	42500535	42500545	42500555
0 ... 1,000 Pa	42500486	42500496	42500506	42500516	42500526	42500536	42500546	42500556
0 ... 1,500 Pa	42500487	42500497	42500507	42500517	42500527	42500537	42500547	42500557
0 ... 2,000 Pa	42500488	42500498	42500508	42500518	42500528	42500538	42500548	42500558
0 ... 3,000 Pa	42500489	42500499	42500509	42500519	42500529	42500539	42500549	42500559
0 ... 10,000 Pa	42500490	42500500	42500510	42500520	42500530	42500540	42500550	42500560
Add-on version								
-250 ... +250 Pa	42500621	42500631	42500641	42500651	42500661	42500671	42500681	42500691
0 ... 250 Pa	42500622	42500632	42500642	42500652	42500662	42500672	42500682	42500692
0 ... 500 Pa	42500623	42500633	42500643	42500653	42500663	42500673	42500683	42500693
0 ... 600 Pa	42500624	42500634	42500644	42500654	42500664	42500674	42500684	42500694
0 ... 750 Pa	42500625	42500635	42500645	42500655	42500665	42500675	42500685	42500695
0 ... 1,000 Pa	42500626	42500636	42500646	42500656	42500666	42500676	42500686	42500696
0 ... 1,500 Pa	42500627	42500637	42500647	42500657	42500667	42500677	42500687	42500697
0 ... 2,000 Pa	42500628	42500638	42500648	42500658	42500668	42500678	42500688	42500698
0 ... 3,000 Pa	42500629	42500639	42500649	42500659	42500669	42500679	42500689	42500699
0 ... 10,000 Pa	42500630	42500640	42500650	42500660	42500670	42500680	42500690	42500700

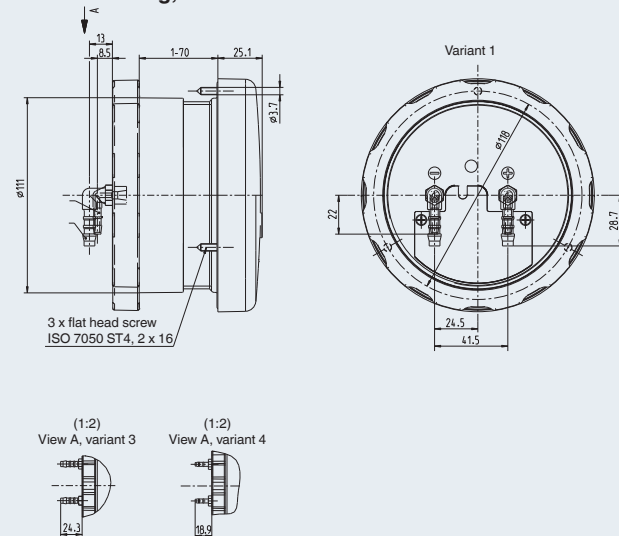
Other units and measuring ranges on request

Dimensions in mm

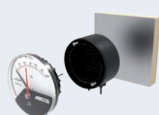
Wall mounting, lower mount



Panel mounting, back mount



Add-on version



Built-in version ¹⁾



Legend	
Variant 1	Angular connection Ø 6
Variant 2	Angular connection Ø 4
Variant 3	Straight connection Ø 6
Variant 4	Straight connection Ø 4

Differential pressure gauge, nominal size 63, model A2G-mini

- Specifically developed for small and medium-sized central air-handling units
- Fulfilling the ErP 2018 directive with respect to filter display



Applications

- For monitoring the differential pressure of air and dry, clean and non-aggressive gases
- Differential pressure monitoring in filters
- Overpressure monitoring in clean rooms
- For very low pressures

Special features

- Optimal readability with minimal space requirements
- All-metal design
- Simple and quick mounting
- Silicone-free

Specifications

Nominal size	63 mm
Accuracy	±5 %
Measuring range	0 ... 250 Pa 0 ... 500 Pa 0 ... 750 Pa 0 ... 1,000 Pa
Permissible temperature	Ambient temperature: -20 ... +60 °C Medium temperature: max. 60 °C
Temperature effect	max. ±0.5 %/10 K of full scale value
Ingress protection	IP68
Process connection	Copper alloy Back mount, for hoses with inner diameter 4 ... 6 mm
Dial	Aluminium Scale angle 180 °
Movement	Copper alloy
Window	Plastic, transparent
Front bezel	Triangular bezel, steel, black lacquered
Case	Stainless steel
Weight	200 g
Standard accessories	Mounting bracket
Data sheet	PM 07.43

Differential pressure gauge with pressure switch, model A2G-90

- Optical and electrical monitoring of differential pressures
- Compact, elegant black case
- Specifically developed for outdoor application



Applications

- For monitoring the differential pressure of air and other non-inflammable and non-aggressive gases
- Monitoring of air filters, blowers, industrial cooling circuits, flows in ventilation ducts and the control of air and fire shutters

Special features

- Compact indicator and pressure switch fitted within a plastic case
- Single-pole micro switch (change-over contact)
- Switch point adjustable when installed
- All connections already pre-assembled

Specifications

Case	Plastic (ABS), colour black (H x W x D = 201 x 15 x 106 mm)
Cover	Screwed
Window	Polycarbonate (PC)
Permissible temperature	Ambient temperature: -30 ... +80 °C Medium temperature: -16 ... +50 °C
Ingress protection	IP65 per IEC/EN 60529
Pressure connections	For hoses with inner diameter 4 or 6 mm, back mount
Electrical connection	Cable gland M12, lower mount
Data sheet	PV 27.40

Specifications A2G-05 differential pressure gauge Eco

Accuracy	± 3 % of measuring range
Measuring range	0 ... 250 Pa to 0 ... 6,000 Pa
Data sheet	PM 07.42

Specifications A2G-40 differential pressure switch

Measuring range	20 ... 200 Pa, 30 ... 300 Pa, 30 ... 500 Pa, 40 ... 600 Pa, 100 ... 1,500 Pa, 500 ... 4,500 Pa
Data sheet	PV 27.41




Order numbers

Scale range of pressure gauge	Pressure range of switch					
	20 ... 200 Pa	30 ... 300 Pa	30 ... 500 Pa	40 ... 600 Pa	100 ... 1,500 Pa	500 ... 4,500 Pa
0 ... 250 Pa	42501131	--	--	--	--	--
0 ... 500 Pa	42501132	42501137	42501142	--	--	--
0 ... 750 Pa	42501133	42501138	42501143	42501147	--	--
0 ... 1,500 Pa	42501134	42501139	42501144	42501148	42501151	--
0 ... 3,000 Pa	42501135	42501140	42501145	42501149	42501152	42501154
0 ... 6,000 Pa	42501136	42501141	42501146	42501150	42501153	42501155


Further pressure ranges and pressure combinations on request

Accessories

Process connections

With mounting thread G 1/8 for pipes 6.35 mm/1/4"		40232867
Combi hose connection for pressure measurement hoses Ø 4 - 7 mm		40232484
Static duct probes with combi hose connection for pressure measurement hoses Ø 4 - 7 mm		
Insertion length 100 mm		40232981
Insertion length 150 mm		40232999
Insertion length 200 mm		40233006

Measuring hoses

PVC hose inner Ø 4 mm/roll at 25 m		40217841
PVC hose inner Ø 6 mm/roll at 25 m		40217850
Silicone hose inner Ø 4 mm/roll at 25 m		40208940
Silicone hose inner Ø 6 mm/roll at 25 m		40208958

Duct connector for hose 4 and 6 mm



40217507

Weather protection

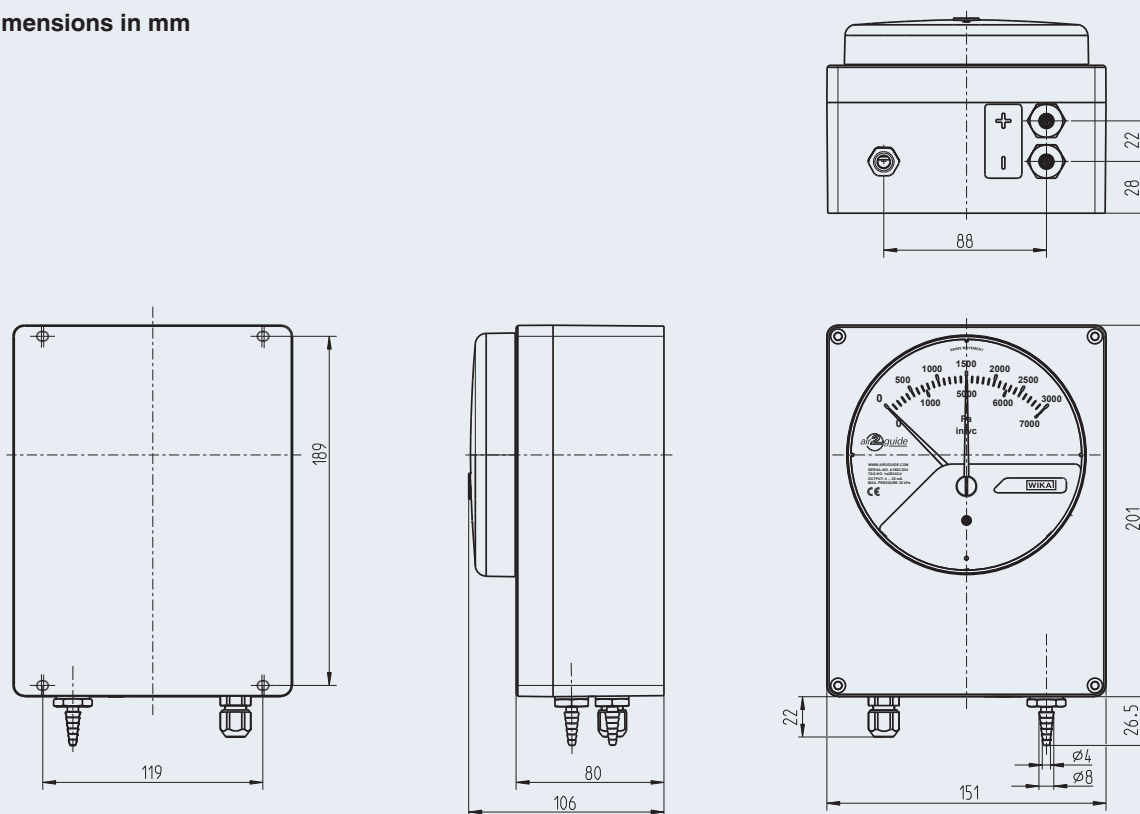


40241564

Scope of delivery

- Differential pressure gauge with pressure switch

Dimensions in mm



Inclined tube manometer Model A2G-30

- No escape of measuring liquid with overpressure
- Simple zero adjustment
- Incl. pressure limit label



Applications

- For dry, clean, non-aggressive gases, usually air
- Monitoring of ventilators, blowers and filters in air-conditioning and cleanroom applications

Special features

- Easy to install and remove
- Leakage protection
- Easy-to-read scale



Specifications

Accuracy	5 Pa/25 Pa
Measuring range	0 ... 600 Pa, 0 ... 6 kPa, 0 ... 2.4 inWC, 0 ... 60 mmWC, 0 ... 6 mbar
Permissible temperatures	-40 ... +60 °C
Max. pressure	200 kPa (2 bar)
Process connection	For hoses with inner diameter 4 mm
Case cover	Plastic
Sealing	NBR
Data sheet	PM 07.41

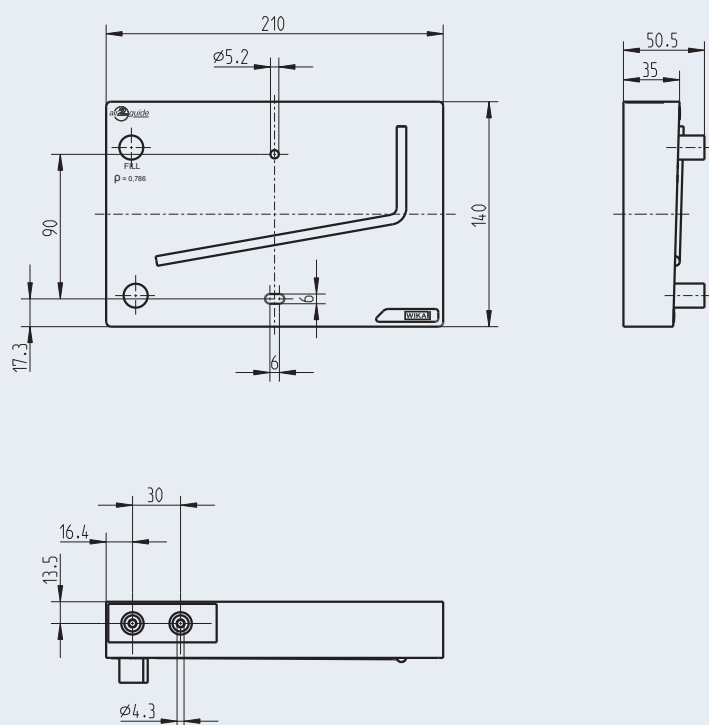
Order numbers	
Unit	
Pa	42500821
kPa	42500822
mmWC	42500823
inWC	42500824
mbar	42500825

Scope of delivery

- Inclined tube manometer
- Mounting screws
- 30 ml filling liquid
- Red and green pressure limit labels

Accessories			
	Filling liquid 30 ml		Label
	40213714		40213731

Dimensions in mm



Differential pressure switch

Model A2G-40



- Cost-effective mechanical differential pressure switch
- Simple setting of the switch point
- Switching function as normally closed or normally open contact

Applications

- For dry, clean, non-aggressive gases, usually air
- Monitoring of ventilators, blowers and filters in air-conditioning and cleanroom applications
- Overpressure monitoring in clean rooms and laboratories

Special features

- Easy to install and assemble
- Very reliable
- Robust case and practical design

Specifications

	Pressure range	Lowest limit	Highest limit	Switching differential
Accuracy of the switch point	20 ... 200 Pa	±5 Pa	±20 Pa	20 Pa
	30 ... 300 Pa	±5 Pa	±30 Pa	20 Pa
	30 ... 500 Pa	±5 Pa	±30 Pa	20 Pa
	40 ... 600 Pa	±5 Pa	±30 Pa	30 Pa
	100 ... 1,500 Pa	±10 Pa	±50 Pa	80 Pa
	500 ... 4,500 Pa	±50 Pa	±200 Pa	250 Pa
Permissible temperatures	Ambient temperature: -40 ... +85 °C Medium temperature: -20 ... +60 °C			
Ingress protection	IP54			
Process connection	For hoses with inner diameter 4 or 6 mm			
Switching power	AC 250 V, 2 A			
Diaphragm	Silicone			
Case	Plastic (ABS)			
Window	Polycarbonate (PC)			
Sealings	Plastic			
Electrical connection	Cable gland M16, screw terminals max. 1.5 mm ²			
Type of mounting	Wall mounting			
Weight	150 g			
Data sheet	PV 27.41			

Differential pressure transmitter/switch with display, model A2G-45

- Optionally available with automatic zero adjustment and second relay
- Freely configurable switch point for rising and falling pressure
- Freely configurable hysteresis for the switch point



Applications

- For monitoring the differential pressure of air and other non-inflammable and non-aggressive gases
- Differential pressure monitoring in filters and clean rooms

Special features

- Electrical output signal 0 ... 10 V (3-wire)
- Simple and quick mounting
- Maintenance-free
- Maximum operating pressure 20 kPa

Specifications

Accuracy	±1.5 %	
Measuring range	Variant 1: -500 ... +500 Pa * -300 ... +300 Pa ** -250 ... +250 Pa ** -100 ... +100 Pa **	Variant 2: 0 ... 2,500 Pa * 0 ... 1,000 Pa ** 0 ... 250 Pa ** 0 ... 100 Pa **
	8 measuring ranges can be selected via jumpers (Measuring ranges < 250 Pa: Automatic zero adjustment (AZ) recommended) Option: Automatic zero adjustment (AZ), 2 relay outputs (2R), automatic zero adjustment and 2 relay outputs (AZ-2R)	
Permissible temperatures	Ambient temperature: -20 ... +70 °C, 95 % r. h., non-condensing Medium temperature: -10 ... +50 °C (-5 ... +50 °C for AZ models)	
Ingress protection	IP54	
Process connection	For hoses of inner Ø 4 mm	
Output signal	0 ... 10 V, load resistance min. 1 kΩ, relay 250 V, DC 30 V, 6 A	
Power supply U _B	AC 24 V ±10 % or DC 21 ... 35 V	
Measuring element	Piezo measuring cell	
Case	Plastic (ABS), plastic (PC)	
Electrical connection	Cable gland M16 and M20, screw terminals max. 1.5 mm ²	
Type of mounting	Wall mounting	
Weight	150 g	
Data sheet	PE 88.01	


* Standard ** Jumper

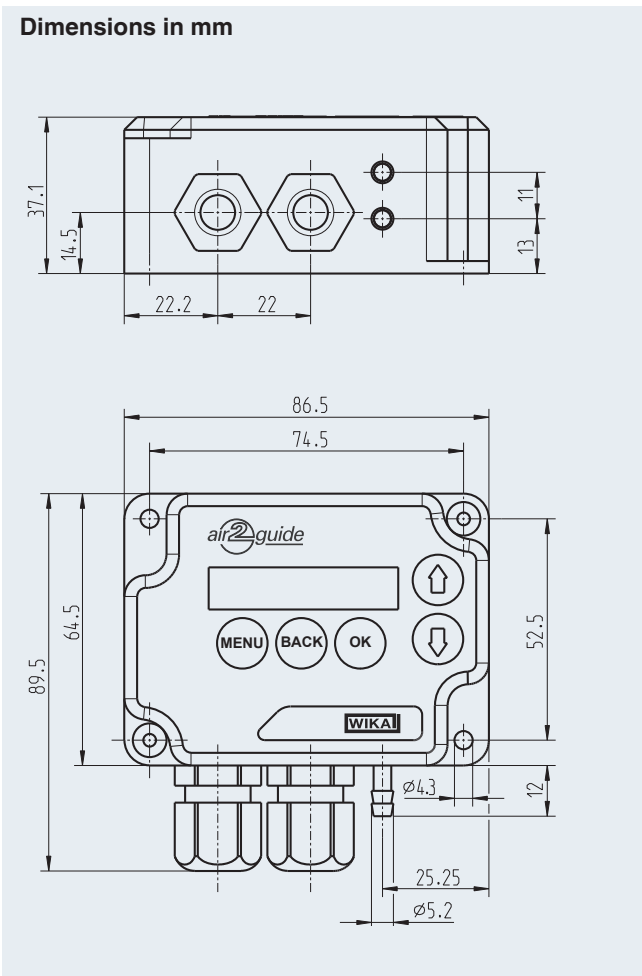
Order numbers						
Pressure range	LCD	Analogue output signal 0 ... 10 V	Switching output	Second switching output	Automatic zero adjustment	
-50 ... +500 Pa	◆	◆	◆	--	--	42500851
	◆	◆	◆	◆	--	42500852
	◆	◆	◆	--	◆	42500853
	◆	◆	◆	◆	◆	42500854
0 ... 2,500 Pa	◆	◆	◆	--	--	42500855
	◆	◆	◆	◆	--	42500856
	◆	◆	◆	--	◆	42500857
	◆	◆	◆	◆	◆	42500858

Scope of delivery

- Differential pressure gauge
- 2 duct connectors
- 2 m PVC hose

Accessories

Measuring hoses		
PVC hose inner Ø 4 mm/roll at 25 m		40217841
PVC hose inner Ø 6 mm/roll at 25 m		40217850
Silicone hose inner Ø 4 mm/roll at 25 m		40208940
Silicone hose inner Ø 6 mm/roll at 25 m		40208958
Duct connector for hose 4 and 6 mm		40217507



Differential pressure transmitter

Model A2G-50

- Three pressure variants, each with eight different pressure ranges
- Available as Modbus® version
- Piezoresistive measuring principle
- Automatic zero adjustment (option)



Applications

- For measuring differential pressures and static pressures
- Monitoring of filters
- Overpressure monitoring in clean rooms and laboratories

- Electrical output signal 0 ... 10 V or 4 ... 20 mA, can be selected directly at the instrument via jumpers
- Simple and fast installation and commissioning
- LC display (option)
- Maintenance-free
- Maximum operating pressure 20 kPa

Special features

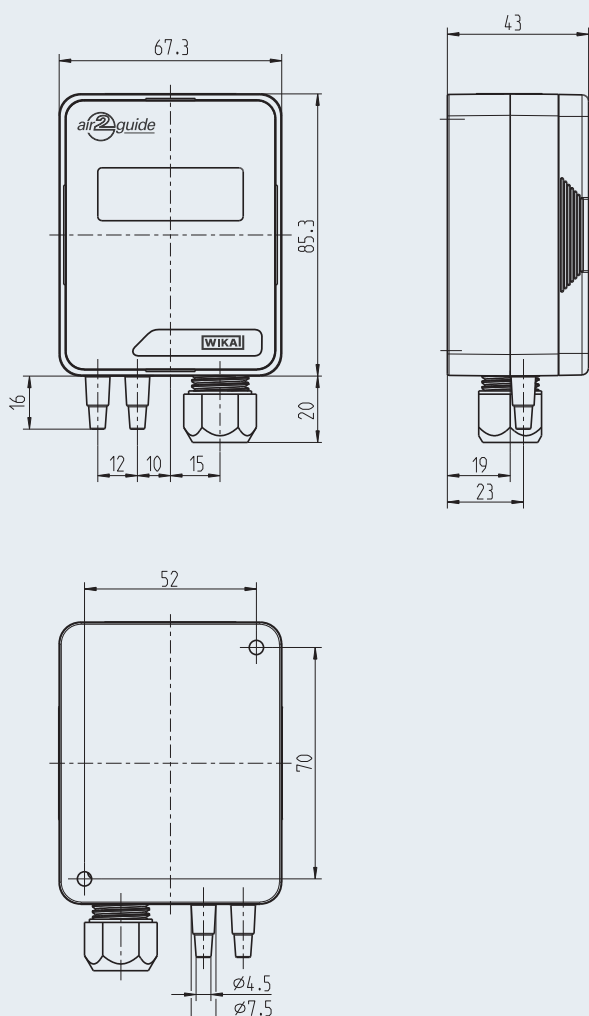
Specifications			
Accuracy	±1.5 % + 1 Pa (of measured pressure)		
Measuring range	Variant 1: 0 ... 2,500 Pa * 0 ... 2,000 Pa ** 0 ... 1,500 Pa ** 0 ... 1,000 Pa ** 0 ... 500 Pa ** 0 ... 250 Pa ** 0 ... 100 Pa ** -100 ... +100 Pa **	Variant 2: 0 ... 7,000 Pa * 0 ... 5,000 Pa ** 0 ... 4,000 Pa ** 0 ... 3,000 Pa ** 0 ... 2,500 Pa ** 0 ... 2,000 Pa ** 0 ... 1,500 Pa ** 0 ... 1,000 Pa **	Variant 3: -250 ... +250 Pa * -100 ... +100 Pa ** -50 ... +50 Pa ** -25 ... +25 Pa ** 0 ... 250 Pa ** 0 ... 100 Pa ** 0 ... 50 Pa ** 0 ... 25 Pa **
	8 measuring ranges can be selected via jumpers (Measuring ranges < 250 Pa: Automatic zero adjustment (AZ) recommended)		8 measuring ranges can be selected via jumpers (Measuring ranges < 250 Pa: Automatic zero adjustment (AZ) recommended)
	Option: Digital display (D), automatic zero adjustment (AZ), digital display and automatic zero adjustment (AZ-D)		
Permissible temperatures	Ambient temperature: -20 ... +70 °C, storage temperature: -50 ... +70 °C Medium temperature: -10 ... +50 °C		
Ingress protection	IP54		
Process connection	For hoses with inner diameter 4 or 6 mm		
Output signal	DC 0 ... 10 V (3-wire) or 4 ... 20 mA (3-wire)		
Power supply U _B	AC 24 V or DC 24 V ±10 %		
Measuring element	Piezo measuring cell		
Case	Plastic (ABS)		
Electrical connection	Cable gland M16, screw terminals max. 1.5 mm ²		
Current consumption	< 1.0 W (0 ... 10 V), < 1.2 W (4 ... 20 mA), < 1.3 W (Modbus®)		
Units (adjustable via jumpers)	Differential pressure: Pa, kPa, mbar, inWC, mmWC		
Weight	150 g		
Data sheet	PE 88.02		

* Standard ** Jumper

Order numbers

Pressure range	LCD	Analogue output signal 0 ... 10 V 4 ... 20 mA	Modbus® output signal	Automatic zero adjustment	
Variant 1 as per table	--	◆	--	--	42500881
	--	◆	--	◆	42500882
	◆	◆	--	--	42500883
	◆	◆	--	◆	42500884
Variant 2 as per table	--	◆	--	--	42500885
	--	◆	--	◆	42500886
	◆	◆	--	--	42500887
	◆	◆	--	◆	42500888
Variant 3 as per table	--	◆	--	◆	42500889
	◆	◆	--	◆	42500890
-250 ... 2,500 Pa	◆	--	◆	via Modbus® protocol	42500891
-250 ... 7,000 Pa	◆	--	◆	via Modbus® protocol	42500892

Dimensions in mm



Scope of delivery

- Differential pressure transmitter
- 2 mounting screws
- 2 duct connectors
- 2 m PVC hose

Accessories

Process connections

With mounting thread G 1/8 for pipes 6.35 mm/1/4"



40232867

Combi hose connection for pressure measurement hoses Ø 4 - 7 mm



40232484

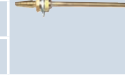
Static duct probes with combi hose connection for pressure measurement hoses Ø 4 - 7 mm

Insertion length 100 mm



40232981

Insertion length 150 mm



40232999

Insertion length 200 mm



40233006

Measuring hoses

PVC hose inner Ø 4 mm/roll at 25 m



40217841

PVC hose inner Ø 6 mm/roll at 25 m



40217850

Silicone hose inner Ø 4 mm/roll at 25 m



40208940

Silicone hose inner Ø 6 mm/roll at 25 m



40208958

Duct connector for hose 4 and 6 mm



40217507

Weather protection



40241564

Dual differential pressure transmitter Model A2G-52

- Modbus® output signal
- Pressure measurement of two different control points
- By using the input interface, up to two temperature transmitters or an analogue 0 ... 10 V signal can be connected directly to the measuring instrument.



Applications

- For monitoring air, non-inflammable and non-aggressive gases
- Fan, blower and filter monitoring
- Pressure and flow monitoring
- Monitoring and control of valves and air shutters
- Pressure monitoring in clean rooms

Special features

- Simple mounting
- Two differential pressure sensors in one instrument
- Two inputs for temperature sensors or analogue signal
- With Modbus® interface
- Two-line LC display for the direct reading of both pressure values

Specifications

Accuracy	±1.5 % + 1 Pa (of measured pressure)
Measuring range	-250 ... +2,500 Pa and -250 ... +7,500 Pa
Permissible temperatures	Ambient temperature: -20 ... +70 °C Medium temperature: -10 ... +50 °C
Units of measure	Pa, mbar, inch WC, mmWC, psi
Ingress protection	IP54
Process connection	Connecting nozzle (copper alloy), lower mount, for hoses with inner diameter 4 mm
Units of measure	Pa, mbar, inch WC, mmWC, psi
Relative humidity	0 ... 95 % r. h., non-condensing
Measuring element	Piezo measuring cell
Case	Plastic (ABS), cover: Polycarbonate (PC)
Display	Two-line LC display (12 characters/line) Line 1: Active measurement, input A Line 2: Active measurement, input B
Electrical connection	Cable gland M20 2 x 4 spring-clip terminals, max. 1.5 mm ²
Output signal	Modbus®
Power supply U _B	AC 24 V or DC 24 V ±10 %
Weight	150 g
Data sheet	PE 88.03



Order numbers

Pressure range	
-250 ... +2,500 Pa	40399907
-250 ... +7,000 Pa	40399920

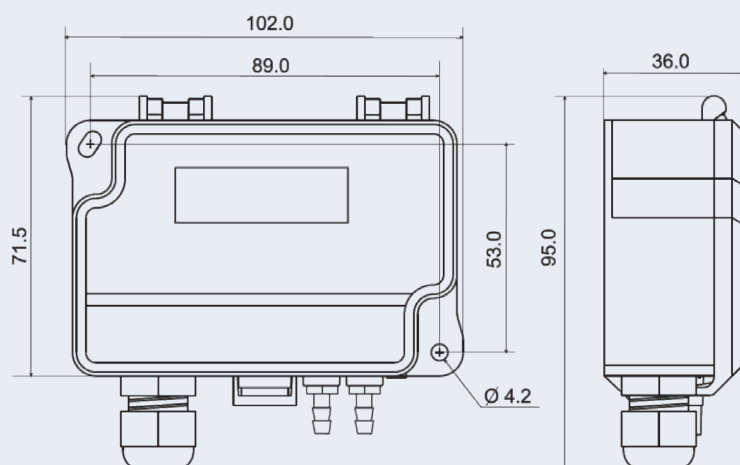
Scope of delivery

- Dual differential pressure transmitter
- 2 mounting screws
- 4 duct connectors
- 4 m PVC hose

Accessories

Measuring hoses		
PVC hose inner Ø 4 mm/roll at 25 m		40217841
PVC hose inner Ø 6 mm/roll at 25 m		40217850
Silicone hose inner Ø 4 mm/roll at 25 m		40208940
Silicone hose inner Ø 6 mm/roll at 25 m		40208958
Duct connector for hose 4 and 6 mm		40217507

Dimensions in mm



Differential pressure transmitter Eco Model A2G-55

- Compact and robust case
- Ingress protection IP65, ideal for outdoor application



Applications

- For measuring differential pressures and static pressures
- Monitoring of filters
- Overpressure monitoring in clean rooms and laboratories

Special features

- Output signal 0 ... 10 V or 4 ... 20 mA
- Maintenance-free
- Easy to use
- High accuracy

Specifications



Accuracy	±2.5 % FS	
Measuring range	0 ... 250 Pa 0 ... 500 Pa 0 ... 750 Pa 0 ... 1,000 Pa	0 ... 1,250 Pa 0 ... 2,500 Pa 0 ... 3,750 Pa 0 ... 5,000 Pa
Permissible temperatures	Ambient temperature: -10 ... +50 °C Medium temperature: -10 ... +50 °C	
Ingress protection	IP65	
Process connection	For hoses with inner diameter 5.5 mm	
Output signal	0 ... 10 V (4 ... 20 mA optional)	
Supply voltage	DC 13 ... 32 V	
Measuring element	Piezo measuring cell	
Case	Plastic (ABS)	
Electrical connection	Cable gland M16, screw terminals max. 1.5 mm ²	
Type of mounting	Vertical wall mounting	
Weight	70 g	
Data sheet	PE 88.04	

Order numbers

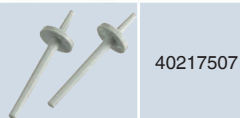
Pressure range	Analogue output signal	
	0 ... 10 V, 3-wire	4 ... 20 mA, 2-wire
0 ... 250 Pa	42500921	42500927
0 ... 500 Pa	42500922	42500928
0 ... 750 Pa	42500923	42500929
0 ... 1,000 Pa	42500924	42500930
0 ... 2,500 Pa	42500925	42500931
0 ... 5,000 Pa	42500926	42500932

Accessories

Measuring hoses

PVC hose inner Ø 4 mm/roll at 25 m		40217841
PVC hose inner Ø 6 mm/roll at 25 m		40217850
Silicone hose inner Ø 4 mm/roll at 25 m		40208940
Silicone hose inner Ø 6 mm/roll at 25 m		40208958

Duct connector for hose 4 and 6 mm

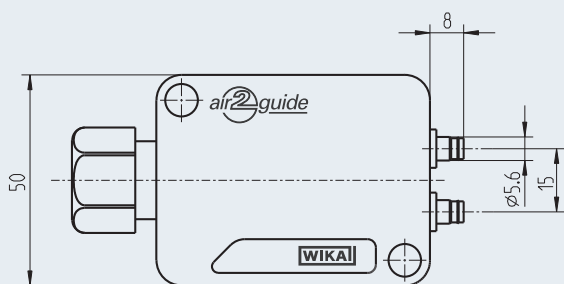
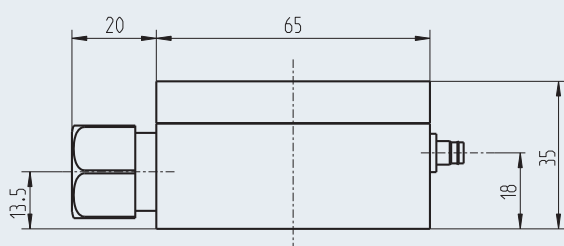


40217507

Scope of delivery

- Differential pressure transmitter

Dimensions in mm



Air flow meters, air flow controllers



	Air flow meter	PID controller for the control of air flows or differential pressure
Model	A2G-25	A2G-100
Application	For measuring the air flow/differential pressure in central air-handling units and ventilation ducts for air and other non-inflammable and non-aggressive gases	For measuring and controlling the air flow/differential pressure in central air-handling units and ventilation ducts for air and other non-inflammable and non-aggressive gases
Special	<ul style="list-style-type: none"> ■ Two-line LC display for very good readability (air flow and differential pressure) ■ Air flows up to 200,000 m³/h measurable ■ Differential pressures up to 7,000 Pa measurable ■ Available as Modbus[®] version 	<ul style="list-style-type: none"> ■ PID monitoring and control output signal in one instrument ■ Unique proportional output options: <ul style="list-style-type: none"> - Control output: Voltage (0 ... 10 V) or current (4 ... 20 mA) - Air flow or differential pressure control: Voltage (0 ... 10 V) or current (4 ... 20 mA)
Special features	<ul style="list-style-type: none"> ■ Electrical output signal 0 ... 10 V or 4 ... 20 mA can be selected directly at the instrument via jumpers ■ Output signal for air flow and differential pressure in one instrument ■ Simple and fast installation and commissioning ■ Maintenance-free ■ Maximum operating pressure 20 kPa 	<ul style="list-style-type: none"> ■ All parameters can be set via the menu ■ Two-line LC display for very good readability ■ Simple and fast installation and commissioning ■ Maintenance-free ■ Maximum operating pressure 25 kPa
Measuring range	0 ... 1,000 Pa 0 ... 2,000 Pa 0 ... 5,000 Pa 0 ... 7,000 Pa -250 ... +2,500 Pa (Modbus [®] variant) -250 ... +7,000 Pa (Modbus [®] variant)	0 ... 2,500 Pa 0 ... 7,000 Pa
Ingress protection	IP54	IP54
Details	Page 34	Page 36



Measuring probe

A2G-FM

Measuring probe for measuring air flows and differential pressures in circular ventilation pipes and rectangular ventilation ducts

- Ideal in combination with A2G-25 (air flow meter) or A2G-100 (PID controller)
- Measurement of the total pressure and the static pressure of the air flow in accordance with the pitot tube principle
- Measurement over six, eight or ten accurately positioned sensor openings
- Multipoint averaging on the basis of the "Log-Tchebycheff" method to ensure a high accuracy
- Bevelled sensor points guarantee uniform measured values
- Very simple mounting
- Available in two versions:
 - For circular ventilation pipes (version R)
 - For rectangular ventilation ducts (version L)
- High accuracy

For circular ventilation pipes up to \varnothing 400 mm
 For rectangular ventilation ducts up to 1,200 mm duct depth

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Air flow meter Model A2G-25

- Two-line LC display for very good readability (air flow and differential pressure)
- Air flows up to 200,000 m³/h measurable
- Differential pressures up to 7,000 Pa measurable
- Available as Modbus[®] version



Applications

- For measuring air flows of radial ventilators
- For measuring air flows in ventilation pipes and ducts in conjunction with the A2G-FM measuring probe
- Measurement of differential pressures

Special features

- Electrical output signal, DC 0 ... 10 V or 4 ... 20 mA, can be selected directly at the instrument via jumpers
- Output signal for air flow and differential pressure in one instrument
- Simple and fast installation and commissioning
- Maintenance-free
- Maximum operating pressure 20 kPa

Specifications

Accuracy	0 ... 1,000 Pa: ±5 Pa ... ±1.5 % of display 0 ... 2,000 Pa: ±5 Pa ... ±1.5 % of display 0 ... 2,500 Pa (Modbus [®] version) ±1.5 % 0 ... 5,000 Pa: ±7 Pa ... ±1.5 % of display 0 ... 7,000 Pa: ±7 Pa ... ±1.5 % of display 0 ... 7,000 Pa (Modbus [®] version) ±1.5 %
Measuring range	0 ... 1,000 Pa, 0 ... 2,000 Pa, 0 ... 5,000 Pa, 0 ... 7,000 Pa
Permissible temperatures	Ambient temperature: -20 ... +70 °C Medium temperature: -10 ... +50 °C, version with automatic zero adjustment: -5 ... +50 °C
Ingress protection	IP54
Process connection	For hoses with inner diameter 4 or 6 mm
Output signal	V _{OUT} : 4 ... 20 mA, load R minimum 1 kΩ linear to the set output unit P _{OUT} : 4 ... 20 mA, load R minimum 1 kΩ linear to the set output unit 4 ... 20 mA via Modbus [®] 500 Ohm via Modbus [®]
Supply voltage	AC 24 V or DC 24 V ±10 %
Measuring element	Piezo measuring cell
Case	Plastic (ABS), cover: Polycarbonate (PC)
Electrical connection	Cable gland M16, cover: PG, screw terminals max. 1.5 mm ²
Type of mounting	Wall mounting
Current consumption	< 1.0 W (DC 0 ... 10 V), < 1.2 W (4 ... 20 mA), < 1.3 W (Modbus [®])
Units (adjustable in the menu)	Air flow: m ³ /h, m ³ /s, l/s, cfm Differential pressure: Pa, kPa, mbar, inWC, mmWC
Weight	150 g
Data sheet	SP 69.04

Order numbers					
Pressure range	LCD	Analogue output signal 0 ... 10 V 4 ... 20 mA	Modbus® output signal additional specification in model code	Automatic zero adjustment	
0 ... 1,000 Pa	◆	◆	--	--	42500781
	◆	◆	--	◆	42500782
0 ... 2,000 Pa	◆	◆	--	--	42500783
	◆	◆	--	◆	42500784
0 ... 2,500 Pa	◆	--	◆	--	42500785
	◆	--	◆	◆	42500786
0 ... 5,000 Pa	◆	◆	--	--	42500787
	◆	◆	--	◆	42500788
0 ... 7,000 Pa	◆	◆	--	--	42500789
	◆	◆	--	◆	42500790
0 ... 7,000 Pa	◆	--	◆	--	42500791
	◆	--	◆	◆	42500792

Scope of delivery

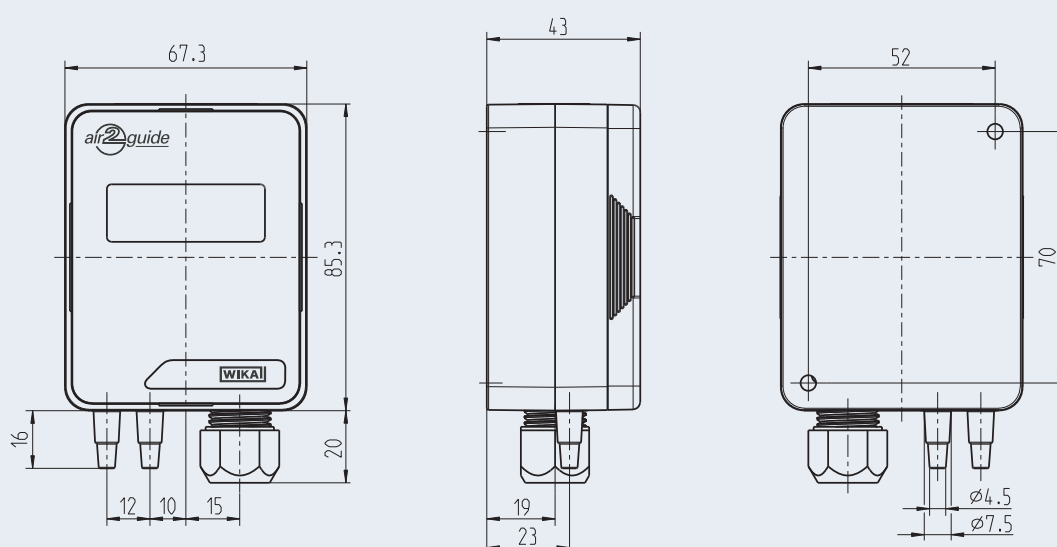
- Air flow meter
- 2 mounting screws
- 2 duct connectors
- 2 m PVC hose

Accessories

Measuring hoses

PVC hose inner Ø 4 mm/roll at 25 m		40217841
PVC hose inner Ø 6 mm/roll at 25 m		40217850
Silicone hose inner Ø 4 mm/roll at 25 m		40208940
Silicone hose inner Ø 6 mm/roll at 25 m		40208958
Duct connector for hose 4 and 6 mm		40217507

Dimensions in mm



PID controller for the control of air flows or differential pressure

Model A2G-100



- Monitoring and control output signal in one instrument
- Units freely selectable
 - Air flow: m³/s, m³/h, cfm, l/s
 - Velocity: m/s, ft/min
 - Pressure: Pa, kPa, mbar, inWC, mmWC
- Unique proportional output options:
 - Control output: Voltage (0 ... 10 V) or current (4 ... 20 mA)
 - Air flow or differential pressure control: Voltage (0 ... 10 V) or current (4 ... 20 mA)

Applications

For stepless control of EC ventilators or direct connection to a frequency inverter (FI) for the parameters

- Air flow
- Differential pressure

Special features

- All parameters can be set via the menu
- Two-line LC display for very good readability
- Simple and fast installation and commissioning
- Maintenance-free
- Maximum operating pressure 25 kPa

Specifications

Accuracy	Pressure range ≤ 125 Pa: ±2 Pa Pressure range > 125 Pa: ±1.5 %
Measuring range	0 ... 2,500 Pa and 0 ... 7,000 Pa
Permissible temperatures	Ambient temperature: -20 ... +70 °C Operating temperature: -10 ... +50 °C with automatic zero adjustment (AZ) -5 ... +50 °C
Ingress protection	IP54
Process connection	Connecting nozzle (ABS), lower mount, for hoses with inner diameter 4 or 6 mm
Units (selectable on display)	Pressure: PA, kPa, mbar, inWC, mmWC, psi Air flow: m ³ /s, m ³ /h, cfm, l/s Velocity: m/s, ft/min
Max. pressure	25 kPa
Relative humidity	0 ... 95 % r. h.
Measuring element	Piezo measuring cell
Case	Plastic (ABS), cover PVC
LC display	Line 1: Direction of the monitoring output Line 2: Pressure or air flow display, can be set via the menu
Electrical connection	Cable gland M20, 4 spring-clip terminals, max. 1.5 mm ²
Output signal	DC 0 ... 10 V, 3-wire 4 ... 20 mA, 3-wire
Power supply U _B	AC 24 V or DC 24 V ±10 %
Weight	150 g
Data sheet	SP 69.11

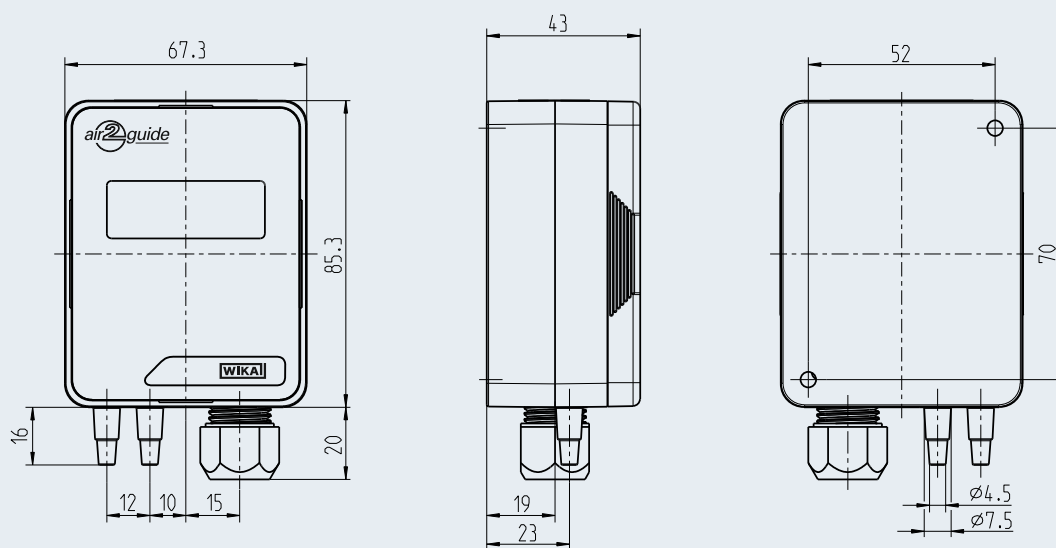
Order numbers

Pressure range	Display	Automatic zero adjustment	
0 ... 2,500 Pa	◆	--	42501201
	◆	◆	42501202
0 ... 7,000 Pa	◆	--	42501203
	◆	◆	42501204

Scope of delivery

- PID controller
- 2 mounting screws
- 2 duct connectors
- 2 x 2 m PVC hose

Dimensions in mm



Schematic diagram



Measuring probe, model A2G-FM

- Ideal in combination with A2G-25 (air flow meter) or A2G-100 (PID controller)
- Measurement of the total pressure and the static pressure of the air flow in accordance with the pitot tube principle
- Measurement over six, eight or ten accurately positioned sensor openings



Applications

- Air flow measurement in circular ventilation pipes
- Air flow measurement in rectangular ventilation ducts

Special features

- Multipoint averaging on the basis of the “Log-Tchebycheff” method to ensure a high accuracy
- Bevelled sensor points guarantee uniform measured values
- Very easy to install
- Available in two versions:
 - For circular ventilation pipes (version R)
 - For rectangular ventilation ducts (version L)
- High accuracy

Specifications	
Accuracy	±2 %
Permissible temperatures	Medium temperature: 5 ... 95 °C
Process connection	4.5 mm brass with barbs + High pressure - Low pressure
Permissible humidity	0 ... 95 % r. h., non-condensing
Versions	<p>Pipe: 100, 125, 160, 200, 250, 315, 400 and 450 mm</p> <p>Version R: Version for circular ventilation pipes Diameter of the ventilation pipe in mm = Length of the measuring probe Example: Ventilation pipe diameter 100 mm = A2G-FM R100</p> <p>Duct: 250, 300 ... 1,200 mm (in 50 mm increments)</p> <p>Version L: Version for rectangular ventilation ducts Length of the ventilation duct = Length of the measuring probe Example: Duct length 600 mm = A2G-FM L600</p>
Material	Probe: T3015 aluminium Mounting plate: Sheet steel Sealing: Polyurethane foam
Weight	On request
Data sheet	SP 69.10

Order numbers

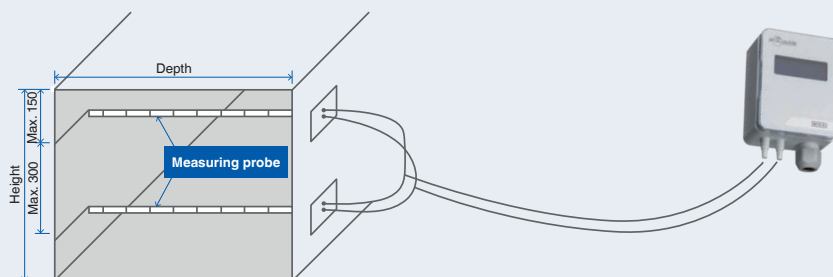
Circular ventilation pipe		Rectangular ventilation duct					
Pipe Ø in mm		Duct depth in mm	Pipe Ø in mm	Duct length in mm		Duct length in mm	
100	40397898	250	40397906	600	40397914	950	40397922
125	40397900	300	40397908	650	40397915	1000	40397923
160	40397901	350	40397909	700	40397916	1050	40397924
200	40397902	400	40397910	750	40397917	1100	40397925
250	40397903	450	40397911	800	40397919	1150	40397926
315	40397904	500	40397912	850	40397920	1200	40397927
400	40397905	550	40397913	900	40397921	--	--

Scope of delivery

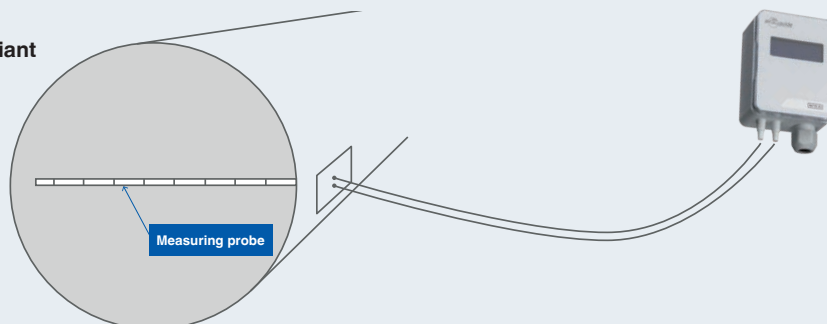
- Measuring probe
- Sealing

Dimensions in mm

Duct variant



Circular pipe variant



Ventilation duct measuring instruments



	Air velocity meter	Electronic ventilation duct temperature sensor	Bimetal thermometer	Duct temperature sensor
Model	A2G-20	A2G-60	A51	TF40
Application	For measuring the air velocity and temperature of air and other non-inflammable and non-aggressive gases	For measuring the temperature of gaseous media in heating, ventilation and air-conditioning systems	For monitoring the temperature in ventilation systems and in air-conditioning and refrigeration technology	For monitoring the temperature in ventilation systems and in air-conditioning and refrigeration technology
Special	<ul style="list-style-type: none"> ■ Three measuring ranges adjustable directly at the instrument via jumpers ■ Integrated temperature measurement 	<ul style="list-style-type: none"> ■ For direct mounting on circular ventilation pipes or rectangular ventilation ducts ■ Available as passive sensor, with Pt1000 or Ni1000 sensor or as transmitter 	<ul style="list-style-type: none"> ■ Surface mounting flange ■ With mounting flange 	<ul style="list-style-type: none"> ■ With mounting flange ■ With thermowell
Special features	<ul style="list-style-type: none"> ■ Electrical output signal 0 ... 10 V or 4 ... 20 mA directly adjustable at the instrument via jumpers ■ Output signal for velocity and air temperature in one instrument ■ With switching output (optional) ■ Mounting flange for mounting on circular ventilation pipes or rectangular ventilation ducts ■ Maintenance-free 	<ul style="list-style-type: none"> ■ Simple mounting, incl. mounting flange ■ Compact and robust design ■ Direct mounting on circular ventilation pipes or rectangular ventilation ducts ■ Pt1000 or Ni1000 sensor ■ Also available with electrical output signal (0 ... 10 V or 4 ... 20 mA) 	<ul style="list-style-type: none"> ■ Class 2 per EN 13190 ■ Case: Galvanised steel ■ 2 connection designs 	<ul style="list-style-type: none"> ■ Smallest case design ■ Quick and simple mounting
Measuring range	Air velocity: 0 ... 2 m/s, 0 ... 10 m/s and 0 ... 20 m/s (adjustable at the instrument via jumpers) Temperature: 0 ... 50 °C	0 ... 50 to 0 ... 250 °C (active) -50 ... +260 °C (passive)	-30 ... +50 °C to 0 ... +120 °C	-30 ... +130 °C -50 ... +200 °C
Ingress protection	IP54	IP65	--	IP65
Details	Page 42	Page 44	Page 46	Page 48



Frost protection thermostat	Ventilation duct sensor for relative humidity and temperature	Ventilation duct sensor for air quality, VOC	Ventilation duct sensor for CO ₂ and temperature	Control panels with integrated room sensor
A2G-65	A2G-70	A2G-80	A2G-85	A2G-200
For air-side temperature control and prevention of frost damage to water heating coils in ventilation and air-conditioning systems	For measuring the relative humidity and temperature of gaseous media in heating, ventilation and air-conditioning systems	For measuring the room air quality, the greater the output signal of the sensor (0 ... 10 V), the worse the air quality	For measuring the CO ₂ content and the temperature of gaseous media in heating, ventilation and air-conditioning systems	For measuring the temperature, carbon dioxide (CO ₂) and relative humidity of room air
<ul style="list-style-type: none"> ■ Small switching differential ■ Automatic resetting 	<ul style="list-style-type: none"> ■ Output signal for relative humidity and temperature in one instrument ■ Two-line LC display (option) for very good readability ■ Available as Modbus® version 	<ul style="list-style-type: none"> ■ Measurement of volatile organic compounds (VOC) in ventilation ducts ■ Tin dioxide semiconductor sensor ■ High measurement accuracy 	<ul style="list-style-type: none"> ■ Output signal for CO₂ and temperature in one instrument ■ Two-line LC display (option) for very good readability ■ Available as Modbus® version 	<ul style="list-style-type: none"> ■ Direct control command to the higher-level controllers possible ■ Switch relay can be configured with all three measurands ■ Measured value transmission via analogue, electrical output signals or Modbus®
<ul style="list-style-type: none"> ■ Simple mounting ■ Compact and robust design ■ High reproducibility ■ Integrated switching output ■ With automatic resetting 	<ul style="list-style-type: none"> ■ Electrical output signal 0 ... 10 V ■ Simple mounting ■ Compact and robust design ■ Maintenance-free ■ Screwless cover for quick wiring 	<ul style="list-style-type: none"> ■ The set point for the required air quality can be preset on installation ■ Very low electrical power consumption 	<ul style="list-style-type: none"> ■ Electrical output signal 0 ... 10 V ■ Simple mounting ■ Compact and robust design ■ Maintenance-free ■ Screwless cover for quick wiring 	<ul style="list-style-type: none"> ■ Three versions: <ul style="list-style-type: none"> - Measurands of relative humidity and temperature - Measurands of CO₂ and temperature - Measurands of CO₂, temperature and relative humidity ■ Output signal adjustable between 0 ... 10 V or 4 ... 20 mA
Setting range for set point -10 ... +15 °C (factory setting 5 °C)	Rel. humidity: 0 ... 90 % Temperature: 0 ... 50 °C	0 ... 10 V, load min. 10 kΩ	CO ₂ : 400 ... 2,000 ppm Temperature: 0 ... 50 °C	CO ₂ : 400 ... 2,000 ppm Temperature: 0 ... 50 °C Relative humidity: 0 ... 90 °C
IP65	IP20	IP20	IP20	IP20
Page 50	Page 52	Page 54	Page 56	Page 58

Air velocity meter, model A2G-20

- Three measuring ranges can be selected directly at the instrument via jumpers
- Integrated temperature measurement

Applications

- For measuring the air velocity and the temperature of air and other non-inflammable and non-aggressive gases in fresh and exhaust air ducts
- Designed for direct connection to control systems or the building automation system

Special features

- Electrical output signal 0 ... 10 V or 4 ... 20 mA, can be selected directly at the instrument via jumpers
- Output signal for velocity and air temperature in one instrument
- With switching output (optional)
- Mounting flange for mounting on circular ventilation pipes or rectangular ventilation ducts
- Maintenance-free



Specifications

Accuracy	Air velocity: Measuring range 0 ... 2 m/s: < 0.1 m/s +5 % of reading Measuring range 0 ... 10 m/s: < 0.5 m/s +5 % of reading Measuring range 0 ... 20 m/s: < 1.0 m/s +5 % of reading Temperature: < 0.5 °C (v > 0.5 m/s)
Measuring range	Air velocity: 0 ... 2 m/s, 0 ... 10 m/s or 0 ... 20 m/s can be selected at the instrument via jumpers Temperature: 0 ... 50 °C
Permissible temperatures	Ambient temperature: 0 ... 50 °C, max. 85 % r. h. Medium temperature: 0 ... 50 °C, max. 85 % r. h.
Ingress protection	IP54
Output signal	Air velocity: 0 ... 10 V (linear to m/s): Load min. 1 kΩ or 4 ... 20 mA (linear to m/s): Load max. 400 Ω Temperature: 0 ... 10 V (linear to °C): Load min. 1 kΩ or 4 ... 20 mA (linear to °C): Load max. 400 Ω
Supply voltage	DC 24 V/AC 24 V ±10 %
Measuring element	Pt1000 and NTC10k
Case	Plastic (ABS)
Electrical connection	Screw terminals, max. 1.5 mm ² Cable gland M16
Type of mounting	Duct installation
LC display (option)	3 ½-digit display with backlighting, size: 46.7 x 12.7 mm
Switching output (option)	3 screw terminals max. 1.5 mm ² (NC, COM, NO) Relay (potential-free, change-over contact, max. AC 250 V, 6 A, DC 30 V, 6 A, adjustable switching threshold and hysteresis)
Weight	220 g
Data sheet	SP 69.06

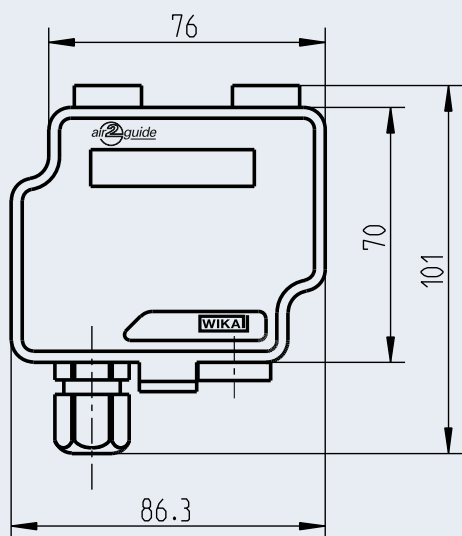
Order numbers

LCD	Analogue output signal 0 ... 10 V 4 ... 20 mA	Switching output	
--	◆	--	42500761
◆	◆	--	42500762
◆	◆	◆	42500763

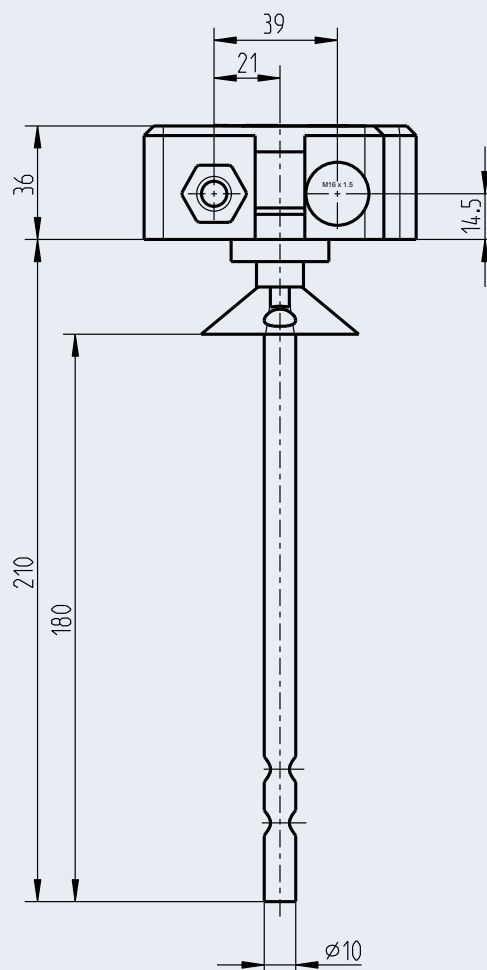
Scope of delivery

- Air velocity meter
- Mounting flange
- Available in three variants
 - Without display
 - With display
 - With display and switching output

Dimensions in mm



Air flow direction



Electronic ventilation duct temperature sensor, model A2G-60

- For direct mounting on circular ventilation pipes or rectangular ventilation ducts
- Available as passive sensor, with Pt1000 or Ni1000 sensor or as transmitter



Applications

- For measuring the temperature of gaseous media in ventilation and air-conditioning systems
- Designed for connection to control and display systems

Special features

- Simple mounting, incl. mounting flange
- Compact and robust design
- Direct mounting on circular ventilation pipes or rectangular ventilation ducts
- Pt1000 or Ni1000 sensor
- Also available with electrical output signal (0 ... 10 V or 4 ... 20 mA)

Specifications

Measuring range	Temperature sensor passive: Pt1000, A DIN and Ni1000 Standard: -50 ... +160 °C High-temperature version: -50 ... +260 °C Ranges transmitter active (TRV/TRA) 0 ... 50 °C * -50 ... +50 °C ** -15 ... +35 °C ** -10 ... +120 °C **
Transmitter output	TRV: 0 ... 10 V, min. load 5 kΩ, connection terminal, 3-pin (3-wire), or TRA 4 ... 20 mA (2-wire)
Power consumption	Model 0.35 W/0.82 VA
Accuracy	± 1 % of measuring range
Permissible temperatures	Head temperatures: -35 ... +90 °C passive (Pt1000 A DIN and Ni1000) -35 ... +70 °C active (TRV and TRA) Sensor sleeve Standard: -50 ... +160 °C
Sensor sleeve	Stainless steel 1.4571
Ingress protection	IP65
Insertion length L	192 mm, Ø = 7 mm, option L = 62, 135, 240, 320, 392, 465 mm
Electrical connection	Cable gland M16
Weight	150 g
Data sheet	TE 62.90

* Standard ** Jumper

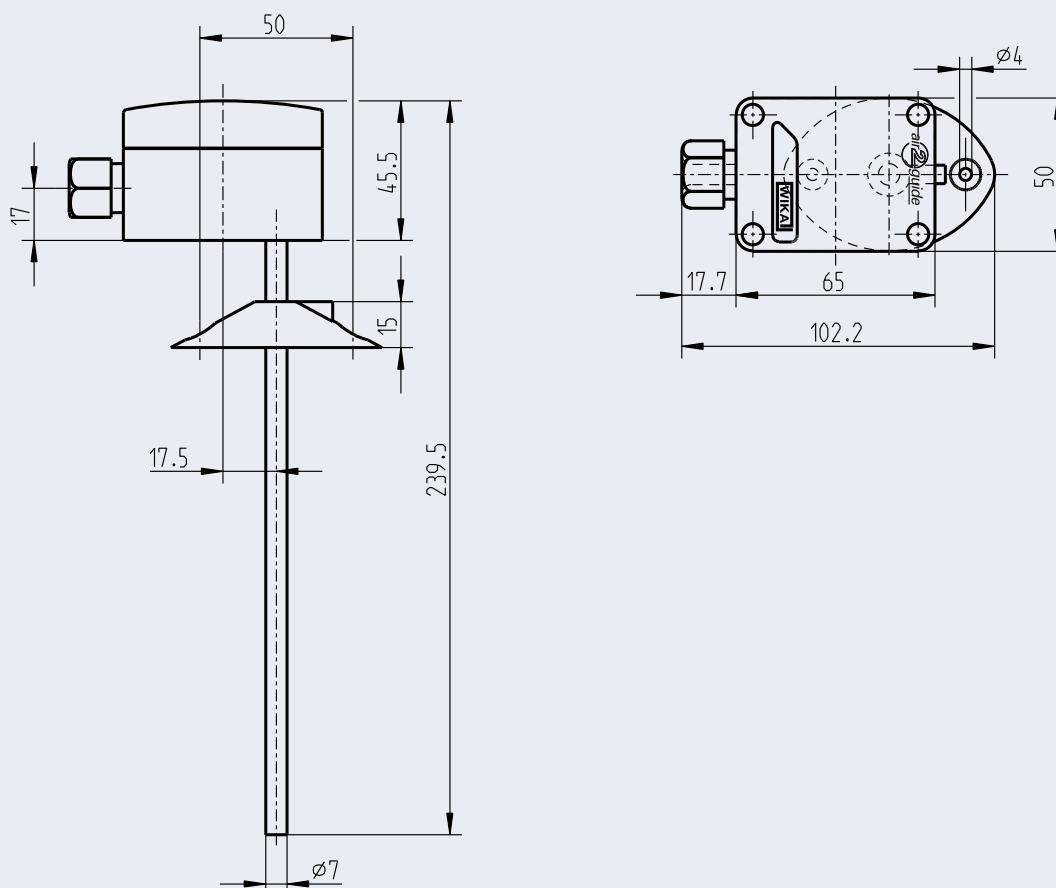
Order numbers

Variant Pt1000								
Scale range	Output	Insertion length						
		62 mm	135 mm	192 mm	240 mm	320 mm	392 mm	465 mm
-50 ... +160 °C	without transmitter	42500951	42500961	42500971	42500981	42500991	42501001	42501011
0 ... 50 °C	0 ... 10 V	42500952	42500962	42500972	42500982	42500992	42501002	42501012
	4 ... 20 mA	42500953	42500963	42500973	42500983	42500993	42501003	42501013
-10 ... +120 °C	0 ... 10 V	42500954	42500964	42500974	42500984	42500994	42501004	42501014
	4 ... 20 mA	42500955	42500965	42500975	42500985	42500995	42501005	42501015
-15 ... +35 °C	0 ... 10 V	42500956	42500966	42500976	42500986	42500996	42501006	42501016
	4 ... 20 mA	42500957	42500967	42500977	42500987	42500997	42501007	42501017
-50 ... +50 °C	0 ... 10 V	42500958	42500968	42500978	42500988	42500998	42501008	42501018
	4 ... 20 mA	42500959	42500969	42500979	42500989	42500999	42501009	42501019
Variant Ni1000								
-50 ... +160 °C	without transmitter	42500960	42500970	42500980	42500990	42501000	42501010	42501020

Scope of delivery

- Electronic ventilation duct temperature sensor
- Mounting flange

Dimensions in mm



Bimetal thermometer Model A51

- With Perbunan seal for leak-free mounting on the ventilation duct



Applications

- For measuring the temperature of gaseous media in heating and air-conditioning systems and in air-handling units
- For the display of temperature in ventilation and air-conditioning ducts

Special features

- Simple mounting
- Various sensor lengths
- Connection designs: Mounting flange or sliding flange

Specifications

Nominal size*	100 mm
Scale range**	-30 ... +50 °C to 0 ... 120 °C
Accuracy	Class 2 per EN 13190
Measuring element	Bimetal coil
Case	Steel, galvanised
Stem	Copper alloy
Stem length	100, 160, 200, 300 mm
Connection designs	Smooth connection, with rear mounting flange, galvanised steel Smooth connection, with plastic flange, sliding
Window	Instrument glass
Zero adjustment	At bottom of stem
Data sheet	TM 51.01

* further nominal sizes on request ** corresponds to field of application

Order numbers

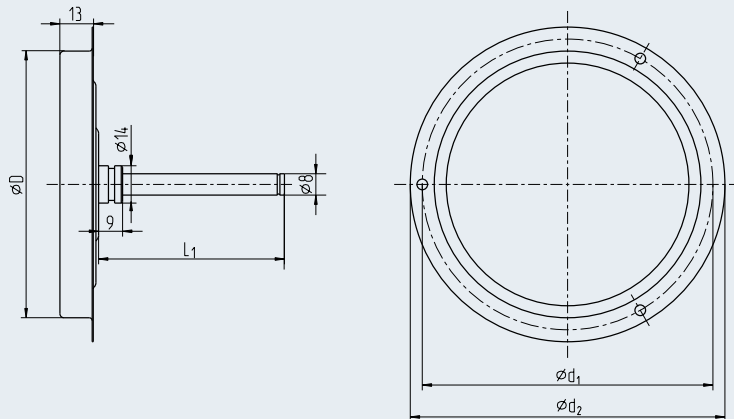
Connection design: Mounting flange, rear, incl. Perbunan seal				
Scale range	Stem length			
	100 mm	160 mm	200 mm	300 mm
-30 ... +50 °C	14215347	14215348	14215349	14215350
0 ... 60 °C	14215352	14215353	14215354	14215355
0 ... 120 °C	14215356	14215357	14215358	14215359
Connection design: Plastic flange, sliding				
-30 ... +50 °C	14215360	14215361	14215362	14215363
0 ... 60 °C	14191926	14191928	14191929	14215364
0 ... 120 °C	14191921	14191922	14191925	14215365

Scope of delivery

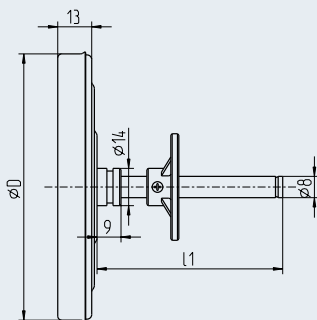
- Bimetal thermometer
- Plastic flange for corresponding connection design
- Perbunan seal with surface-mounting flange connection design

Dimensions in mm

Smooth connection, with rear mounting flange



Smooth connection, with sliding plastic flange



Nominal size	Dimensions in mm		
$\varnothing D$	L_1	$\varnothing d_1$	$\varnothing d_2$
100	100, 160, 200 or 300	109	118

Duct temperature sensor Model TF40

- For direct mounting on rectangular ventilation duct
- Available with Pt100, Pt1000 or NTC measuring element
- Maximum mounting flexibility: Configurable mounting flange and thermowell

Applications

- For temperature measurement of gaseous media in ventilation and air-conditioning technology
- Designed for connection to control and display systems

Special features

- Smallest case design
- Protected against dust and water jets, IP65
- Quick and simple mounting
- Mounting: Flange or thermowell selectable



Specifications

Measuring range	The measuring range is dependent, essentially, on the measuring element. Depending on the measuring element, the following maximum measuring ranges are available: Pt100: -50 ... +200 °C Pt1000: -50 ... +200 °C NTC: -30 ... +130 °C
Ambient temperature	-40 ... +100 °C
Storage temperature	-20 ... +70 °C
Connection method	2-wire connection
Sensor housing	PA66 GK30, pure white RAL9010, cable gland M16, UV-resistant
Stem	Stainless steel (1.4571), Ø 6 mm
Stem length	100, 150, 200, 250 mm
Ingress protection	IP65
Electrical connection	2 screw terminals, max. 1.5 mm ²
Data sheet	TE 67.16

Order numbers

Nominal length	Measuring element / Connection method / Tolerance	
	1xPt1000, 2-wire, class B, EN 60751	1 x NTC 10 k Ω , B(25/85) = 3435, 2-wire, 1 %
100 mm	14080955	14080959
150 mm	14080963	14080961
200 mm	14080950	14078332
250 mm	14140127	14078334

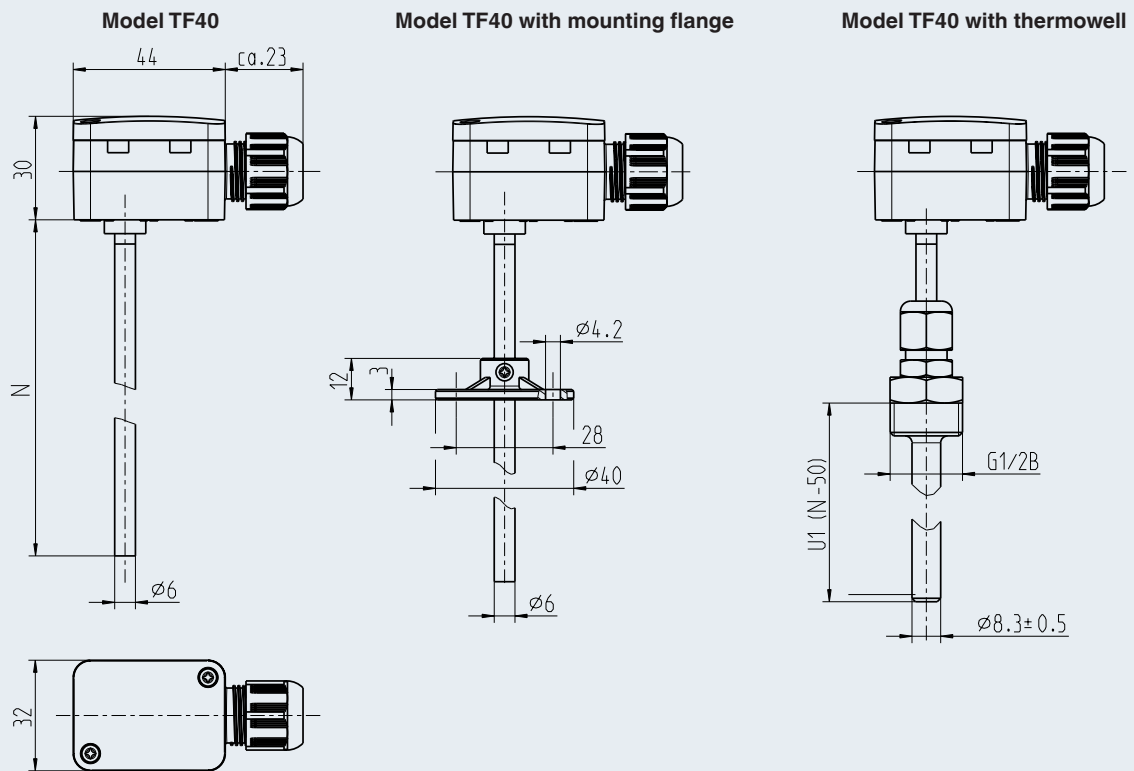
Scope of delivery

- Duct temperature sensor
- Plastic mounting flange, \varnothing 40 mm

Accessories

Mounting flange	
From plastic, diameter 40 mm	14091035
Thermowells	
Insertion length U ₁ : 50 mm	14087900
Insertion length U ₁ : 100 mm	14087902
Insertion length U ₁ : 150 mm	14087903
Insertion length U ₁ : 200 mm	14087905

Dimensions in mm



Legend	
N	Nominal length of the stem
U ₁	Insertion length of the thermowell

Frost protection thermostat Model A2G-65

- Small switching differential
- Automatic resetting
- Available in three different capillary tube lengths



Applications

- For air-side temperature monitoring and prevention of frost damage to water/air heating coils in ventilation and air-conditioning systems

Special features

- Simple mounting
- Compact and robust design
- High reproducibility
- Integrated switching output
- With automatic resetting

Specifications

Setting range for set point	-10 ... +15 °C (factory setting: 5 °C)
Switching differential	2 ±1 °C
Reproducibility	±0.5 °C
Sensor response length	Approx. 60 cm
Capillary tube length	3 m (standard), 1.8 m or 6 m
Switching output	Change-over contact, max. AC 250 V, max. 10 A Contact material: Ag/Ni (90 %/10 %) gold-plated 3 µm
Resetting	Automatic
Connection terminal	Screw terminal max. 2.5 mm ²
Cable entry	Cable gland M16 x 1.5
Ingress protection	IP65
Permissible temperatures	Ambient temperature: -30 ... 70 °C/max. 85 % r. h., non-condensing Medium temperature: W+ min. 2 K ... 70 °C (W = selected set point)
Case	Lower body material: PA GK30 Cover material: ABS transparent
Capillary tube	Material: Copper Capillary tube filling: R 507
Data sheet	TE 62.92

Order numbers

Capillary tube length

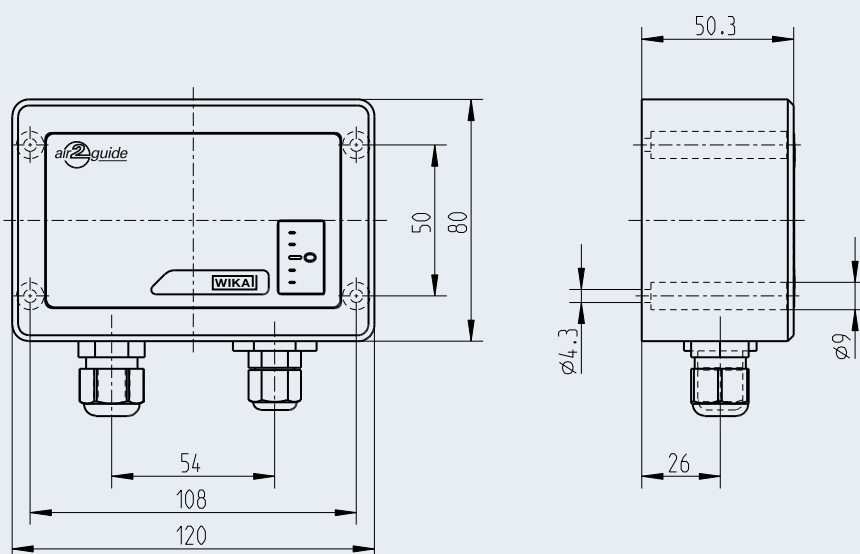
1.8	42501071
3	42501072
6	42501073

Other capillary tube lengths and version without automatic resetting on request

Scope of delivery

- Frost protection thermostat
- Mounting material for the capillary tube

Dimensions in mm



Ventilation duct sensor for relative humidity and temperature, model A2G-70

- Output signal for relative humidity and temperature in one instrument
- Two-line LC display for local readability
- Available as Modbus® version



Applications

- For measuring the relative humidity and temperature of gaseous media in ventilation and air-conditioning systems

Special features

- Electrical output signal DC 0 ... 10 V
- Simple mounting
- Compact and robust design
- Measured value registration by means of a capacitive sensor
- Maintenance-free

Specifications

Measuring range	Temperature: 0 ... 50 °C Relative humidity: 0 ... 90 %
Accuracy	Temperature: < 0.5 °C Relative humidity: ±4 %
Permissible temperatures	Ambient temperature: -20 ... +70 °C Operating temperature: 0 ... 50 °C (at sensor)
Ingress protection	IP20
Output signal	DC 0 ... 10 V, load min. 1 kΩ Modbus® RTU, via RS-485
Power consumption	Max. 150 mA
Power supply U _b	AC 24 V or DC 24 V ±10 %
Relative humidity	0 ... 95 %, non-condensing
Insertion length	183 mm
Electrical connection	Cable gland M16, screw terminal max. 1.5 mm ²
Material	Case: Plastic (ABS) Cover: PVC Sensor sleeve: Plastic (ABS) Mounting flange: LLPDP
Weight	150 g
Data sheet	TE 62.91

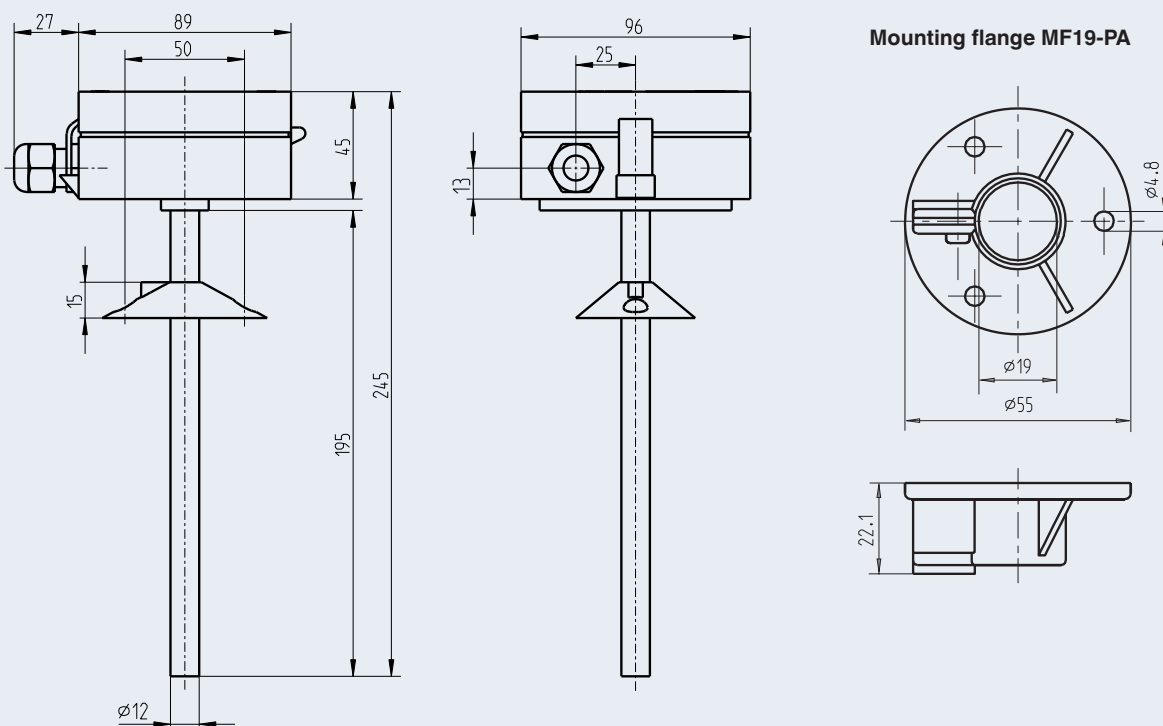
Order numbers

LCD	Analogue output signal 0 ... 10 V	Modbus® output signal	
--	◆	--	42501081
◆	◆	--	42501082
◆	--	◆	42501083

Scope of delivery

- Digital ventilation duct temperature sensor
- Mounting flange

Dimensions in mm



Ventilation duct sensor for air quality, VOC Model A2G-80

- Measurement of volatile organic compounds (VOC) in ventilation ducts
- Tin dioxide semiconductor sensor
- High measurement accuracy

Applications

- For measuring the room air quality. The greater the output signal of the sensor (0 ... 10 V), the worse the air quality.
- Mixed-gas sensors detect gases and vapours which can be oxidised (burned): Body odours, tobacco smoke, extracts from materials (furniture, carpets, paint coatings, adhesives, etc.)
- In applications where air quality is essential, e.g. buildings, offices, classrooms, kitchens etc.

Special features

- Presetting of the set point for the required air quality during installation.



Specifications

Power consumption	1.2 W/2.2 VA
Permissible temperatures	Ambient temperature: -20 ... +50 °C
Ingress protection	IP20
Output signal	0 ... 10 V, load min. 10 kΩ
Warm-up time	30 minutes
Relative humidity	Max. 85 % r. h., non-condensing
Weight	150 g
Data sheet	SP 69.01

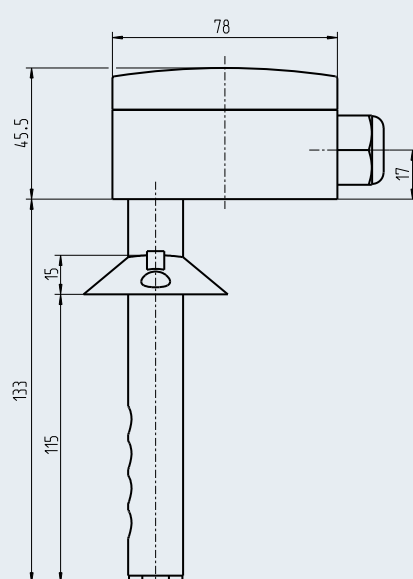
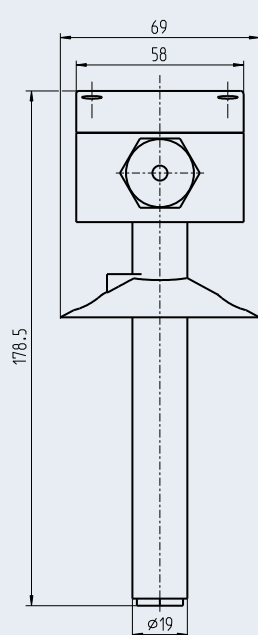
Order numbers

42501101

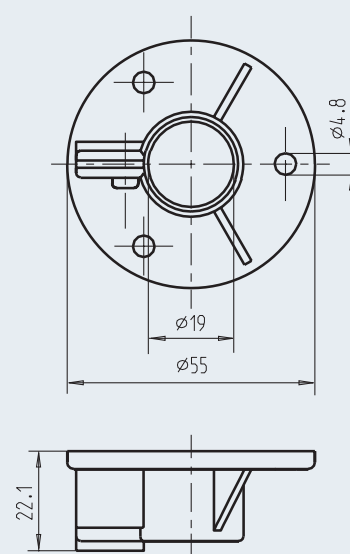
Scope of delivery

- Digital ventilation duct temperature sensor
- Mounting flange

Dimensions in mm



Mounting flange MF19-PA



Ventilation duct sensor for CO₂ and temperature, model A2G-85

- Modbus® versions
- Output signal for carbon dioxide and temperature in one instrument
- Two-line LC display (option) for very good readability (humidity and temperature)
- Screwless cover for quick wiring



Applications

- For measuring the CO₂ content in the ventilation duct in accordance with the NDIR measuring principle

Special features

- Simple installation and commissioning
- Compact and robust design
- Electrical output signal DC 0 ... 10 V
- Maintenance-free

Specifications

Measuring range	CO ₂ : 400 ... 2,000 ppm Temperature: 0 ... 50 °C
Accuracy	CO ₂ : ±40 ppm +2 % of reading value Temperature: < 0.5 °C
Permissible temperatures	Ambient temperature: -20 ... +70 °C Operating temperature: 0 ... 50 °C (at sensor)
Ingress protection	IP54
Output signal	DC 0 ... 10 V, load min. 1 kΩ Modbus® RTU, with RS-485
Power consumption	Max. 150 mA
Power supply U _b	AC 24 V or DC 24 V ±10 %
Relative humidity	0 ... 95 %, non-condensing
Insertion length	183 mm
Electrical connection	Cable gland M16, screw terminal max. 1.5 mm ²
Material	Case: Plastic (ABS) Cover: PVC Sensor sleeve: Plastic (ABS) Mounting flange: LLPDP
Weight	150 g
Data sheet	SP 69.07

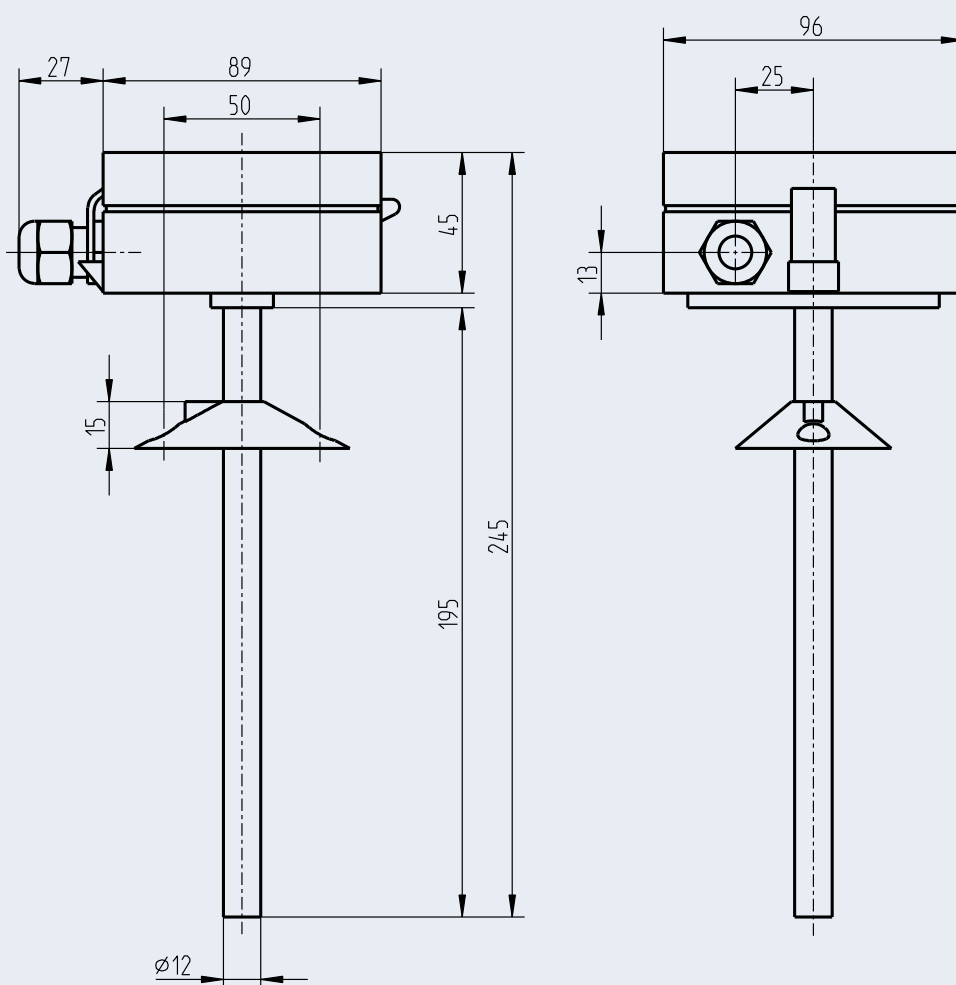
Order numbers

LCD	Analogue output signal 0 ... 10 V	Modbus® output signal	
--	◆	--	42501111
◆	◆	--	42501112
◆	--	◆	42501113

Scope of delivery

- Digital ventilation duct temperature sensor
- Mounting flange

Dimensions in mm



Control panel with integrated room sensor Model A2G-200

- Direct control command to the higher-level controllers possible
- Switch relay can be configured with all three measurands
- Measured value transmission via analogue, electrical output signals or Modbus®



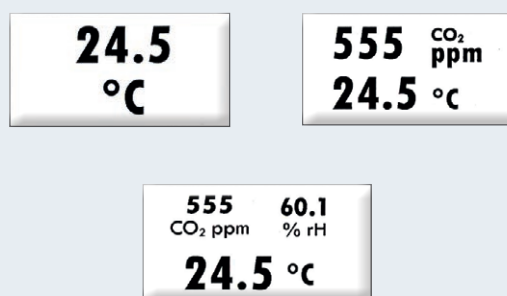
Applications

- For measuring the temperature, carbon dioxide (CO₂) and relative humidity of room air

Special features

- Various versions for the highest user flexibility
 - Measurands of relative air humidity and temperature
 - Measurands of CO₂ and temperature
 - Measurands of CO₂, temperature and relative humidity
- Output signal adjustable between 0 ... 10 V or 4 ... 20 mA
- Available as Modbus® version
- Touchscreen (option)
- Integrated switching output (option)

Display variants



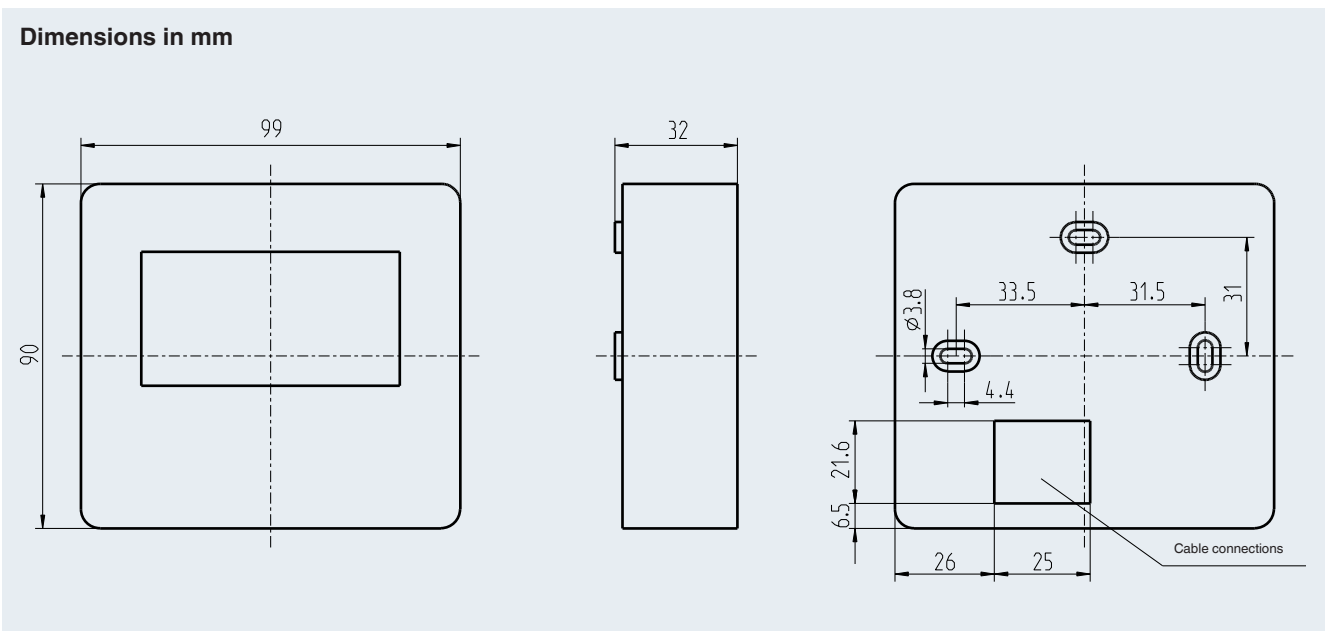
Specifications

	CO ₂	Temperature	Relative humidity
Measuring range	400 ... 2,000 ppm	0 ... 50 °C	0 ... 90 %
Accuracy	±40 ppm + 2 % of reading value	< 0.5 °C	max. ±4 %
Measuring units	ppm	5 °C	±4 % r. h.
Output signal	0 ... 10 V, R > 1 kΩ 2 ... 10 V, R > 1 kΩ 4 ... 20 mA, R < 500 Ω	X0 ... 10 V, R > 1 kΩ 2 ... 10 V, R > 1 kΩ 4 ... 20 mA, R < 500 Ω	0 ... 10 V, R > 1 kΩ 2 ... 10 V, R > 1 kΩ 4 ... 20 mA, R < 500 Ω
Case	Plastic (ABS)		
LC display (option)	Touchscreen, size: 77.4 x 52.4 mm		
Electrical connection	Cable gland M20, 4 spring-clip terminals, max. 1.5 mm ²		
Ingress protection	IP20		
Weight	150 g		
Data sheet	SP 69.12		

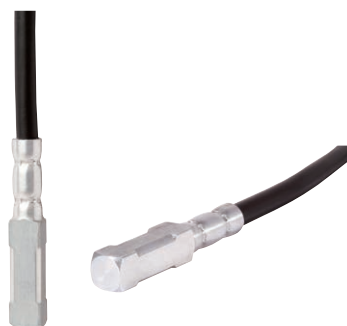
Order numbers								
Display, touchscreen	Measurands			Analogue output signal 0 ... 10 V	Modbus® output signal	Switching output	Standard	Modbus® version
	CO ₂	Temperature	Relative humidity					
--	◆	◆	◆	◆	--	--	42501601	--
◆	◆	◆	◆	◆	--	--	42501602	--
◆	◆	◆	◆	◆	--	◆	42501603	--
◆	◆	◆	◆	--	◆	--	--	42501604
◆	◆	◆	◆	--	◆	◆	--	42501605
--	--	◆	◆	◆	--	--	42501606	--
◆	--	◆	◆	◆	--	--	42501607	--
◆	--	◆	◆	◆	--	◆	42501608	--
◆	--	◆	◆	--	◆	--	--	42501609
◆	--	◆	◆	--	◆	◆	--	42501610

Scope of delivery

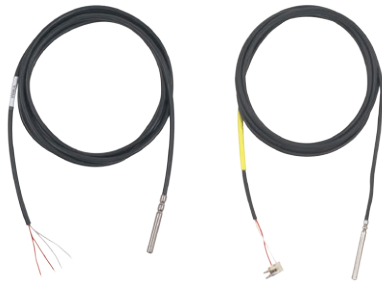
- Control panel
- Mounting screws



Temperature measuring instruments and controllers



	Ambient temperature sensor	Strap-on temperature sensor with connection lead
Model	TF41	TF44
Application	Measurement of the external temperature (ambient)	Temperature measurement at pipelines
Installation / mounting	With screws on the outside of buildings	With quick-mounting bracket
Special features	<ul style="list-style-type: none"> ■ Smallest case design ■ UV-resistant ■ Clip-on sun protector 	<ul style="list-style-type: none"> ■ The pipeline system remains sealed ■ Medium to be measured is not affected ■ Quick and simple mounting ■ Good heat transfer through aluminium sleeve
Measuring range	<ul style="list-style-type: none"> ■ -30 ... +100 °C ■ -40 ... +100 °C 	<ul style="list-style-type: none"> ■ -20 ... +105 °C ■ -30 ... +130 °C ■ -50 ... +200 °C
Output signal	<ul style="list-style-type: none"> ■ NTC ■ Pt100 ■ Pt1000 	<ul style="list-style-type: none"> ■ NTC ■ Pt100 ■ Pt1000
Ingress protection	IP65	IP66, IP67
Data sheet	TE 67.17	TE 67.14
Details	Page 62	Page 64



OEM insertion temperature sensor with connection lead	Universal controller
TF45	CS6S, CS6H, CS6L
Temperature measurement of gaseous or liquid media	Control of physical measurands in ventilation and air-conditioning technology such as, e.g. pressure, temperature and flow
<ul style="list-style-type: none"> ■ Direct installation possible for gaseous media ■ With additional thermowell for liquid media 	Panel mounting
<ul style="list-style-type: none"> ■ Connection lead from PVC, Silicon, PTFE ■ In 2- or 4-wire connection ■ Sensor sleeve from stainless steel ■ Dust and waterproof IP65 	<ul style="list-style-type: none"> ■ Control modes configurable (PID, PI, P, PD, ON/OFF) ■ Integrated auto-tuning ■ Selectable control output ■ Multi-function input for Pt100, thermocouples and standard industrial signals ■ Available in 3 case sizes
<ul style="list-style-type: none"> ■ -20 ... +105 °C ■ -30 ... +130 °C ■ -50 ... +200 °C 	--
<ul style="list-style-type: none"> ■ NTC ■ Pt100 ■ Pt1000 	<ul style="list-style-type: none"> ■ Relay contact ■ Logic level ■ Analogue current signal
IP65	Front IP66, rear IP00
TE 67.15	AC 85.08
Page 66	Page 68

Ambient temperature sensor Model TF41

- For temperature measurement in outdoor areas, cool rooms, production and storage facilities.
- Available with Pt100, Pt1000 or NTC measuring element
- Attractive case design with ingress protection IP65



Applications

- Heating, ventilation and air-conditioning
- Refrigeration technology

Special features

- Smallest case design
- Protected against dust and water jets, IP65
- UV-resistant
- Clip-on sun protector
- Temperature range: -40 ... +100 °C

Specifications

Measuring range*	The measuring range is dependent, essentially, on the measuring element. Depending on the measuring element, the following maximum measuring ranges are available: Pt100: -40 ... +100 °C Pt1000: -40 ... +100 °C NTC: -30 ... +100 °C
Storage temperature	-20 ... +70 °C
Connection method	2-wire connection
Ingress protection	IP65
Sensor housing	PA66 GK30, pure white RAL9010, cable gland M16, UV-resistant
Sensor version	Measuring element integrated into case Measuring element in external sensor sleeve (sensor sleeve: Stainless steel, Ø 6 mm, length 30 mm)
Electrical connection	2 screw terminals, max. 1.5 mm ²
Data sheet	TE 67.17

* corresponds to the permissible ambient temperature

Order numbers

Sensor version	Measuring element / Connection method / Tolerance	
	1xPt1000, 2-wire, class B, EN 60751	1 x NTC 10 kΩ, B(25/85) = 3435, 2-wire, 1 %
Measuring element integrated into case	14078343	14078347
With external sensor sleeve and sun protector	14140092	14140098

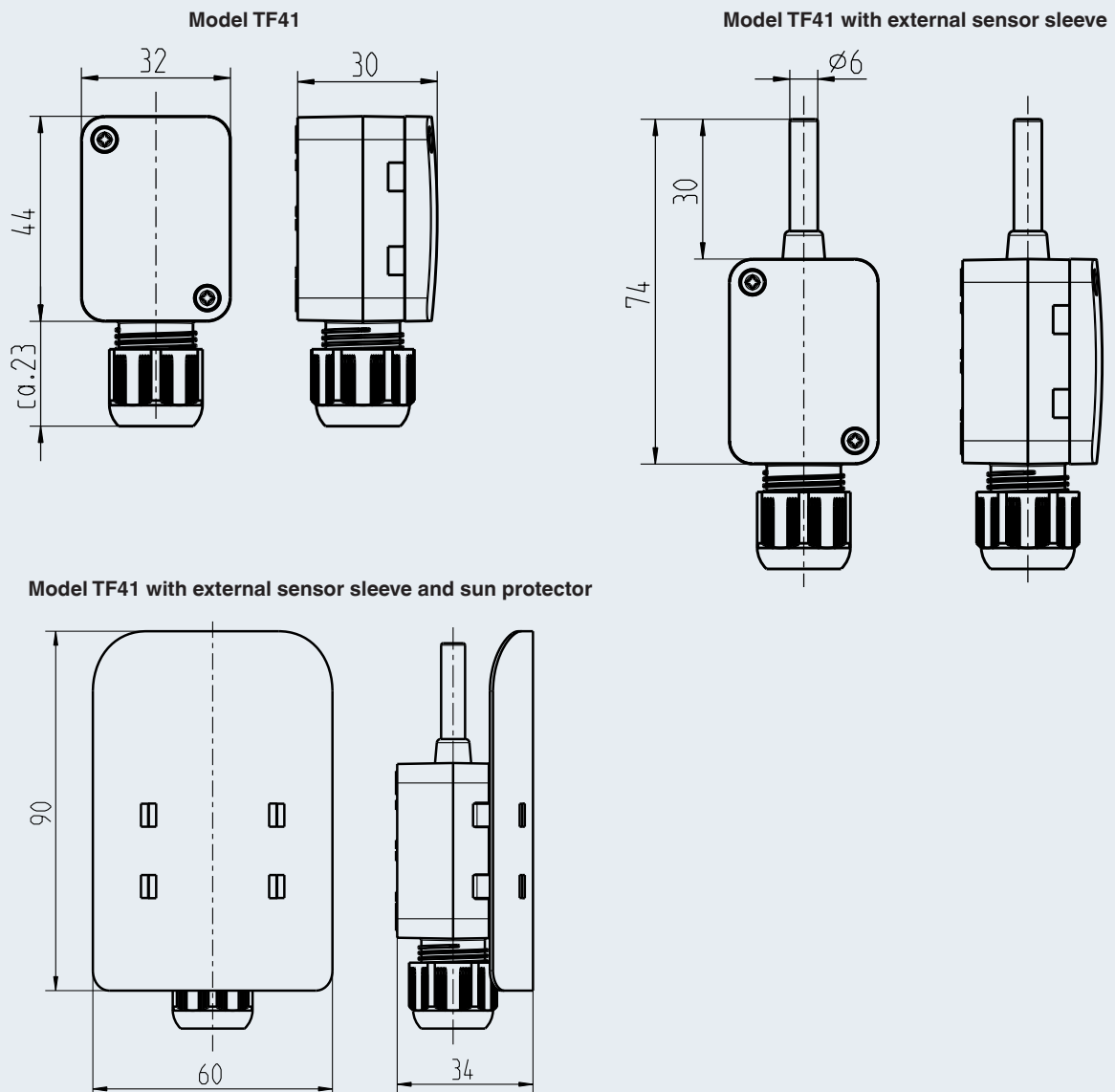
Scope of delivery

- Ambient temperature sensor
- Wall-mounting kit
- For version with external sensor sleeve: Protective sun cover

Accessories

Protection from direct sunlight	
Protective sun cover	14067113
Wall-mounting kit	
2 x dowel Ø 6 x 30 mm, incl. screws	14069467

Dimensions in mm



Strap-on temperature sensor Model TF44

- For temperature measurement in thermal recovery plants
- Available with Pt100, Pt1000 or NTC measuring element
- Fitting advantage through quick-mounting bracket

Applications

- Heating, ventilation and air-conditioning
- Refrigeration technology

Special features

- The pipeline system remains sealed
- Medium to be measured is not affected
- Quick and simple mounting
- Good heat transfer through aluminium sleeve



Specifications

Insulation material of the connection lead	PVC (suitable for measuring range -20 ... +105 °C) Silicone (suitable for measuring range -50 ... +200 °C)
Measuring range*	Pt100: -50 ... +200 °C Pt1000: -50 ... +200 °C NTC: -30 ... +130 °C
Connection method	2-wire connection
Sensor sleeve	Aluminium, □ 6 x 6 mm (with groove for quick-mounting clip), 35 mm long
Ingress protection	IP65
Electrical connection	Cross-section 0.22 mm ² (AWG 24) <ul style="list-style-type: none"> ■ Blank bare wires ■ End splices ■ Connector to specification
Data sheet	TE 67.14

* The measuring range is dependent on the selected measuring element and the selected connection lead. It corresponds to the permissible ambient temperature.

Order numbers


PVC cable, 2 x 0.22 mm ² , blank connecting wires, cable length (W)	Measuring element / Connection method / Tolerance		
	Pt100, 2-wire, class B, EN 60751	Pt1000, 2-wire, class B, EN 60751	1 x NTC 10 kΩ, B(25/85) = 3976, 2-wire, 5 %
1,500 mm	14080940	14080943	14080949
3,000 mm	14080941	14080944	14080951
5,000 mm	14080942	14080946	14080954

Scope of delivery

- Strap-on temperature sensor

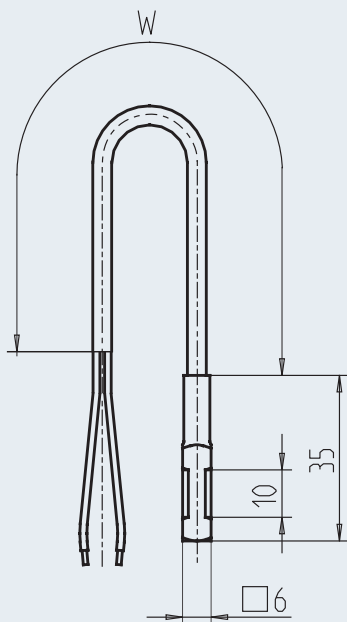
Accessories

Quick-mounting bracket for pipe mounting

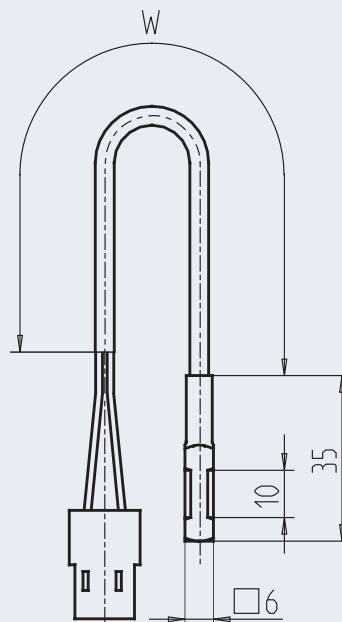
Pipe diameter 12 ... 15 mm		14145991
Pipe diameter 19 ... 22 mm		14100349
Pipe diameter 25 ... 28 mm		14100347
Pipe diameter 32 ... 35 mm		14149603
Pipe diameter 39 ... 42 mm		14149604

Dimensions in mm

Model TF44 with blank bare wires / with end splices



Model TF44 with connector

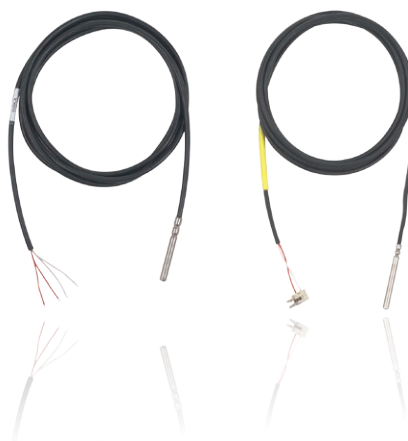


Legend

W	Cable length
---	--------------

OEM Insertion temperature sensor Model TF45

- For temperature measurement in thermal recovery plants
- Available with Pt100, Pt1000 or NTC measuring element



Applications

- Heating, ventilation and air-conditioning
- Refrigeration technology

Special features

- Connection lead from PVC, Silicon, PTFE
- In 2- or 4-wire connection
- Sensor sleeve from stainless steel
- Dust and waterproof IP65

Specifications

Insulation material of the connection lead	PVC (suitable for measuring range -20 ... +105 °C) Silicone (suitable for measuring range -50 ... +200 °C) PTFE (suitable for measuring range -50 ... +260 °C)
Measuring range*	Pt100: -50 ... +400 °C Pt1000: -50 ... +400 °C NTC: -30 ... +130 °C
Connection method	2.wire connection **
Sensor sleeve	Stainless steel, Ø 4, 5 or 6 mm, insertion length: 50 mm
Ingress protection	IP65
Electrical connection	Cross-section 0.22 mm ² (AWG 24) <ul style="list-style-type: none"> ■ Blank bare wires ■ End splices ■ Connector to specification
Data sheet	TE 67.15

* The measuring range is dependent on the selected measuring element and the selected connection lead. It corresponds to the permissible ambient temperature.

** Standard, others on request

Order numbers

Silicone cable, 2 x 0.22 mm ² , blank connection wires, cable length (W)	Sensor sleeve: d: Ø 6 mm, A: 50 mm		
	Measuring element / Connection method / Tolerance		
	Pt100, 2-wire, class B, EN 60751	Pt1000, 2-wire, class B, EN 60751	1 x NTC 10 kΩ, B(25/85) = 3976, 2-wire, 5 %
1,500 mm	14080920	14080923	14080927
3,000 mm	14211276	14080925	14080930
5,000 mm	14080922	14080926	14080934

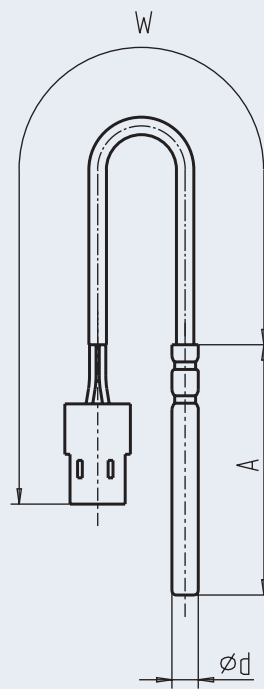
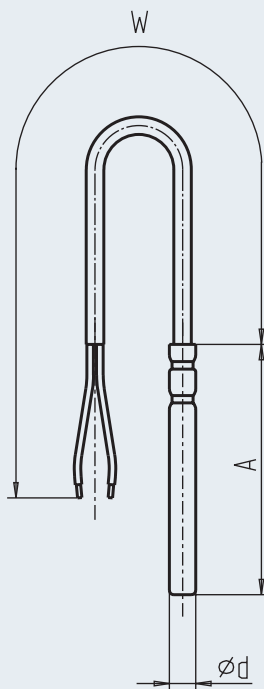
Scope of delivery

- OEM insertion thermometer

Dimensions in mm

Model TF45 with blank bare wires / with end splices

Model TF45 with connector



Legend	
Ø d	Probe diameter
A	Probe length
W	Cable length

Universal controller

Models CS6S, CS6H, CS6L

- To control physical measurands (e.g. pressure, temperature and flow) in air-handling technology



Applications

- Closed control loops

Special features

- Control mode configurable (PID, PI, P, PD, ON/OFF)
- Integrated auto-tuning
- Control output selectable as relay, logic level or 4 ... 20 mA
- Multi-function input for Pt100, thermocouples and standard industrial signals
- Available in 3 case sizes

Specifications

Display	Actual value: 7-segment LED, 5-digit, red Set point: 7-segment LED, 5-digit, green Indication range: -2,000 ... 10,000
Input	1 multi-function input for ① resistance thermometers, ② thermocouples and ③ standard signals Input configuration: Selectable via terminal connections and menu-driven programming ① Resistance thermometers: Pt100, JPt100, 3-wire, max. permissible resistance per connection lead 10 Ω ② Thermocouples: ■ Models K, J, R, S, E, T, N, PL-II, C (W/Re5-26): max. permissible external resistance 100 Ω ■ Model B: max. permissible external resistance 40 Ω ③ Standard signals (DC): ■ 0 ... 20 mA, 4 ... 20 mA: Input resistance 50 Ω ■ 0 ... 1 V: Input resistance > 1 MΩ ■ 0 ... 5 V, 1 ... 5 V, 0 ... 10 V: Input resistance > 100 kΩ Measurement time: 125 ms
Monitoring output 1 (O1)	3 different versions are possible: ■ Relay contact: Load 250 V AC, 3 A (resistive load), AC 250 V, 1 A (inductive load, $\cos \varphi = 0.4$) ■ Logic level: DC 0 ... 12 V max. 40 mA (short-circuit-proof) for the control of an electronic switch relay (solid state relay, SSR) ■ Analogue current signal: 4 ... 20 mA, load max. 550 Ω
Control mode	PID, PI, PD, P, ON/OFF (configurable) To determine the control parameters for PID control, auto-tuning can be activated.
Alarm output 1 (EV1)	For actual-value monitoring Features: Alarm type, switch behaviour, hysteresis and time delay can be set Relay contact: Load 250 V AC, 3 A (resistive load), AC 250 V, 1 A (inductive load, $\cos \varphi = 0.4$)
Electrical connection	Screw terminals
Power supply	AC 100 ... 240 V, 50/60 Hz or AC/DC 24 V, 50/60 Hz
Case	Material: Polycarbonate, black Ingress protection: Front: IP66, rear: IP00 (per IEC/EN 60529) Weight model CS6S: 110 g, model CS6H: 160 g, model CS6L: 220 g
Mounting	Screw-type mounting brackets for wall thicknesses from 1 to 15 mm
Data sheet	AC 85.08

Order numbers

Monitoring output	Alarm output 1: Actual value monitoring (switching logic adjustable)					
	CS6S Case 48 x 48 x 60 mm		CS6H Case 48 x 96 x 60 mm		CS6L Case 96 x 96 x 60 mm	
	AC 240 V	AC/DC 24 V	AC 240 V	AC/DC 24 V	AC 240 V	AC/DC 24 V
Relay	14158880	14154284	14174707	14154285	14174730	14154287
Logic level	14158795	14174702	14174709	14174723	14174732	14174734
4 ... 20 mA	14161624	14174703	14174718	14174725	14174733	14174737
Options 1						
Alarm output 2	On request					
2. relay output logic level	On request					
2. relay output 4 ... 20 mA	On request					
Isolated current output DC 24 V, 30 mA	On request					

Scope of delivery

- Universal controller
- Mounting material

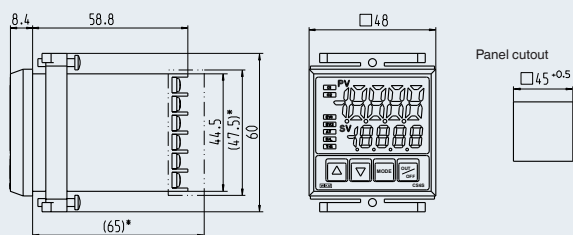
Accessories

Terminal cover (IP20)

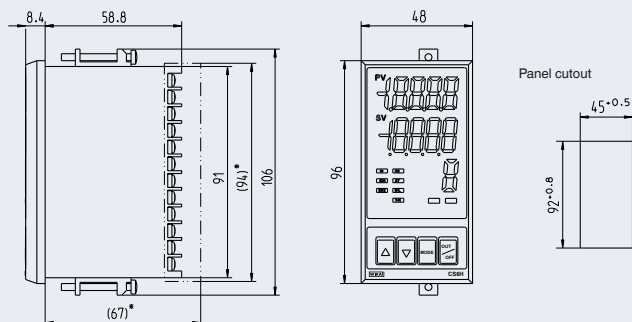
for CS6S	14154342
for CS6H	14154346
for CS6L	14154350

Dimensions in mm

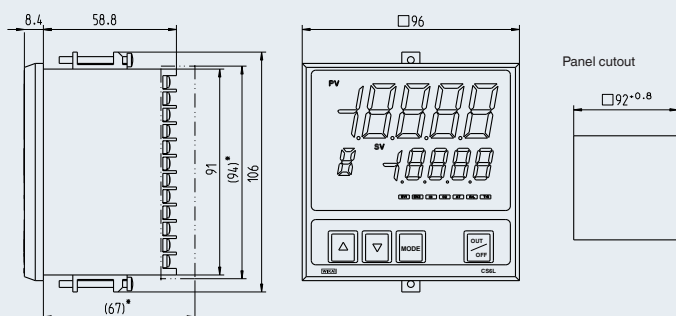
Model CS6S, 48 x 48 x 60 mm



Model CS6H, 96 x 48 x 60 mm



Model CS6L, 96 x 96 x 60 mm



* for terminal cover

Modbus® protocol

The Modbus® protocol has, since its development in 1979, been a de-facto standard for industrial communication. It is effective, simple to implement and freely available, both for the suppliers of instruments and for the operators. The Modbus® protocol is a single-master protocol. This master – in air-conditioning technology it is generally the central device controller or a higher-level building management system – controls the entire data transmission and monitors any possible timeouts (no reply from the addressed instrument).

The connected field instruments – in the ventilation and air-conditioning industry these are mainly pressure, differential pressure, temperature and CO₂ sensors – should only send data packets through the master on request.

The Modbus® RTU protocol with RS 485 interface is standard for the WIKA air2guide measuring instruments in Modbus® design. Modbus® RTU messages are a simple 16-bit CRC (cyclic-redundant checksum). The simplicity of these messages ensures the high reliability of this bus protocol.

There are many good reasons for using Modbus® RTU and thus this standard has an ever greater importance in industrial automation.

Modbus® RTU is much easier to implement than newer bus protocols and is a dominant force in the market. Modbus® RTU, in comparison with BACnet and EtherNet, also requires significantly less memory and processing capacity.

Transfer mode

All WIKA air2guide Modbus® variants have the following transmission mode:

- Character format: 1 start, 8 data, 1 parity, 1 stop bit
- Baud rate: 9,600/19,200/38,400

Instrument address

Specifies which device is to be addressed (master → slave) and which device will respond (slave → master).

With Modbus®, the addresses 1 ... 247 are supported.

Specifications Modbus® version						
	A2G-25	A2G-50	A2G-52	A2G-70	A2G-85	A2G-200
Accuracy	Pressure range < 125 Pa = ±2 Pa Pressure range > 125 Pa = ±1.5 % Pa	±1.5 % +1 Pa (of measured pressure)	--	Temperature: < 0.5 °C Relative humidity: ±4 %	CO ₂ : ±40 ppm + 2 % of display value Temperature: < 0.5 °C	Temperature: < 0.5 °C Relative humidity: max. 4 %
Zero adjustment	Push button on the printed circuit board or via Modbus® register, automatic zero adjustment (option)		--			
Modbus® communication						
Protocol	Modbus® via serial line					RTU mode, via RS-485 An additional analogue output for a selected measured value 0/2 ... 10 V, R > 1 kΩ 4 ... 20 mA, R < 500 Ω
Transfer mode	RTU					
Interface	RS-485					
Byte format	(11 bits) in RTU mode Coding system: 8 bits binary Bits per byte: - 1 Start bit - 8 data bits, lowest-order bit is sent first - 1 bit for parity - 1 stop bit					
Baud rate	9,600, 19,200, 38,400 - adjustable in the configuration					
Switching output	--					SPDT relay, 250 ... 30 V, 6 A 3-screw terminal (NC, COM, NO)
Power supply U _B	AC 24 V or DC 24 V ±10 %					
Modbus® addresses	1 ... 247 addresses selectable in the configuration menu					

Refrigeration and air-conditioning technology

Within the refrigeration cycle and its periphery there are many points where pressure and temperature are measured and monitored. This serves to control the plant in order to guarantee a secure process run.

In addition to the multitude of applications also the size of the refrigeration system, the refrigerant etc. place particular demands on the instruments. Here, WIKA is the competent partner for measuring instruments for pressure, temperature and calibration in all parts of refrigeration plants.



WIKA segment brochure
“Refrigeration and air-conditioning technology”

Heating technology



WIKA segment brochure
“Heating technology”

Whether in residential or office accommodation, in private households or public buildings; whether with wood, oil, gas or solar power: Modern heating technology enables you to obtain an efficient and sustained supply of heat and hot water.

This conserves resources and the environment. Furthermore, it is subject to stringent standards and regulations.

WIKA offers manufacturers and distributors a comprehensive range of pressure, temperature and level measuring instruments tailored to suit a wide range of requirements. With this brochure, we would like to provide you with an overview of our products and services for heating technology.

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