EGP 100: Differential pressure transducer

How energy efficiency is improved

Allows precise measuring of room pressures, duct pressures or volume flows to optimise energy consumption in ventilation systems

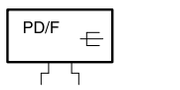
Areas of use

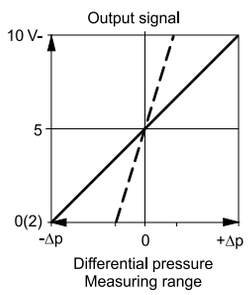
Optimised for applications such as filter monitoring, room or duct pressure monitoring, level monitoring in fluids, actuating frequency converters for fan control and recording volume flow, especially for room air balancing in laboratories.

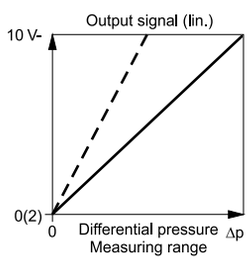
Features

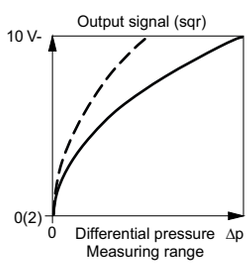
- Exact measurement of positive, negative and differential pressures in gases
- Optimised for applications such as filter monitoring, room or duct pressure monitoring, level monitoring in fluids, actuating frequency converters for fan control and recording volume flow, especially for room air balancing in laboratories
- Can be ideally combined with XAFP 100 flow probe for precise measurement of volume flow
- Static pressure sensor
- Can be fitted in any position
- Can be used for dusty air or air polluted with chemicals (not ATEX approved)
- Manufacturer's test certificate ex works
- The measuring range can be adapted optimally to the needs of the application
- Variable zero point and filter time constant to suppress pressure surges in the system
- Display shows the actual value and the signal progression (depending on type)
- Status LED for immediate indication of operating status (depending on type)
- Measuring range can be reduced to one third (depending on type)
- Fitted to either wall or DIN rail (EN 60715)
- Cover that does not require special tools to open

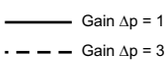
EGP100F*12











Technical data

Power supply		
	Power supply	24 V~/=, ±20%
Power consumption F**2	24 V~	3.0 VA
	24 V=	1.3 W
Power consumption F**1	24 V~	1.4 VA
	24 V=	0.4 W
Parameters		
	Admissible positive pressure	±20 kPa
	Influence of position[1)]	< 0.1% FS (full span)
	Non-linearity	1% FS pressure-linear
	Zero point stability	< 0.3% FS
	Reproducibility	0.2% FS
	Pneumatic connection[2)]	6.2 mm
	Parts in contact with media	PC/ABS blend
Ambient conditions		
	Media temperature	0…70 °C
	Admissible operating pressure p_{stat}[3)]	±7 kPa
	Ambient temperature	0…60 °C
	Ambient humidity	5...95% rh, no condensation

1) *The sensor is calibrated at the factory for vertical fitting. The influence of position must be taken into account if the unit is not fitted in the vertical position.*

2) *Max. length of measuring wire (di = 6.2 mm): Lmax = 15 m for time constant < 0.5 s, Lmax = 60 m for time constant > 0.5 s*

3) *The zero point should be recalibrated if the admissible operating pressure is exceeded*

Inputs/outputs

Output signal[4)]	F*01: 0...10 V, load > 10 kΩ F*02/F*12: 0(2)...10 V, load < 500 Ω
Filter time constant	F*01: 0.05...2 s F*02, F*12: 0.15...5.2 s

Construction

Pressure connection	Internal Ø 6 mm
Housing	PC/ABS
Cable gland	M16
Screw terminals	For electrical cables of up to 1.5 mm²

Standards, directives

Type of protection	IP65 (EN 60529)
Protection class	III (EN 60730-1)
EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4

Overview of types

i *Output signal: Analogue output limited to 10.6 V. Measured values with an overrun of 6% of the measuring range can therefore be transferred*

i *Variable characteristic/LED: Manual adjustment of measuring range with gain potentiometer. Signal curve: linear/root-extracted. Output signal: 0...10 V / 2...10 V via DIP switches or with CASE Sensors software*

Type	Measuring range	Display	Variable characteris-tic/LED	Weight (kg)
EGP100F101	±75 Pa, ±0.75 mbar	–	–	0.17
EGP100F102	±75 Pa, ±0.75 mbar	–	•	0.18
EGP100F112	±75 Pa, ±0.75 mbar	•	•	0.19
EGP100F201	±150, 1.5 mbar	–	–	0.17
EGP100F202	±150, 1.5 mbar	–	•	0.18
EGP100F212	±150, 1.5 mbar	•	•	0.19
EGP100F301	0...150 Pa, 0...1.5 mbar	–	–	0.17
EGP100F302	0...150 Pa, 0...1.5 mbar	–	•	0.18
EGP100F312	0...150 Pa, 0...1.5 mbar	•	•	0.19
EGP100F401	0...300 Pa, 0...3.0 mbar	–	–	0.17
EGP100F402	0...300 Pa, 0...3.0 mbar	–	•	0.18
EGP100F412	0...300 Pa, 0...3.0 mbar	•	•	0.19
EGP100F601	0...1000 Pa, 0...10.0 mbar	–	–	0.17
EGP100F602	0...1000 Pa, 0...10.0 mbar	–	•	0.18
EGP100F612	0...1000 Pa, 0...10.0 mbar	•	•	0.19

Accessories

Type	Description
0010240300	Connection set, 6 mm, complete
XAFP100F001	Flow probe to measure the air volume in ventilation ducts
CERTIFICAT001	Manufacturer's test certificate type M
CERTIFICAT999	Test for further device (from 2 pcs.)
0300360001	USB-RS-485 converter

[4)] *With a load of < 500 Ω, a change-over to 0...20 mA or 4...20 mA occurs automatically. Output protected against short circuits and excess voltage up to 24 V~*

Additional information

Manual	7010081001 C

Description of operation

The differential pressure to be measured is recorded using double membranes. The pressure difference is evaluated using a differential capacitive measuring principle and provided as a linear or root electric signal.

Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the “Description of operation” section.
All related product regulations must also be adhered to. Changing or converting the product is not admissible.

Differential pressure measurement (linear characteristic)

The transducer converts the differential pressure to be measured into a linear electric signal. The output signal at connection 01 is thus proportional to the differential pressure.

Volume flow recording (root characteristic)

The transducer converts the differential pressure produced at an orifice plate or flow probe (XAFP100) into a flow-linear signal. The output signal at connection 01 is thus proportional to the volume flow or air speed. The versions with symmetrical measuring ranges only support the linear characteristic.

LED indicators

LED (Run/Fault)
The following operating statuses of the device are indicated:

	Indicator	Description
Continuous green		Normal mode
Flashing green		After a manual adjustment (DIP switch, potentiometer), the LED flashes for 15 seconds, then lights up green continuously
Continuous red		Sensor measuring range (FS) exceeded by 40% or sensor error. The LED goes green again after the zero point button is pressed. If the measuring range is exceeded, zero adjustment is necessary
Flashing red		Low voltage. When the voltage is OK again, the LED flashes for another ten seconds then lights up green continuously

LED (zero adjustment)
An LED lamp inside the housing indicates the various zero adjustment statuses of the differential pressure transmitter:

	Indicator	Description
Continuous orange		Start-up mode zero adjustment
Rapid flashing orange		Zero adjustment active
Slowly flashing orange		Zero adjustment required

Display

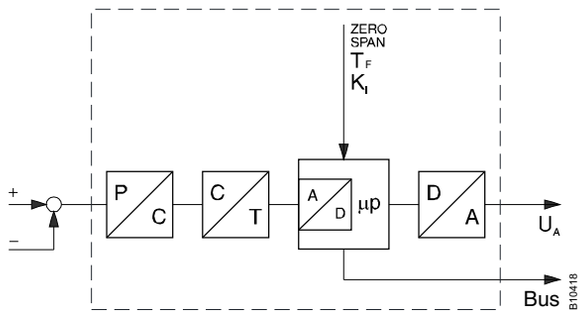
The 4-digit display shows the current measuring range, the unit and the characteristic. The display can show measured values of up to 150% of the set measuring range (linear characteristic) or up to 122% (root characteristic).

Sensor technology

The measuring element is a static sensor. The unique design guarantees high accuracy for differential pressures of less than 1 Pa.

The static measuring principle means that the sensor can also be used for measuring gases containing dust or chemicals.

Block diagram of sensor



The filter time constant τ of the transducer can be adjusted to stabilise the sensor output signal when the pressure signals fluctuate strongly (see the technical data and fitting instructions).

The zero point can be adjusted, but this must always be done in accordance with the fitting instructions.

Conversion table for pressure

Unit		bar	mbar	Pa	kPa	mWs
1 bar	Ξ	1	1000	100000	100	10.1971
1 mbar	Ξ	0.001	1	100	0.1	0.0101971
1 Pa	Ξ	0.00001	0.01	1	0.001	0.000101971
1 kPa	Ξ	0.01	10	1000	1	0.101971
1 mWs	Ξ	0.0980665	98.0665	9806.65	9.80665	1

Fitting notes

Any fitting position is allowed, providing the effect of the position is taken into account. To increase measuring accuracy, the zero point can be adjusted if necessary.

Wiring

Star wiring of the power supply line is essential. To prevent problems with the measuring signal, no inductive loads may be connected to the same transformer as the transducer.

The reference point of the measuring signal (MM) must be taken from the device and connected to the ground terminal of the corresponding analogue input (see the connection diagrams).

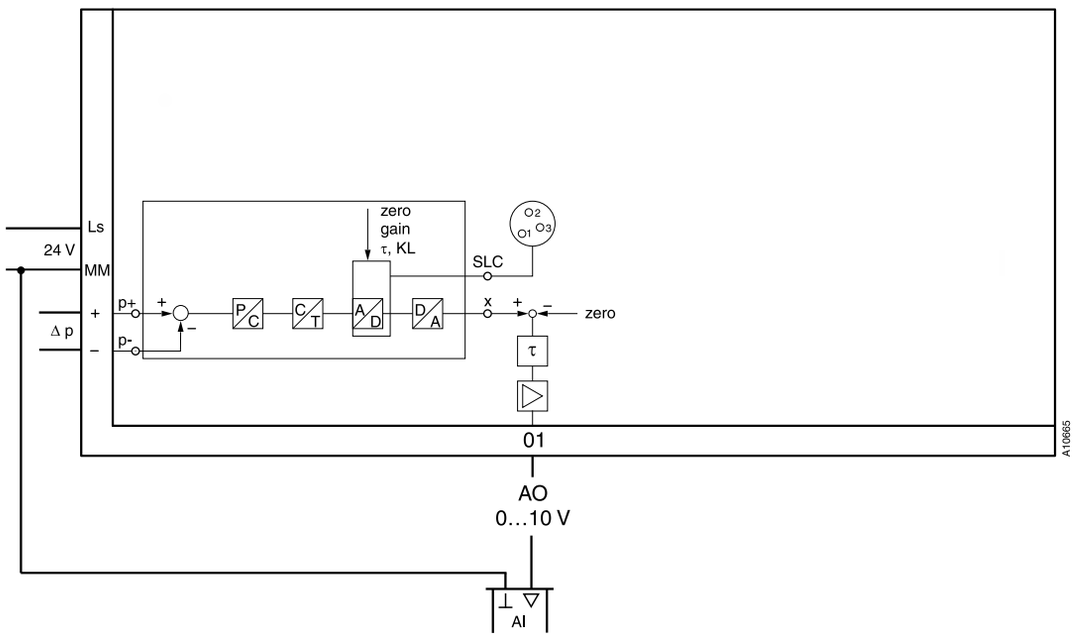
Disposal

When disposing of the product, observe the currently applicable local laws.

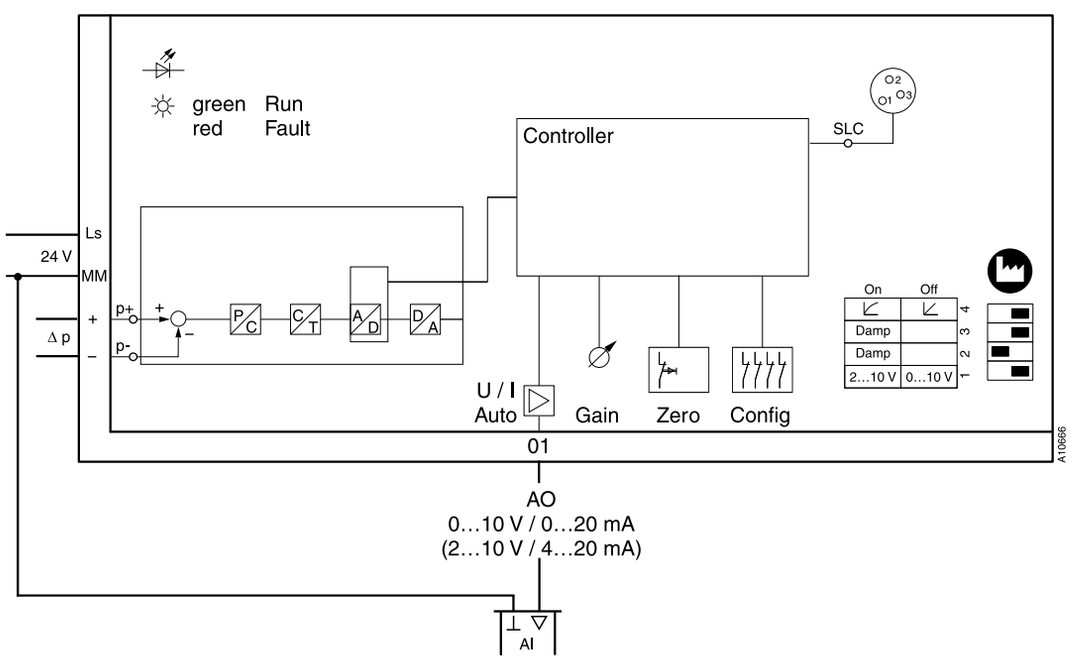
More information on materials can be found in the Declaration on materials and the environment for this product.

Connection diagram

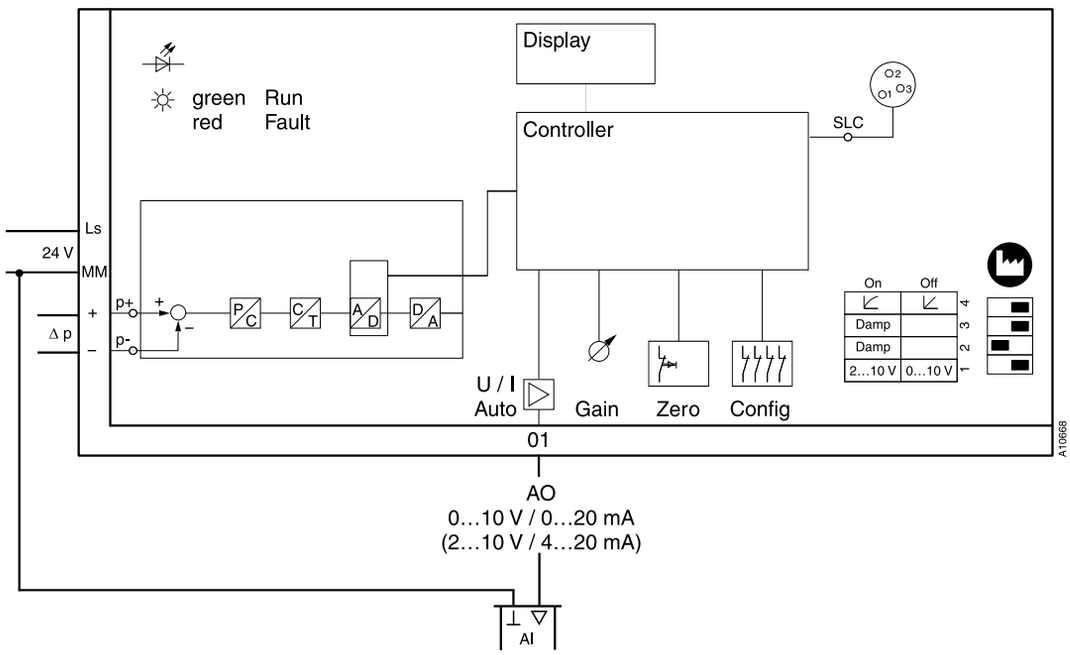
F101/F201/F301/F401/F601



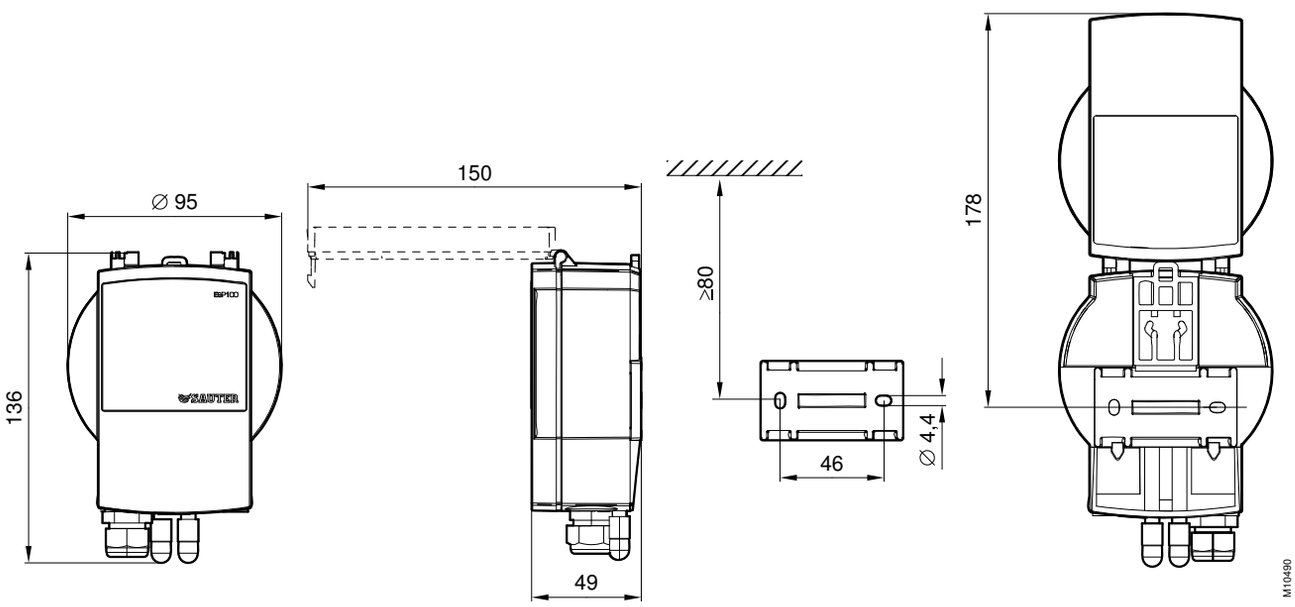
F102/F202/F302/F402/F602



F112/F212/F312/F412/F612

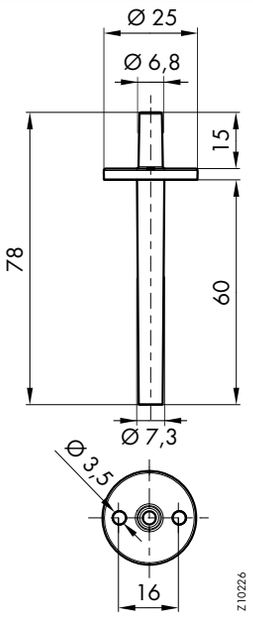


Dimension drawing



Accessories

0010240300



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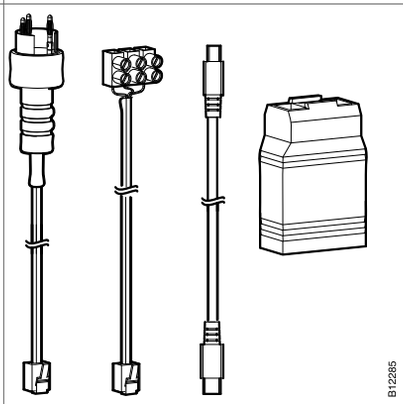
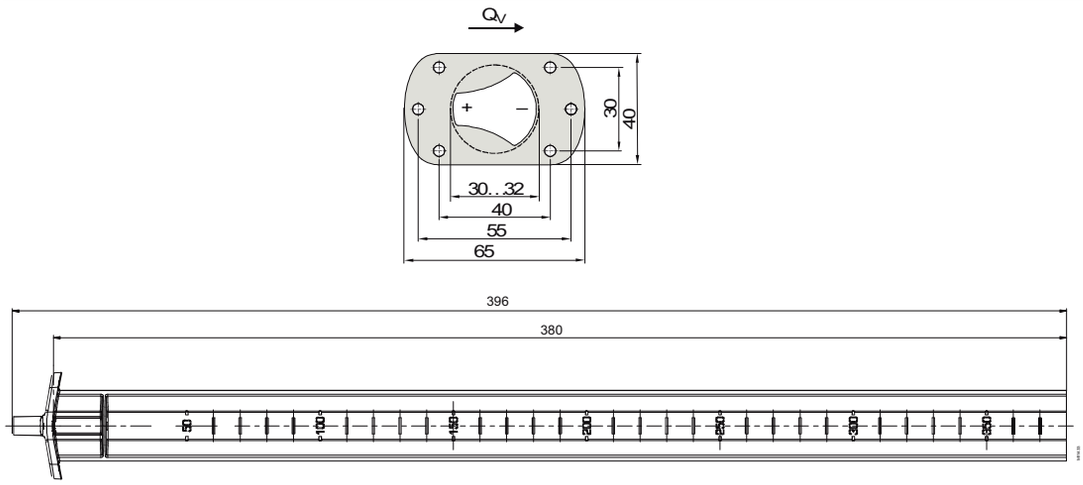


XAFP100F001



Fr. Sauter AG
Im Surinam 55
CH-4058 Basel
Tel. +41 61 - 695 55 55
www.sauter-controls.com