PicoFlow
Continuous flow measurement at low solid/air ratios
Use

PicoFlow was specially developed for measuring powder flows in transport lines with very low material concentrations. PicoFlow is particularly good in pneumatic applications but will also work reliably in free-fall applications with drop speeds of at least 2 m/s. The measuring system delivers absolute measurements (after calibration) in g/h or kg/h. A special air purging system is also available as an option. This is used for materials which tend to bake onto surfaces.

PicoFlow is used for the following:
- In pneumatic applications for material flow rates of up to 100 kg/h (depending on application)
- In free-fall with a drop speed of at least 2 m/s (approx. 25 cm drop height)
- In cases where dust measuring instruments cannot cope and flow rate measuring instruments are over-specified

Function

The measuring principle of the PicoFlow is based on the electrodynamic measuring effect. A ceramic coating on the very short antenna prevents sensor wear. Specially developed hardware and software allows the measurements to be linearised.
System

A complete measuring point consists of the following components:

- Weld-on socket with air purge connection
- PicoFlow sensor with ceramic coating
- PME 100 transmitter

Mounting and installation

The PicoFlow can be installed in metallic ducts and pipelines.
It should be installed as far as possible away from curves and other fittings such as valves and slides.
The distance between the sensor rod and fittings in the duct should be at least three times the duct diameter in every flow direction.

Non-metallic ducts must be cased with a metal sleeve, a metal foil or a tight-mesh metal grille over a length of at least five times the duct diameter.
After deciding the installation location, drill a hole in the duct wall where the supplied weld-on socket can be welded perpendicular to the pipe. Then screw the sensor rod into the socket using the screw-in thread.
sensor
Measurement range  From 100 g/h to 100 kg/h (depends on application)

Process temperature  Standard: 150 °C; Optional: max. 500 °C

Pressure  Max. 2 bar (optional: up to 25 bar)

Flow velocity  Min. 2 m/sec

Humidity  60 % RH or less (non-condensing)

Measurement principle  Electrodynamics

Ambient temperature  -20 … +60 °C

Sensor rod  Material: Stainless steel, AL2O3 ceramic 99.7 %; length: depends on application

Housing material  Aluminium

Protection type  IP 66; ATEX: Cat. 1/2 GD

Electrical connection  Connection chamber DIN M 20

Switch output measurement alarm  Relay with switchover contact Max. 250 V/AC, 1 A Not on EX devices Cat. 1 and 2

Weight  Approx. 1.5 kg

transmitter (DIN rail)
Power supply  24 ± 10 % V DC

Power consumption  20 W / 24 V

Protection type  IP 65 to EN 60529

Ambient operating temperature  -10 … +45 °C

Dimensions  23 x 90 x 118 (W x H x D)

Weight  Approx. 172 g

Connection terminals cable cross-section  0.2 - 2.5 mm² (AWG 24-14)

Current output  4 … 20 mA, load < 500 Ω

Switch output measurement alarm  Relay output, either NC (break contact) or NO (make contact) - max. 250 V AC, 1 A

Field bus communication  ModBus RTU (RS 485)

Data backup  Flash memory

Transmitter (field housing)
Power supply  110/230 V, 50 Hz (optional 24 V DC)

Power consumption  20 W / 24 VA

Protection type  IP 65 to EN 60 529/10.91

Ambient operating temperature  -10 … +45 °C

Dimensions  258 x 237 x 174 (W x H x D)

Weight  Approx. 2.5 kg

Interface  RS 485 / RS 232 C (ModBus)

Cable screw connectors  3 x M16 (4.5 - 10 mm Ø)

Connection terminals cable cross-section  0.2-2.5 mm² (AWG 24-14)

Current output  4 … 20 mA (0 … 20 mA), load < 500 Ω

Switch output measurement alarm  Relay with switchover contact max. 250 V AC, 1 A

Data backup  Flash memory

Pulse output  Open collector - max. 30 V, 20 mA

Certified according to ATEX

SWR engineering Messtechnik GmbH
Gutedelstraße 31 · 79418 Schliengen (Germany)
Fon +49 7635 827248-0 · Fax +49 7635 827248-48 · www.swr-engineering.com
envea™ a trademark of Environnement S.A Group