Online data sheet

FW101 Ex

SCATTERED LIGHT DUST MEASURING DEVICES

SICK
Sensor Intelligence.

Ordering information

Type	Part no.
FW101 Ex	On request

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

Our regional sales organization will help you to select the optimum device configuration.

Other models and accessories ➜ www.sick.com/FW101_Ex

Product description

The FW101 Ex is designed for continuous measurement of very low to medium dust concentrations - independent of the gas velocity, humidity, or charge of the particles. The probe design of FW101 Ex enables mounting on one side of the gas duct and does not require any mechanical adjustment or calibration with a dust-free measurement path. The measuring device can be used for a wide range of applications, including gas ducts with extremely small or large diameters, as well as thick and thin-walled stacks.

At a glance

- Automated monitoring of zero and reference point
- Contamination check
- Optional evaluation unit for remote control
- Device versions for Ex zones 1, 2, and 22

Your benefits

- One-sided installation
- Easy mounting
- Measurements in explosive environments

Fields of application

- Pure gas monitoring downstream of filter plants
- Monitoring of bag filter for defective bags
- Dust monitoring in milling or dosing facilities
- Protection of desulfurization plants against high dust loads
- Monitoring and control of fresh and exhaust air plants
- Measurements in potentially explosive atmospheres

Detailed technical data

FW101 Ex system

Measured values	Scattered light intensity, dust concentration (after gravimetric comparison measurement)
Measurement principles	Scattered light forward
Spectral range	640 nm ... 660 nm Laser, protection class 2, power < 1 mW
Measuring ranges	
Dust concentration	0 ... 5 mg/m³ / 0 ... 200 mg/m³ Measuring ranges freely selectable Higher measuring ranges on request
Response time (t_{90})	0.1 s ... 600 s Freely adjustable
Accuracy	± 2 % Of measuring range full scale
Process temperature	Standard version: –40 °C ... +220 °C High temperature version: –40 °C ... +400 °C
Process pressure	With external purge air unit: –50 hPa ... 30 hPa With instrument air (provided by the customer): –50 hPa ... 100 hPa
Process gas humidity	Non-condensing
Duct diameter	≥ 0.25 m
Electrical safety	CE
Test functions	Automatic self-test (linearity, contamination, drift, aging) Contamination limits: at 30% warning, at 40% failure Manual linearity test with reference filter
Options	External purge air unit

FWSE101 Ex sender/receiver unit

Description	Analyzer unit of the measuring system
Ambient temperature	–20 °C ... +40 °C
Ex-approvals	
ATEX	Version for Ex-zone 1 and 2: II 2G Ex d IIC T6 Version for Ex-zone 22: II 3D Ex t IIIB T80°C Dc IP54
Enclosure rating	IP 66
Dimensions (W x H x D)	180 mm x 200 mm x 700 mm (nominal length 435 mm, for details see dimensional drawings) 180 mm x 200 mm x 1,000 mm (nominal length 735 mm, for details see dimensional drawings)
Weight	Nominal length 435 mm: 10.6 kg Nominal length 735 mm: 11.9 kg
Power supply	

Voltage	24 V
	Supply via connection unit
Power consumption	≤ 4 W

AK1-Ex connection unit

Description	Unit for connecting data cables and power supply to the system components; for potentially explosive atmospheres
Ambient temperature	–20 °C ... +40 °C
Ex-approvals	
ATEX	II 2G Ex de IIC T6
Enclosure rating	IP 65
Analog outputs	1 output: 0/2/4 ... 20 mA, 750 Ω Electrically isolated; second output as option
Digital outputs	3 relay contacts: 48 V, 1 A Potential-free; for status signals "operation/ failure", "limit value", "maintenance"
Digital inputs	1 input: Potential-free; for maintenance switch
Interfaces and bus protocols	
RS-232	Proprietary service interface
Indication	Double-spaced LC display
Dimensions (W x H x D)	210 mm x 493 mm x 180 mm (for details see dimensional drawings)
Weight	13.3 kg
Power supply	
Voltage	100 ... 240 V
Frequency	47 ... 63 Hz
Power consumption	≤ 15 W

AK1-Ex22 connection unit

Description	Unit for connecting data cables and power supply to the system components; for potentially dust explosive atmospheres
Ambient temperature	–20 °C ... +40 °C
Ex-approvals	
ATEX	II 2D Ex tD A21 T80°C IP6x
Enclosure rating	IP 65
Analog outputs	1 output: 0/2/4 ... 20 mA, 750 Ω Electrically isolated; second output as option
Digital outputs	3 relay contacts: 48 V, 1 A Potential-free; for status signals "operation/ failure", "limit value", "maintenance"
Digital inputs	1 input: Potential-free; for maintenance switch
Interfaces and bus protocols	
RS-232	Proprietary service interface
Indication	Double-spaced LC display
Dimensions (W x H x D)	200 mm x 300 mm x 155 mm (for details see dimensional drawings)

Weight	4.9 kg
Power supply	
Voltage	100 ... 240 V
	Optional: 24 V DC ± 2 V
Frequency	47 ... 63 Hz
Power consumption	≤ 15 W

SLV5-1 purge air unit, 2BH1300, ATEX 3/2G

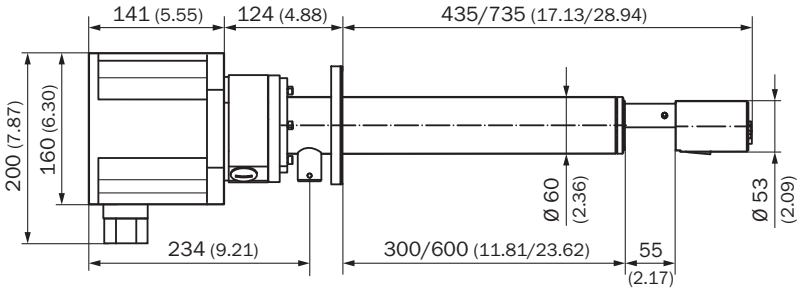
Description	Unit to provide dust-free air for flushing of optical surfaces; for potentially explosive atmospheres
Gas flow rate	38 m³/h ... 63 m³/h At 30 hPa counter pressure, depending on low pressure inside the filter
Ambient temperature	–20 °C ... +40 °C
Enclosure rating	IP 54
Dimensions (W x H x D)	550 mm x 550 mm x 258 mm (for details see dimensional drawings)
Weight	18 kg
Power supply	
Three-phase current	3-phase, Δ: 230 V, 50 Hz, 2.4 A, 550 W 3-phase, Y: 400 V, 50 Hz, 1.4 A, 550 W
Auxiliary gas connections	Purge air: 40 mm
Test functions	Pressure switch (switching point –35 hPa)
Integrated components	2-step air filter, type Europiclon, dust capacity 200 g

SLV5-2 purge air unit, 2BH1300, ATEX 3/2D

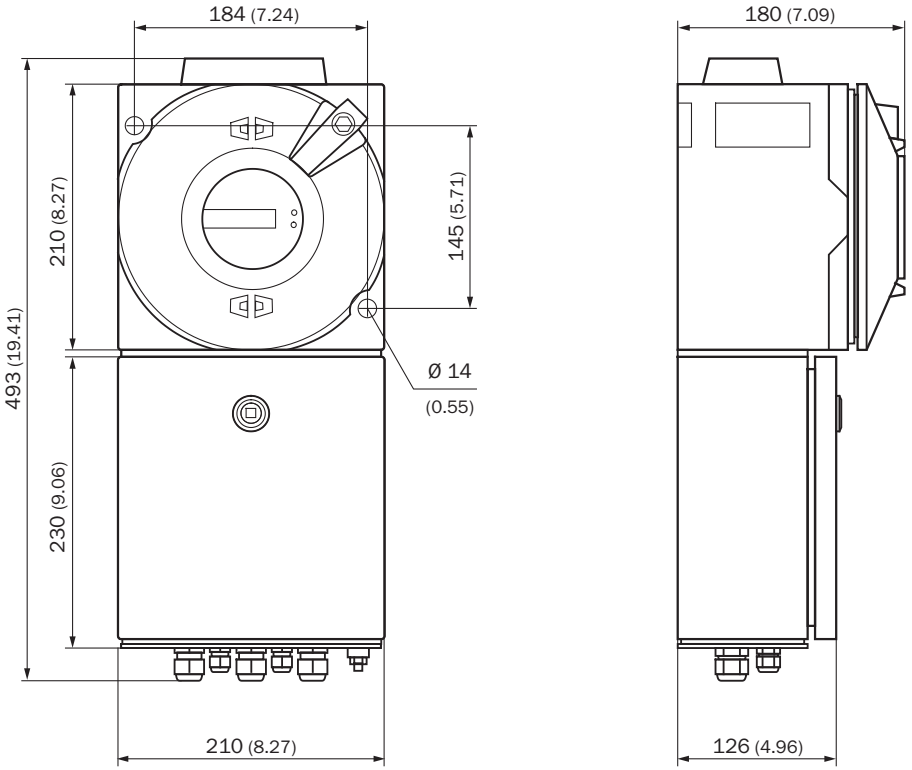
Description	Unit for the provision of dust-free air for purging optical surfaces, for use in dust explosive environments.
Gas flow rate	38 m³/h ... 63 m³/h At 30 hPa counter pressure, depending on low pressure inside the filter
Ambient temperature	–20 °C ... +40 °C
Enclosure rating	IP 54
Dimensions (W x H x D)	550 mm x 550 mm x 258 mm (for details see dimensional drawings)
Weight	18 kg
Power supply	
Three-phase current	3-phase, Δ: 230 V, 50 Hz, 2.4 A, 550 W 3-phase, Y: 400 V, 50 Hz, 1.4 A, 550 W
Auxiliary gas connections	Purge air: 40 mm
Test functions	Pressure switch (switching point –35 hPa)
Integrated components	2-step air filter, type Europiclon, dust capacity 200 g

Dimensional drawings (Dimensions in mm (inch))

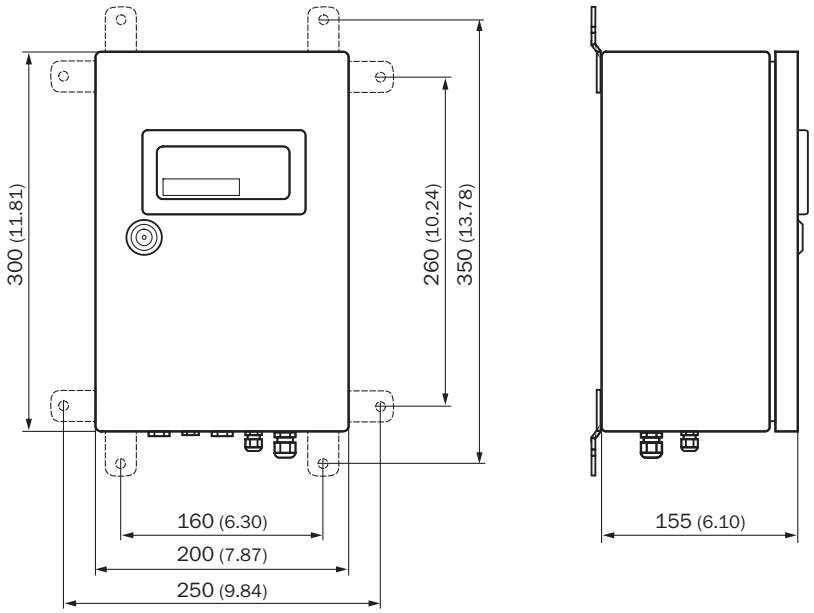
FWSE101 Ex sender/receiver unit



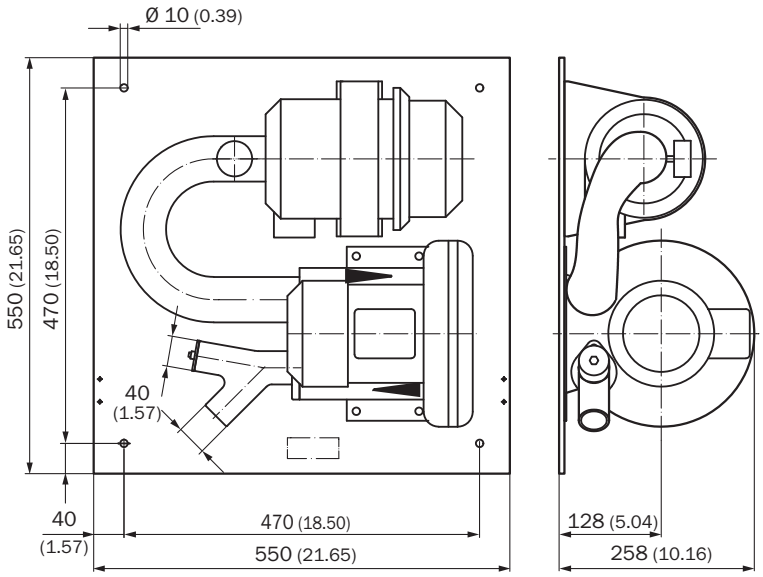
AK1-Ex connection unit



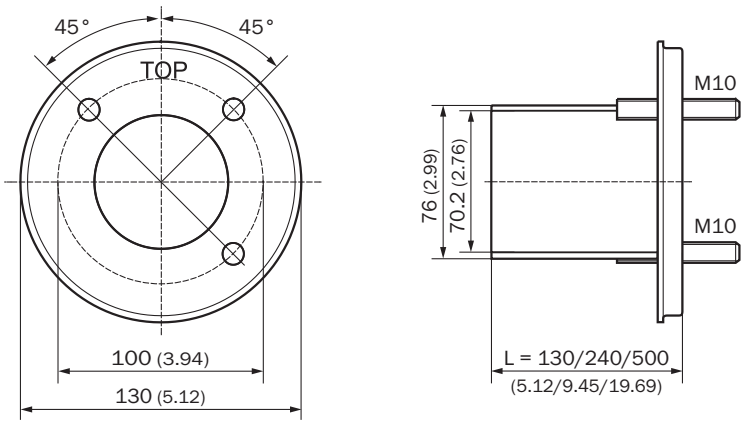
AK1-Ex22 connection unit



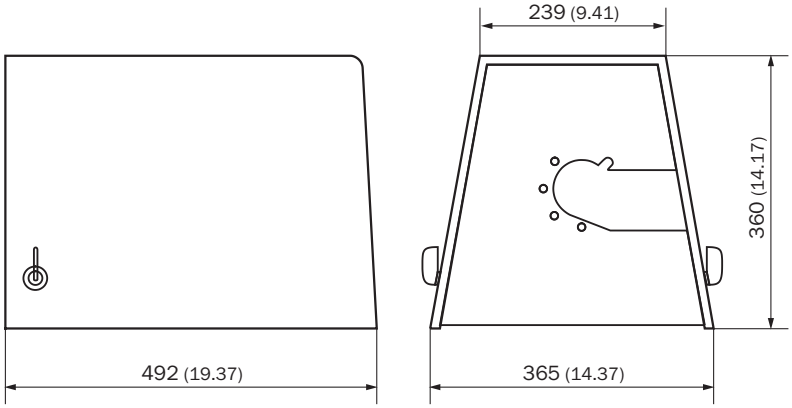
SLV5 purge air unit, 2BH1300, Ex



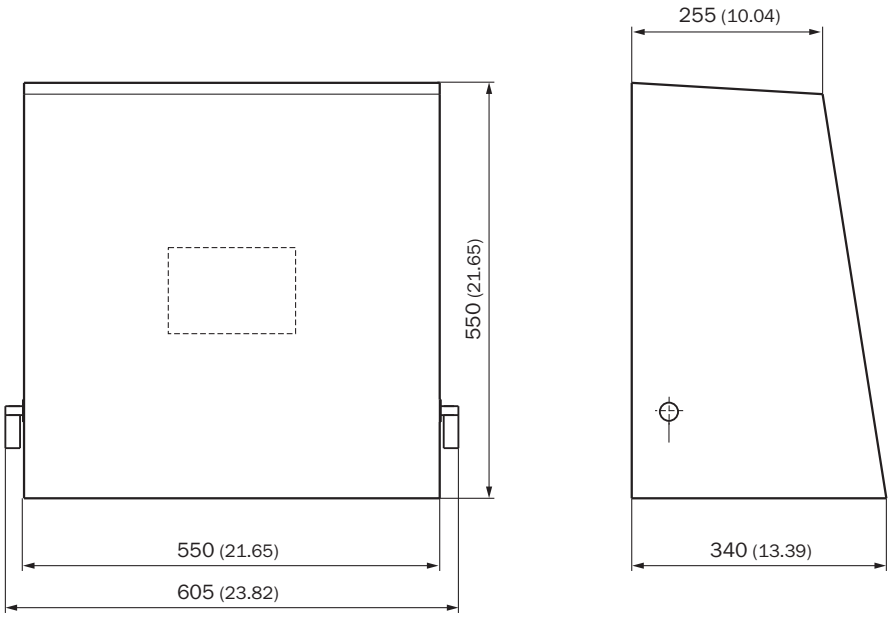
Mounting flange, D_i=70.2 mm



Weather protection cover for sender/receiver unit



Weather hood for SLV4/SLV5/SLV7 purge air unit



SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com