



# FW300 Ex

TRANSMITTANCE DUST MEASURING DEVICES

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
FW300 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/FW300\\_Ex](http://www.sick.com/FW300_Ex)

### Product description

No matter whether monitoring of transmission, opacity, extinction or dust concentration is required, the FW300 Ex dust measuring device can take care of it. Each measured quantity can be freely selected. The FW300 Ex measures immediate and precise even during difficult conditions such as sticky dust loads, high gas temperatures or variation in gas velocities. Device types with flameproof or dustproof housings are available for applications in potentially explosive atmospheres.

### At a glance

- For medium to high dust concentrations
- Automatic check cycle for zero and reference point
- Device type for hazardous areas Zone 1, 2 and 22
- For small to medium measuring distances

### Your benefits

- Easy operation
- Minimum maintenance required
- Measurements in explosion-hazardous areas



## Fields of application

- Filter plant monitoring for filter breaks
- Monitoring of dust loads in factory buildings
- Emission monitoring in industry plants
- Measurement of the dust emissions on garbage dumps, in quarries and mill works
- Measurements in potentially explosive atmospheres

## Detailed technical data

### FW300 Ex system

<b>Measured values</b>	Transmittance, opacity, extinction, dust concentration	
<b>Measurement principles</b>	Transmittance measurement	
<b>Spectral range</b>	640 nm ... 660 nm Laser, protection class 2, power < 1 mW	
<b>Measuring ranges</b>	Transmittance 100 ... 80 % / 100 ... 0 % Opacity 0 ... 20 % / 0 ... 100 % Extinction 0 ... 0.1 Ext / 0 ... 2.5 Ext Dust concentration 0 ... 13 mg/m <sup>3</sup> / 0 ... 12,000 mg/m <sup>3</sup> The measurement depends on measuring distance and dust properties	
<b>Response time (t<sub>90</sub>)</b>	0.1 s ... 600 s Freely adjustable	
<b>Accuracy</b>	Transmittance: ± 0.4 % Opacity: ± 0.4 % Extinction: ± 0.002 Ext Dust concentration: ± 2 %	
<b>Process temperature</b>	0 °C ... +600 °C	
<b>Process pressure</b>	-50 hPa ... 30 hPa	
<b>Process gas humidity</b>	Non-condensing	
<b>Duct diameter</b>	0.5 m ... 2 m 1.5 m ... 8 m	
<b>Electrical safety</b>	CE	
<b>Operation</b>	Via software MEPA	
<b>Test functions</b>	Automatic self-test (linearity, drift, aging) Manual linearity test with reference filter	

### FWSE300 Ex sender/receiver unit

<b>Description</b>	Analyzer unit of the cross-duct measuring system	
<b>Ambient temperature</b>	-20 °C ... +40 °C	
<b>Ex-approvals</b>	ATEX	Zone 1 and 2: II 2G Ex IIC T6 Zone 22: II 3D Ex t IIIB T80 °C Dc IP54
<b>Enclosure rating</b>	IP 65	
<b>Dimensions (W x H x D)</b>	160 mm x 200 mm x 191 mm (for details see dimensional drawings)	
<b>Weight</b>	≤ 4.6 kg	

<b>Power supply</b>	Voltage	24 V
	Power consumption	≤ 4 W

### FW-R-055-D rotating reflector

<b>Description</b>	Reflector unit with glass triple reflector	
<b>Ambient temperature</b>	-20 °C ... +40 °C	
<b>Ex-approvals</b>	ATEX Zone 1 and 2: II 2G Ex IIC T6 Zone 22: II 2G Ex IIC T6	
<b>Enclosure rating</b>	IP 65	
<b>Dimensions (W x H x D)</b>	160 mm x 200 mm x 191 mm (for details see dimensional drawings)	
<b>Weight</b>	4.7 kg	
<b>Power supply</b>	Voltage	24
	Power consumption	≤ 12 W

### FW-R-055-F fixed reflector

<b>Description</b>	Reflector unit with glass triple reflector
<b>Ambient temperature</b>	-20 °C ... +40 °C
<b>Enclosure rating</b>	IP 65
<b>Dimensions (W x H x D)</b>	80 mm x 80 mm x 34 mm (for details see dimensional drawings)
<b>Weight</b>	0.4 kg

### FW-V purge air fixture

<b>Description</b>	Fixture to flanges with connection for the purge air
<b>Dimensions (W x H x D)</b>	126 mm x 126 mm x 200 mm (for details see dimensional drawings)
<b>Weight</b>	1.4 kg

### AK1-Ex connection unit

<b>Description</b>	Unit for connecting data cables and power supply to the system components; for potentially explosive atmospheres
<b>Ambient temperature</b>	-20 °C ... +40 °C
<b>Ex-approvals</b>	ATEX II 2G Ex de IIC T6
<b>Enclosure rating</b>	IP 65
<b>Analog outputs</b>	1 output: 0/2/4 ... 20 mA, 750 Ω Electrically isolated; second output as option
<b>Digital outputs</b>	3 relay contacts: 48 V, 1 A Potential-free; for status signals "operation/ failure", "limit value", "maintenance"
<b>Digital inputs</b>	1 input: Potential-free; for maintenance switch
<b>Interfaces and bus protocols</b>	RS-232 Proprietary service interface

<b>Indication</b>	Double-spaced LC display
<b>Dimensions (W x H x D)</b>	210 mm x 493 mm x 180 mm (for details see dimensional drawings)
<b>Weight</b>	13.3 kg
<b>Power supply</b>	
Voltage	100 ... 240 V
Frequency	47 ... 63 Hz
Power consumption	≤ 15 W

## AK1-Ex22 connection unit

<b>Description</b>	Unit for connecting data cables and power supply to the system components; for potentially dust explosive atmospheres
<b>Ambient temperature</b>	-20 °C ... +40 °C
<b>Ex-approvals</b>	ATEX II 2D Ex tD A21 T80 °C IP6x
<b>Enclosure rating</b>	IP 65
<b>Analog outputs</b>	1 output: 0/2/4 ... 20 mA, 750 Ω Electrically isolated; second output as option
<b>Digital outputs</b>	3 relay contacts: 48 V, 1 A Potential-free; for status signals "operation/ failure", "limit value", "maintenance"
<b>Digital inputs</b>	1 input: Potential-free; for maintenance switch
<b>Interfaces and bus protocols</b>	RS-232 Proprietary service interface
<b>Indication</b>	Double-spaced LC display
<b>Dimensions (W x H x D)</b>	200 mm x 300 mm x 155 mm (for details see dimensional drawings)
<b>Weight</b>	4.9 kg
<b>Power supply</b>	
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

<b>Description</b>	Unit to provide dust-free air for flushing of optical surfaces; for potentially explosive atmospheres
<b>Gas flow rate</b>	38 m³/h ... 63 m³/h At 30 hPa counter pressure, depending on low pressure inside the filter
<b>Ambient temperature</b>	-20 °C ... +40 °C
<b>Enclosure rating</b>	IP 54
<b>Dimensions (W x H x D)</b>	550 mm x 550 mm x 258 mm (for details see dimensional drawings)
<b>Weight</b>	18 kg
<b>Power supply</b>	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
<b>Auxiliary gas connections</b>	Purge air: 40 mm

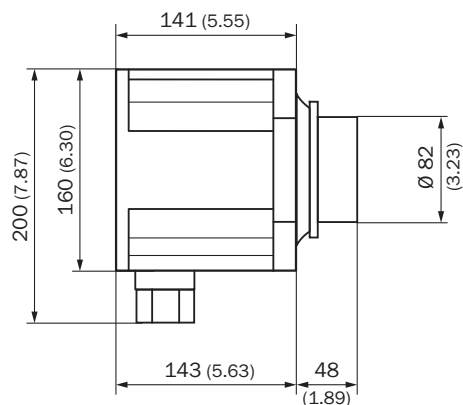
<b>Test functions</b>	Pressure switch (switching point -35 hPa)
<b>Integrated components</b>	2-step air filter, type Europiclon, dust capacity 200 g

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

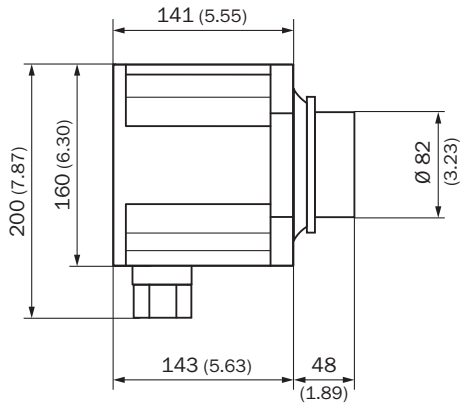
<b>Description</b>	Unit for the provision of dust-free air for purging optical surfaces, for use in dust explosive environments.
<b>Gas flow rate</b>	38 m <sup>3</sup> /h ... 63 m <sup>3</sup> /h At 30 hPa counter pressure, depending on low pressure inside the filter
<b>Ambient temperature</b>	-20 °C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

### Dimensional drawings (Dimensions in mm (inch))

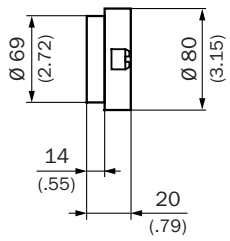
FWSE300 Ex sender/receiver unit



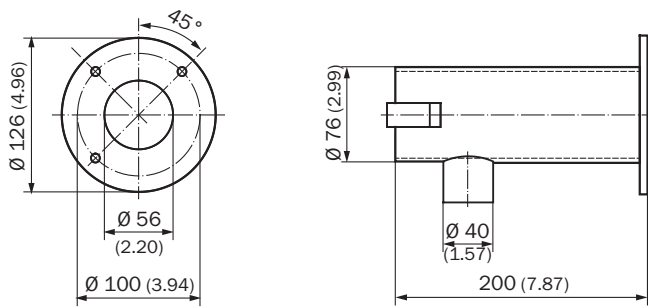
FW-R-055-D rotating reflector



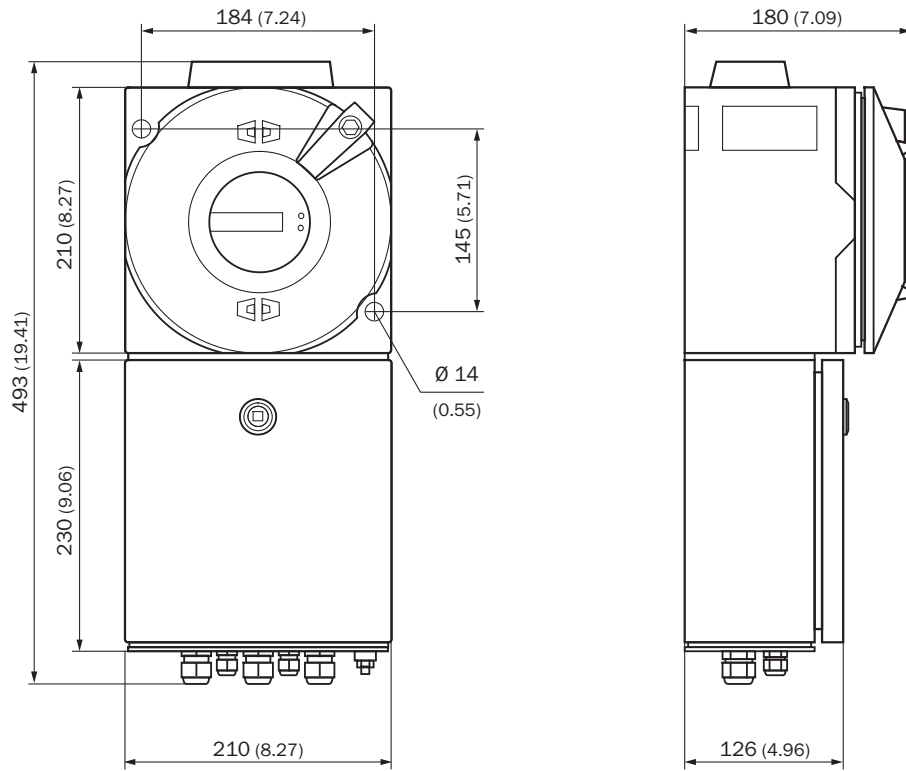
FW-R-055-F fixed reflector



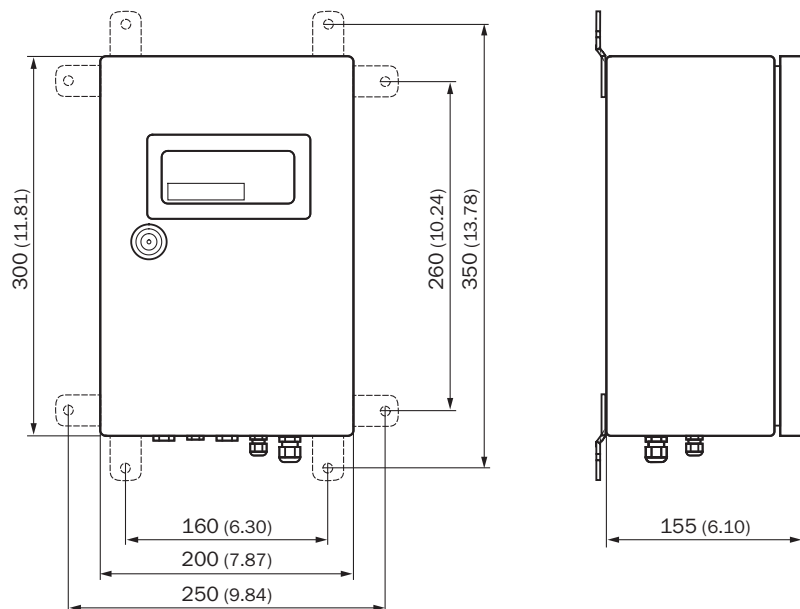
FW-V purge air fixture



AK1-Ex connection unit

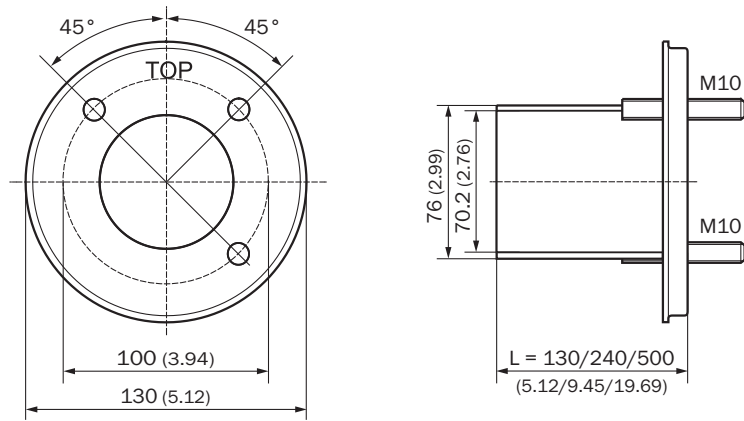


AK1-Ex22 connection unit

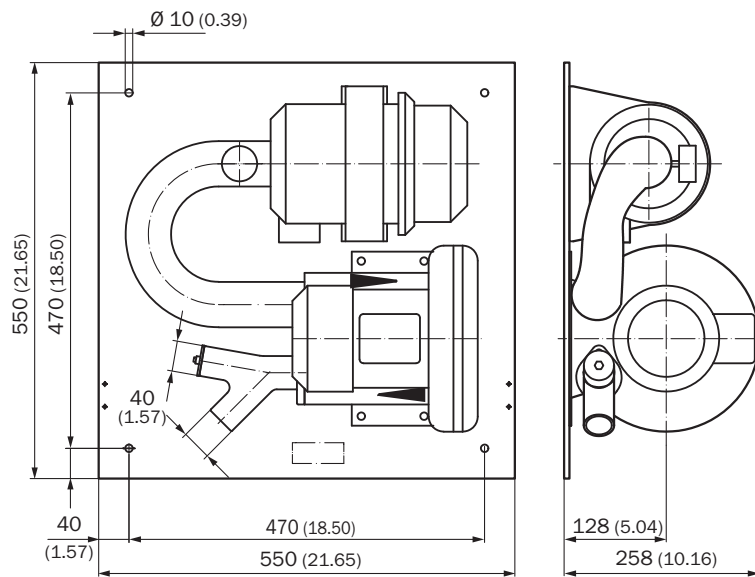




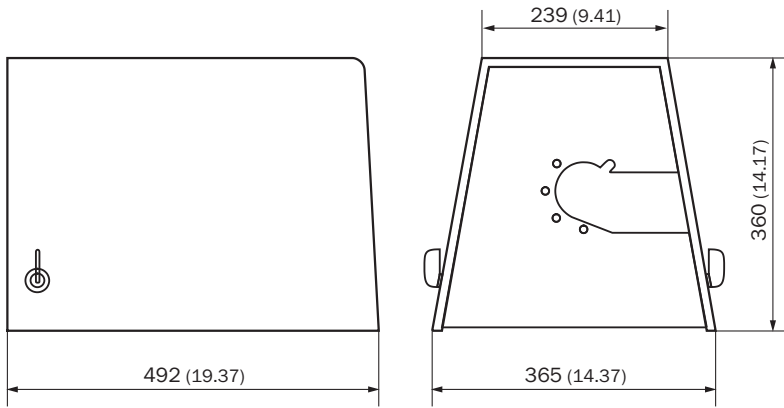
Mounting flange,  $D_f=70.2$  mm



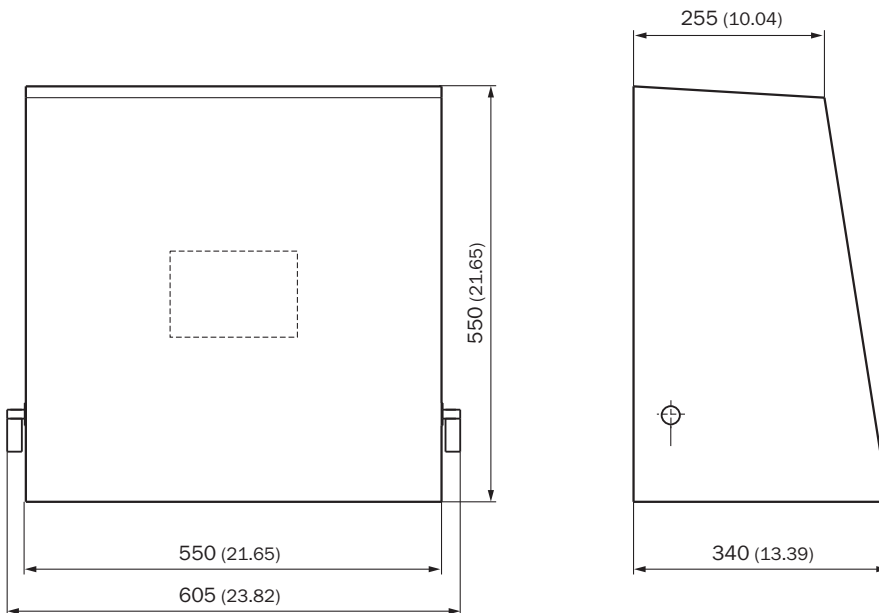
SLV5 purge air unit, 2BH1300, Ex



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](http://www.sick.com)