

DUSTHUNTER SB100

SCATTERED LIGHT DUST MEASURING DEVICES

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
DUSTHUNTER SB100	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/DUSTHUNTER_SB100

Product description

The DUSTHUNTER SB100 is a type-approved measuring device for dust at very low to medium concentrations in challenging applications, e. g., in hot or corrosive gases. The measurement is based on the backward scattering of light. Installation is from one side only. Two different penetration depths are possible. Automated compensation of background radiation, therefore no light absorber required. An automated check of the zero and reference point as well as a contamination check are on board in the device.

At a glance

- For very low to medium dust concentrations
- One-sided installation
- Contamination check
- Automated thorough check of zero and reference point
- Automated compensation of background radiation, therefore no light absorber required
- For medium to large duct diameters

Your benefits

- Easy installation, commissioning, and operation
- Measurement independent of gas velocity, humidity and particle charge
- Approved according to EN 15267
- Low maintenance due to self-monitoring



Fields of application

- Emission monitoring of power stations and waste incineration plants
- Monitoring of dust concentrations downstream of filter plants
- Monitoring of dust loads in factory workshops
- Control of fresh air supplies and exhaust air plants

Detailed technical data

DUSTHUNTER SB100 system

Measured values	Scattered light intensity, dust concentration (after gravimetric comparison measurement)
Performance-tested measurands	Scattered light intensity
Measurement principles	Scattered light backward
Spectral range	640 nm ... 660 nm Laser, protection class 2, power < 1 mW
Measuring ranges	Dust concentration 0 ... 10 mg/m ³ / 0 ... 200 mg/m ³ Higher measuring ranges on request
Certified measuring ranges	Scattered light intensity 0 ... 100 SI / 0 ... 15 SI / 0 ... 50 SI / 0 ... 200 SI
Response time (t₉₀)	1 s ... 600 s Freely adjustable
Accuracy	≤ 2 % Of measuring range full scale
Process temperature	-40 °C ... +600 °C
Process pressure	With MCU-P control unit: -50 hPa ... 2 hPa With external purge air unit: -50 hPa ... 30 hPa
Process gas humidity	Non-condensing
Duct diameter	≥ 500 mm
Conformities	Approved for plants requiring approval 2001/80/EC (13. BImSchV) 2000/76/EC (17. BImSchV) 27.BImSchV TA-Luft (Prevention of Air Pollution) EN 15267 EN 14181 MCERTS 2010/75/EU
Electrical safety	CE
Test functions	Automatic self-test (linearity, contamination, drift, aging) Contamination limit values: warning at 20%, fault at 30% Manual linearity test with reference filter

DHSB-T10/-T11 sender/receiver unit

Ambient temperature	-40 °C ... +60 °C
Enclosure rating	IP 66
Dimensions (W x H x D)	265 m x 274 m x 691 m (for details see dimensional drawings)
Weight	≤ 10 kg
Power supply	

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

MCU-N control unit

Description	Unit to control the system components and to evaluate and output the data provided by them	
Ambient temperature	-40 °C ... +60 °C	
Enclosure rating	IP 66	
Analog outputs	3 outputs: 0/2/4 ... 20 mA, 750 Ω Electrically isolated; two additional outputs if using I/O modules (option)	
Analog inputs	2 inputs: 0 ... 20 mA Not electrically isolated; two additional inputs if using I/O modules (option)	
Digital outputs	5 relay contacts: 48 V, 1 A Potential-free; for status signals	
Digital inputs	4 potential-free contacts	
Interfaces and bus protocols	Ethernet	Modbus TCP (via optional interface module)
	Ethernet	OPC (via optional interface module)
	Ethernet	SOPAS ET (via optional interface module)
	RS-485	Modbus RTU (via optional interface module)
	RS-485	PROFIBUS DP (via optional interface module)
	RS-485	SOPAS ET (via optional interface module)
	USB	SOPAS ET
Indication	LC display Status LEDs: "Power", "Maintenance" and "Failure"	
Operation	Via LC-display or software SOPAS ET	
Dimensions (W x H x D)	210 mm x 340 mm x 120 mm	
Weight	≤ 3.7 kg	
Power supply	Voltage	90 ... 250 V
		Version with 24 V DC available as an option
	Frequency	47 ... 63 Hz
	Power consumption	≤ 15 W
Options	Interface module(s) I/O module(s)	

MCU-P control unit

Description	Unit to control the system components and to evaluate and output the data provided by them. With integrated purge air unit.	
Gas flow rate	≤ 20 m³/h	
Ambient temperature	-40 °C ... +45 °C Intake temperatures for purge air	
Enclosure rating	IP 66	
Analog outputs	3 outputs: 0/2/4 ... 20 mA, 750 Ω Electrically isolated; two additional outputs if using I/O modules (option)	

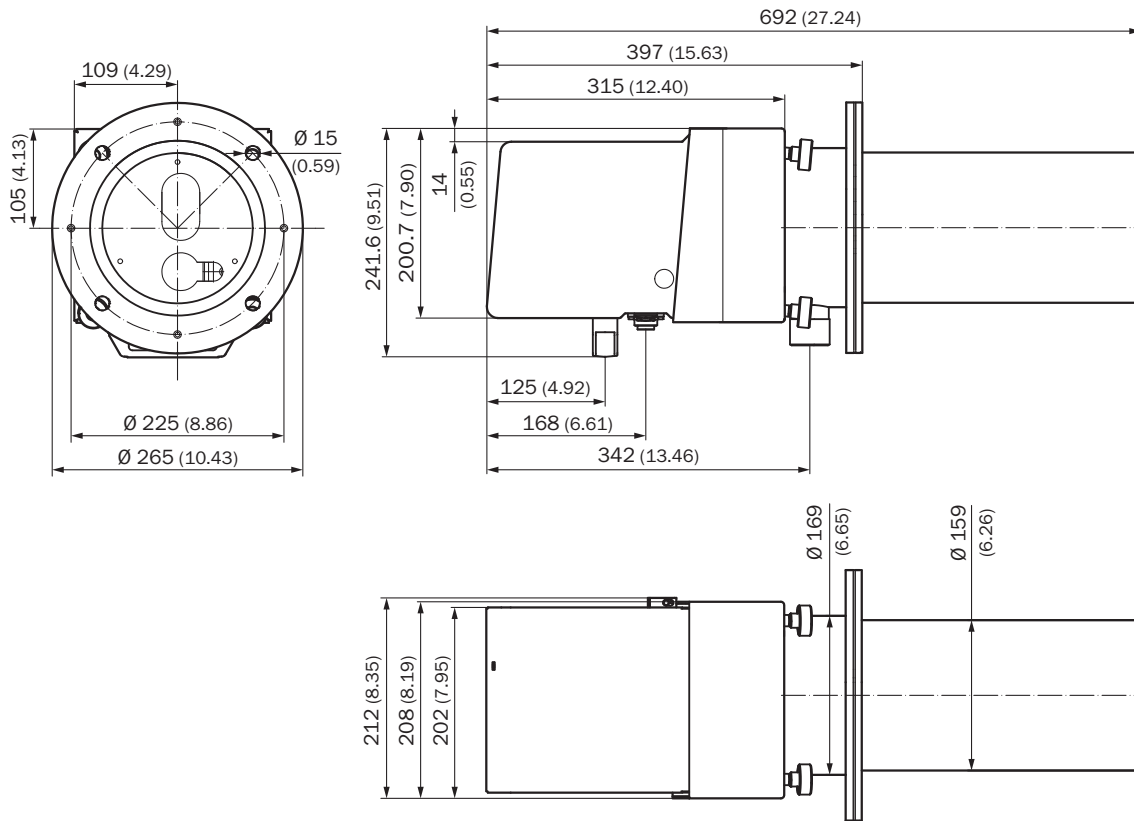
Analog inputs	2 inputs: 0 ... 20 mA Not electrically isolated; two additional inputs if using I/O modules (option)	
Digital outputs	5 relay contacts: 48 V, 1 A Potential-free; for status signals	
Digital inputs	4 potential-free contacts	
Interfaces and bus protocols	Ethernet	Modbus TCP (via optional interface module)
	Ethernet	OPC (via optional interface module)
	Ethernet	SOPAS ET (via optional interface module)
	RS-485	Modbus RTU (via optional interface module)
	RS-485	PROFIBUS DP (via optional interface module)
	RS-485	SOPAS ET (via optional interface module)
	USB	SOPAS ET
Indication	LC display Status LEDs: "Power", "Maintenance" and "Failure"	
Operation	Via LC-display or software SOPAS ET	
Dimensions (W x H x D)	300 mm x 455 mm x 220 mm	
Weight	≤ 13.5 kg	
Power supply	Voltage	90 ... 250 V Version with 24 V DC available as an option
	Frequency	47 ... 63 Hz
	Power consumption	≤ 70 W
Auxiliary gas connections	Purge air	
Options	Interface module(s) I/O module(s)	

SLV4-2 purge air unit, 2BH1300, 3-ph

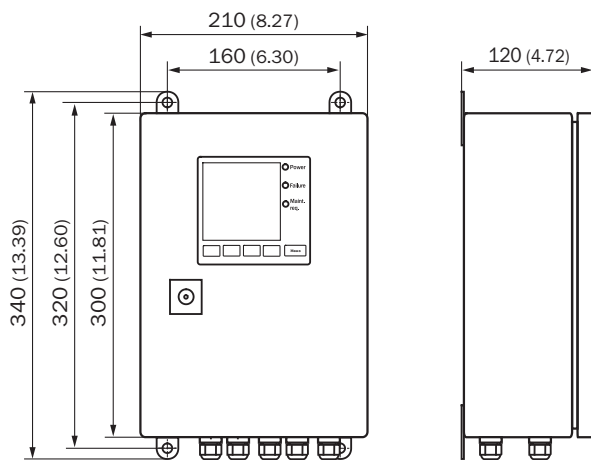
Description	Unit to provide dust-free air for flushing of optical surfaces	
Gas flow rate	38 m ³ /h ... 63 m ³ /h At 30 hPa counter pressure, depending on low pressure inside the filter	
Ambient temperature	-20 °C ... +40 °C	
Enclosure rating	IP 54	
Dimensions (W x H x D)	550 mm x 550 mm x 258 mm (for details see dimensional drawings)	
Weight	18 kg	
Power supply	Three-phase current	3-phase, Δ: 200 ... 240 V, 50 Hz, 2.6 A, 350 W 3-phase, Δ: 220 ... 275 V, 60 Hz, 2.3 A, 450 W 3-phase, Y: 345 ... 415 V, 50 Hz, 1.5 A, 350 W 3-phase, Y: 380 ... 480 V, 60 Hz, 1.3 A, 450 W
Auxiliary gas connections	Purge air: 40 mm	
Test functions	Pressure switch (switching point -35 hPa)	
Integrated components	2-step air filter, type Europiclön, dust capacity 200 g	

Dimensional drawings (Dimensions in mm (inch))

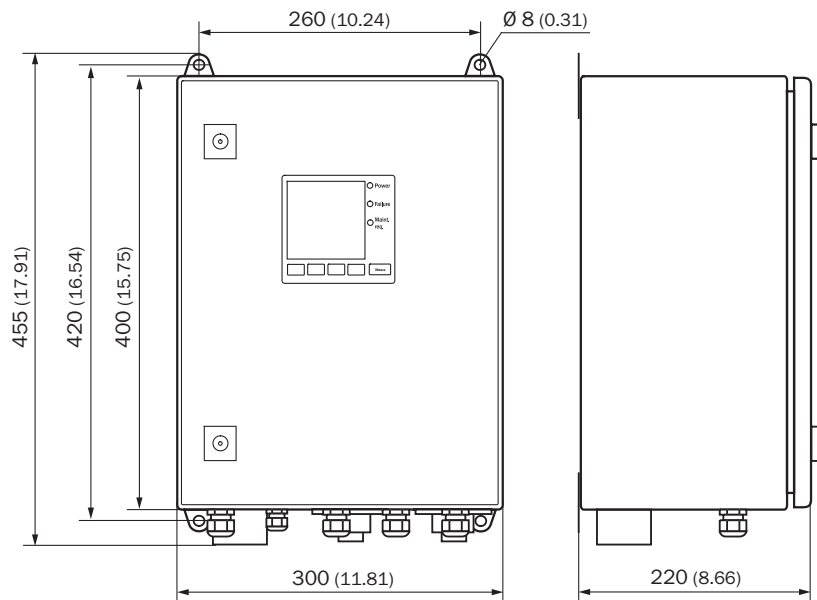
DHSB-T10/-T11 sender/receiver unit



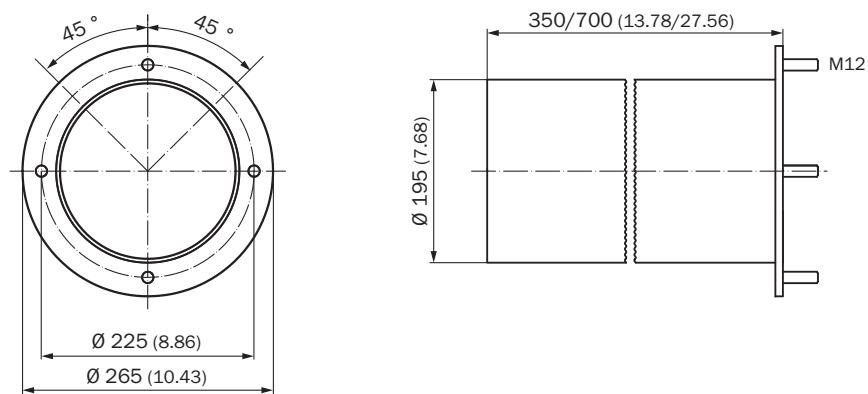
MCU-N control unit; wall-mounting enclosure, compact version (for non-hazardous areas only)



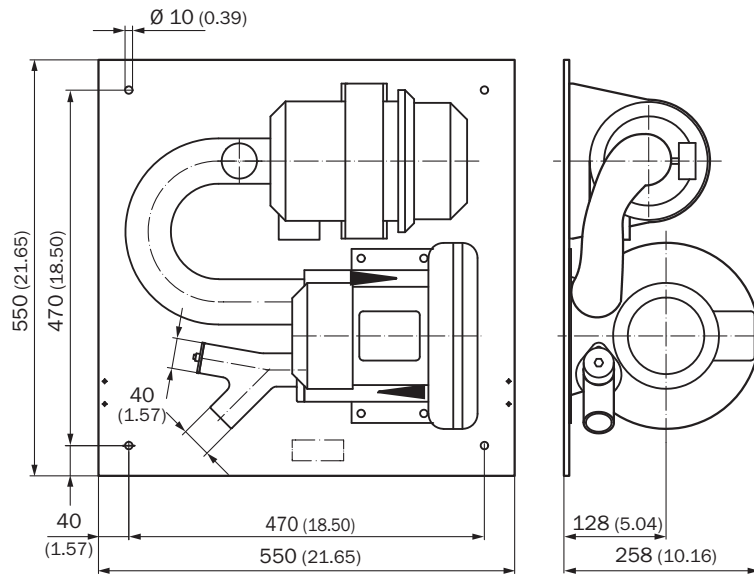
MCU-P control unit; wall-mounting enclosure, compact version (for non-hazardous areas only)



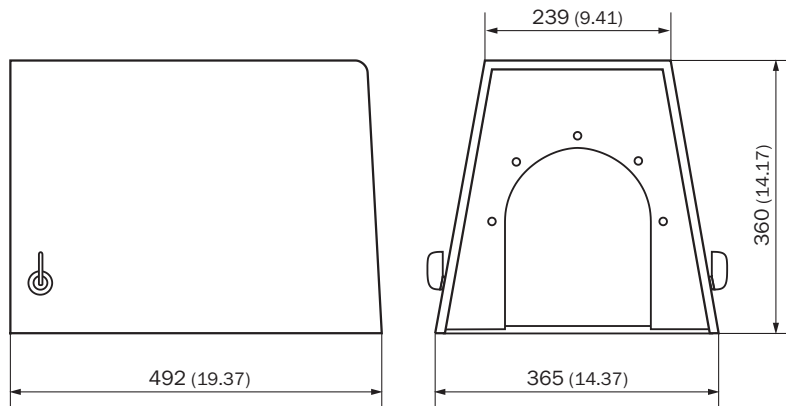
Mounting flange, $D_f=195$ mm



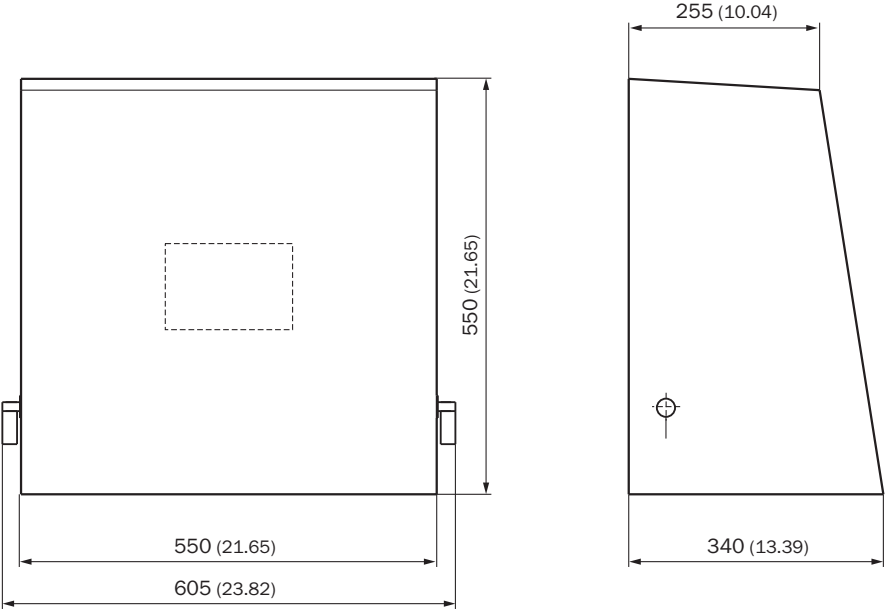
SLV4-2 purge air unit, 2BH1300



Weather hood for DHSB/DHSF-R1/DHC-R1



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.”

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