

Version L10.3 August 26

Datasheet

Dustlight is a wearable fine dust measuring device for use in crafts and industry. It measures respirable dust as well as the particle sizes PM1, PM2.5, and PM10. The integrated, visible light surfaces around the device indicate the current dust exposure via a traffic light system, high-resolution display, and acoustic warning signal. The basis for this is the material-specific dust limit value for respirable dust in accordance with locally applicable legal regulations.



AREA OF USE

Measurements taken with Dustlight should be understood as **indicative measurements**. The device is used for prevention and assists in the early detection of elevated dust concentrations. Although it is not intended for legally binding verification of occupational exposure limits, typical areas of application include:

- Continuous monitoring of the effectiveness of protective measures
- Evaluation of extraction and ventilation systems
- Analysis of concentration trends over time
- Qualitative assessment of dust-intensive work processes
- Localization of dust sources

DISPLAY AND DATA STORAGE

- Display of the current measured value, TWA, STEL and the shift average value directly on the device
- Display of the dust curve over time on the screen
- Storage of measurement data on the device
- Synchronization and evaluation via the mobile app

MOUNTING SYSTEM

Dustlight features the modular Klick Fast® system on the back, allowing the devices to be worn securely on the body. Available systems include belt loops, chest straps, Velcro wristbands, and clothing attachments.

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APP AND SOFTWARE

Dustlight can be connected to the free Dustlight app via Bluetooth:

- Measurement data is visualized and evaluated
- Device settings are adjusted
- Limit values are configured
- Data is exported (e.g., CSV)

In combination with the Business or Corporate software plans, cloud storage, PDF export, web app, exposure analysis (STEL, TWA), event logging, and advanced evaluations are also available.

ROBUSTNESS

Dustlight has several protective mechanisms to ensure long-term measurement stability:

- Filtered air curtain to protect the optical measuring unit
- Pre-separation chamber and stainless steel pre-filter
- Self-cleaning cycles to reduce deposits

These measures protect the sensor technology even in dust-intensive environments and increase the service life of the system.

MATERIAL-SPECIFIC CONFIGURATIONS

In addition to the standard configuration for general dust, material-specific configurations are available. These take into account the different optical properties and densities of the respective materials and adjust the evaluation accordingly.

Available configurations include, for example:

- Wood dust (hardwood and softwood)
- Welding fumes
- Silica
- Oil mist
- Aluminium oxide
- Diesel particulate matter (DPM)

Development is based on gravimetric and optical comparative measurements in collaboration with the Institute for Hazardous Substances Research (IGF). Individual material-specific adjustments are available upon request.

MAINTENANCE

To ensure measurement accuracy, regular maintenance is required at least every 12 months. Only devices that are serviced within the specified maintenance intervals guarantee consistent measurement accuracy over their entire service life.

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Product Name	Dustlight 23003.3
Article Number	23003.3.1, 23003.3.2 (with Temp & Humidity Sensor)
Dimensions	Length x Width x Height: 69 x 69 x 32.5 mm without clip
Weight	149 g
Package content	Dustlight Device, magnetic USB charging cable, Calibration Certificate, Quick Start Guide
Housing material	Base housing in PC/ABS, sheathing in TPU
IP Rating	IP4X
Power supply	**Internal operating voltage:** 3.7 V. Rechargeable Li-ion battery (1700 mAh), via the included magnetic USB cable with 5 V LPS power supply. The device can be continuously used while charging. Battery according to IEC 62133-2, transport approval according to UN/DOT 38.3.
Electrical safety	Overvoltage Category I, in accordance with IEC 61010-1 Pollution Degree 2, in accordance with IEC 60664-1
Certifications/ Approvals	IC EN 61010-1

Storage Conditions

Temperature	-20 to +40 °C	**Humidity**	0 – 80 % RH, non-condensing

Operating Conditions

Temperature	-10 to +40 °C	**Charging temperature**	0 to +30 °C
Humidity	0 – 80 % RH, non-condensing		
Operating Pressure Range	700 to 1100 hPa (corresponds to approx. -300 to +3000 meters above sea level)		
Alerting	LED sidelights with good visibility, LCD color display, audible signal		
Limit values	Red alarm preset to country specific respirable dust limits, depending on country selection in the app. Yellow warning at 10% of the limit. Limit values can be adjusted via the free Dustlight app.		
Measurement method	Photometric (laser-based)		
Measurement interval	Depending on the selected mode from second to minute, after startup up to 30s to the first stable measured value. Up to 6 months of storage on the internal storage (minute values).		

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Dust Readings

Measuring range	Concentration: 0 – 10 000 µg/m³ Resolution: 1 µg/m³ Particle size: 0.3-10 µm	
Accuracy for PM1 and PM2.5*	0-100 µg/m³:	± 5 µg/m³ AND ± 5 %
	100-5.000 µg/m³:	± 10 %
Accuracy for respirable dust and PM10*	0-100 µg/m³:	± 25 µg/m³
	100-5.000 µg/m³:	± 25 %
Material Configurations	Standard configuration for general dust included. In addition, the following configurations are available, among others - Wood Dust - Welding Fumes - Silica Dust - Oil Mist - Aluminium Oxide - Diesel Particulate Matter (DPM)	

Temperature Readings (15-30°C, 50 %rH), applies only to Dustlight 23003.3.2

Typical accuracy	± 2 °C
Resolution	1 °C

Humidity Readings (25°C, 30-70 %rH), applies only to Dustlight 23003.3.2

Typical accuracy	± 5 %
Resolution	1 %
Maintenance	Every 12 months according to the maintenance date shown on the device.
Attachment	Modular Klick Fast attachment system on the back of the device for attachment to belt clip, velcro/patch on clothing, carrying strap, etc.
Production and sustainability	Dustlight is developed and produced in Germany. All modules/ housing parts can be replaced.

*Initial sensor calibration and accuracy definition is performed by an external laboratory using the TSI DustTrak DRX8533 and a KCl solution. The material calibrations are validated by an external laboratory using the "Grimm Model 11-D" measuring device and the "Arizona A1" test dust.

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