Dustlight

User Manual

23003.3 DUSTLIGHT

Personal Dust Monitor



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Dustlight

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1 Product and manufacturer

1.1 Product

The following product is described in these operating instructions:

DUSTLIGHT Model number: 23003.3

Serial Number: _____

You can enter the serial number here yourself; you will find it on the label on the back of the device at this point:



Please always refer to this information when enquiring about warranty and maintenance.

The content of these operating instructions is subject to unannounced changes, which are made available via our website. The instructions there always correspond to the latest publication and can be found at **www.dustlight.com**.

1.2 Manufacturer

Name and address	Latai GmbH Agnes-Pockels-Bogen 1, 80992 Munich, Germany
Email	info@dustlight.de
Internet	www.dustlight.com

1.3 Distributor (if applicable)

Name and address	
Email	
Internet	

2 Technical Data

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.
Battery	Runtime up to 40 hours, charging time approximately 3 hours
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 metres above sea level)		
Alerting	LED sidelights with good visibility, LCD colour 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).	
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 are performed by an external laboratory using the TSI DustTrak DRX 8533 and a KCl solution. The material calibrations are validated by an external laboratory using the Grimm Model 11-D and Arizona A1 test dust.

3 About these operating instructions

Please read these operating instructions carefully before commissioning. To ensure proper and safe use of Dustlight, it is essential to follow the descriptions and recommendations in these operating instructions.

3.1 Purpose

These operating instructions contain information on the safe, trouble-free, and economical use of Dustlight. This information is intended for people who carry out tasks in connection with Dustlight.

3.2 Availability

The operator shall make these operating instructions or extracts thereof available to persons who carry out tasks with or in connection with Dustlight. The operator shall keep these operating instructions or extracts thereof within easy reach in the immediate vicinity of Dustlight. If the Dustlight is handed over to another person, the operator shall pass these operating instructions on to that person.

3.3 Warnings

These operating instructions contain warnings of residual dangers.

The categorisation of the warnings is based on the severity of the damage that can occur if the warnings are ignored and the recommended actions are not followed.

Symbol	Meaning
	Warning: Indicates a potentially hazardous situation. If this is not avoided, death or serious injury may result.
Notice	Consequence of non-compliance: Material damage or environmental damage possible.

4 Basic safety instructions and warnings



Warning

Read and understand these operating instructions and those of the associated products carefully before using the product.

Failure to read, understand, and comply with ALL accompanying literature, instructions, product labels, and warnings could result in property damage, severe personal injury, or death.

- Follow the instructions for use exactly. All users must fully understand the instructions and follow them exactly. The product may only be used in accordance with its intended use.
- Do not dispose of the instructions for use. Storage and proper use by the user must be ensured.
- Read and understand ALL applicable environmental health and safety laws and regulations before operating this product. Ensure complete compliance with ALL applicable laws and regulations before and during the use of this product.
- DO NOT attempt to repair or modify the instrument, except as specified in the Operation Manual. If repair is needed, contact the manufacturer itself or specialised personnel trained by the manufacturer. Otherwise, Latai accepts no responsibility for the proper functioning of the product after repair and for the validity of approvals.
- Only original Latai parts and accessories may be used for maintenance work described in this manual. Failure to do so may seriously impair instrument performance. Repair or alteration of the product beyond the scope of normal operation specified in this manual, or by anyone other than an authorised Dustlight Service Partner, could cause the product to fail to perform as designed.
- Check the appliance before use. DO NOT operate this product should it malfunction, require repair, or have a cracked or broken case or other visible or known damage. Operation of a malfunctioning product, or a product requiring repair may result in serious personal injury or death. In such cases, contact the manufacturer immediately for a repair.
- Although the device is designed for harsh environments such as construction sites, it should be handled with care like all optical and electrical devices. After a fall or other mechanical impact, the device must be checked by Latai.
- If faults or failures occur in the product or product parts, stop using the product immediately and inform the manufacturer.
- Store the product only at temperatures between -20 °C and +40 °C and

away from solvents, exhaust gases or fuels. Do not operate this unit with corrosive gases or gases that condense.

- Only use the product indoors and in protected outdoor spaces. Protect the Dustlight from rain and moisture. The unit is not waterproof. NEVER submerge the unit in water or draw liquids of any type into the unit, as failure, faulting or user injury may result.
- Do not use the product in potentially explosive atmospheres.
- Do not open the product or throw it into a fire.
- This product uses rechargeable lithium-ion batteries. Always fully charge before use.
- DO NOT attempt to deeply discharge the battery.
- DO NOT open the Dustlight, charge or replace batteries in an explosive atmosphere.
- Use only the charging cable provided for the Dustlight. Caution: The unit may become warm during charging.
- Dustlight batteries may only be replaced by an authorised Dustlight Service Partner. Batteries must be promptly disposed of in a manner that corresponds to local regulatory requirements for Lithium Batteries.
- Keep away from children.
- The battery used in this device may present a risk of fire or chemical burn if mistreated. Do not disassemble, heat above 40 °C or incinerate.
- Use of another battery may present a risk of fire or explosion. Do not disassemble or reconstruct battery assembly. The battery assembly has safety functions and a protection circuit to avoid danger. If those have serious damage, the assembly may generate heat, smoke, rupture, or burn.
- Do not short-circuit battery assembly. Do not connect the + and - terminals with metals (such as wire). Do not carry or store the battery assembly with metal objects (such as wire, necklace, or hairpins). If the battery assembly is short-circuited, excessive large current will flow and heat generation, smoking, rupture, or burning can occur. In addition, it causes heat generation at metals. These cause the melting of insulator, damage of gas release vent or safety function, or ignition of electrolyte. The above-mentioned actions cause heat generation, smoking, rupture, or burning.
- Keep the battery away from excessive heat and direct sunlight. Do not place it on heating devices such as microwave ovens, stoves or radiators. Battery may explode if overheated.
- IMPORTANT NOTICE FOR USE IN HEALTHCARE ENVIRONMENTS: This device is not a medical device and is not listed under UL or IEC 60601 (or equivalent). This device should be kept at a certain distance to avoid harmful effects to patients or medical equipment.

- DO NOT open the Dustlight, as laser radiation is present inside the device:

	Warning - Laser radiation - Class 1
	This device includes a laser radiation source with a wavelength of 660 nm and less than 0.39 mW of power. It fulfils the safety requirements of laser class 1 in accordance with IEC 60825-1:2014 and is classified as safe. Do not modify or disassemble the device as this can lead to significant safety risks.

4.1 Intended use

The Dustlight is intended exclusively for the following use:

The Dustlight is a device for monitoring the concentration of dust at workplaces and is used exclusively for measuring dust in the air, visualising the measured values and recording this data (logging function). It is intended for use in work rooms or other locations in buildings on the premises of a company, on construction sites and at similar workplaces in accordance with the German Workplace Ordinance (ArbStättV).

The device is designed to operate in various environments within specified environmental conditions and within its calibrated measurement ranges. Using the Dustlight outside of these parameters specified in the data sheet or for other measured variables than those intended can lead to inaccurate results and damage the device or its sensors.

Storage temperature: - 20° to + 40 °C

Operating temperature range: - 10° to + 40 °C

Charging temperature range: 0° to + 30 °C

Operating humidity range: 0 - 80 % RH, non-condensing

The Dustlight is in no way intended for the purpose of process control or as the sole tool for workplace assessment. It only provides supporting information for the assessment of increased dust concentrations and is not based on a gravimetric measuring principle. Therefore, it cannot be used for the comprehensive assessment of workplace conditions. It is a tool to support health and safety in the workplace but should not be used as the sole basis for deciding on safety measures.

If there are contradictory statements about the risk level between the Dustlight and the applicable occupational safety guidelines, the applicable occupational safety guidelines must always be followed. For personal protection, it is recommended to always follow the statement that requires or recommends stricter protective measures (safety principle).

In case of high exposure levels or device failure, immediately stop work, remove affected personnel from the area, and contact your safety officer. Always prioritise stricter protective actions.

Any use of the Dustlight that goes beyond the intended use is considered improper use. The manufacturer accepts no liability for damage resulting from such use. Intended use also includes observing and complying with all instructions in the documentation supplied with the product.

Any other use is not in accordance with the intended use.

4.2 Reasonably foreseeable misuse

The Dustlight is designed as a dust monitor for use in commercial and industrial environments. While the device is optimised for these environments, we must consider some reasonably foreseeable misuses to ensure the safety and effectiveness of the product. The misuses described below represent some unauthorised uses of the appliance. However, this list is not exhaustive and does not claim to be complete.

Incorrect usage:

Ensure that both the air inlet and outlet are not covered by clothing or other objects at any time. In addition, the air inlet on the front of the Dustlight should always point in the user's line of vision and be positioned close to the airways.

Dirty or damaged air inlet or air outlet:

The DUSTLIGHT is equipped with stainless steel filters at the inlet and outlet to protect the internal air ducting and sensors from coarse and excessive dust. Dirt can change the properties of the filters. If dirt or damage is detected on the filter, stop operating the appliance and replace the damaged, dirty or clogged filter immediately with an original spare part as described in the Maintenance section.

Use in non-target environments:

A foreseeable misuse could be that the Dustlight is used in environments that are outside its specification, such as in areas with excessive humidity, potentially explosive atmospheres or under the influence of splash water.

Overinterpretation of the measured values:

Users may mistakenly assume that the Dustlight can be used for comprehensive workplace assessment or as the sole tool for determining safety measures. However, the device is only intended as a tool for assessing fine dust concentrations. Furthermore, the device alone does not protect against excessive exposure to dust, nor can it clean the air. Appropriate protective measures must always be taken by the person using the device and are their sole responsibility.

WARNING – Misinterpretation of Data

Do not use Dustlight as the sole basis for safety decisions.
Dustlight is not a gravimetric instrument and does not replace regulatory compliance measurements. The Dustlight is not certified for compliance with OSHA workplace exposure standards. It provides indicative readings only and must not be used as a regulatory compliance tool.
Improper reliance may result in unrecognised exposure to harmful dust without adequate protective measures.

Use as an instrument for process control:

Another foreseeable misuse could be that users use the Dustlight for the direct control or regulation of work processes, although it is not intended for this purpose.

Carelessness or lack of concentration:

Users may fail to take the necessary protective measures due to carelessness or lack of concentration, even if the Dustlight indicates high concentrations of dust and issues a warning. Naturally, the Dustlight cannot check the implementation and effectiveness of suitable personal protective measures.

Incorrect or untrained staff:

This product is intended for use by trained professionals of legal age only. The manufacturer accepts no liability for damage or injury caused by untrained use.

4.3 Tasks and qualifications of staff

Work with and on the product may only be carried out by instructed people with the necessary knowledge and experience.

4.4 Power Supply Requirements

To ensure safe operation and compliance with safety standards, only connect the Dustlight to USB power sources that are classified as Limited Power Sources (LPS) according to IEC/UL 60950-1 or IEC/UL 62368-1.

Suitable power sources include USB ports on standard computers or laptops and USB wall adapters with an output of 5 V DC, marked with CE or UL. Do not use USB chargers that provide more than 5 V or lack certification markings. This may result in non-compliant operation or safety risks.



WARNING – Improper Power Source

Use only certified USB power sources.
Connect only to USB chargers labelled with CE, UL, or equivalent certification and an output of 5 V DC.
Using uncertified power supplies may result in overheating, malfunction or fire.

4.5 Notes on occupational health and safety

The operators of the Dustlight are responsible for implementing the occupational health and safety obligations. The health and safety regulations of the country in which the Dustlight is used apply.

Operators must be trained in the use of this product and are responsible for implementing appropriate safety measures. Dustlight does not replace legally mandated monitoring systems or professional judgement.

The obligations include the following points:

- These operating instructions or extracts must be made available to all persons who carry out tasks with or in connection with the Dustlight
- Provide the applicable documents to these persons
- Instruction of persons regarding the intended use and misuse
- Instruction of persons regarding protective devices and supplementary protective devices
- Instruction of persons regarding residual risks

This list is not exhaustive and does not claim to be complete.

4.6 Limitation of Liability

This device is intended for informational use only and must not be relied upon as the sole basis for any occupational health or safety decision. Latai GmbH shall not be held liable for any direct, indirect, incidental, or consequential damages resulting from the use, misuse, or interpretation of this product or the data it provides. Latai shall in no event be liable for any lost profits, loss of information or data, special, incidental, indirect, punitive or consequential or incidental damages, arising in any way out of distribution of, sale of, resale of, use of, or inability to use the Product. In no event shall Latai's liability exceed the retail purchase price of the Product. Use of the product indicates acceptance of this limitation.

5 Description of the DUSTLIGHT

This section contains information for a better understanding of the Dustlight and its functions.

5.1 General product description

The Dustlight is a fine dust measuring device with a direct and language-neutral display of the current dust level. The device was designed for orientating measurement in working environments where fine dust poses a health risk. The device is designed for portable and mobile use and works with an internal operating voltage of 3.7 V, which is provided by an internal rechargeable battery. The Dustlight is used to monitor the concentration of fine dust particles in the air and provide users with direct feedback on the air quality in the workplace using a simple colour system in green, yellow and red and the integrated high-resolution colour display. Dustlight provides information about the size distribution of the particles but cannot give details about the material properties of the dust.

The Dustlight is an orientational measurement and does not replace the occupational exposure limit value measurement as part of the risk assessment.

5.2 Operation and utilisation

The Dustlight is intended exclusively for use by the following user groups in the utilisation environments and operating modes described. In all other scenarios, it must be assumed that the device is not being used as intended.

Utilisation groups:

Commercial and industrial users: The Dustlight is specially designed for use in commercial and industrial working environments. It is aimed at trained professionals who work in areas where it is important to monitor fine dust concentrations, such as on construction sites, in workshops or in industrial production facilities.

Utilisation environment:

On roofed areas and in rooms enclosed on all sides: the Dustlight is optimised for use indoors, such as factory halls or workshops.

The device is not intended for use in splash water, including rain, in potentially explosive atmospheres or under extreme environmental conditions. The environment must correspond to the areas specified in the data sheet.

5.3 Warning for explosive areas



WARNING – Not for Use in Explosive Atmospheres

Risk of fire or explosion.
Dustlight is not intrinsically safe and may not be operated in potentially explosive environments.
Failure to follow this instruction may result in serious injury or death.

5.4 Operating modes:

The operating modes of the Dustlight can be divided into four states:

1. **Setup**: This mode is used to initialise and calibrate the device before use or after maintenance. This also includes establishing a wireless connection with the Dustlight app.
2. **Charging the battery:** The Dustlight is connected to the mains via the magnetic charging cable and a USB power supply, and the internal battery is charged. While charging, the device can be in both measuring mode and standby mode.
3. **Measuring mode:** This is the normal operating mode of the Dustlight after it has been activated via the power button. In this operating mode, the LED sidelights and the display light up and the measurement is active. To preserve battery, Dustlight changes to idle after some time.
4. **Idle:** Dustlight switches to this operating mode after the time configured in the operation mode settings in the app. In this mode the Dustlight still measures but takes different ways like dimming the light and display to preserve battery.
5. **Standby:** Activated by long pressing the On/Off button. In this mode, the Dustlight does not measure, and the display and sidelights are deactivated. Due to the integrated rechargeable battery, the device's electronics are still energised.

Notice

The Dustlight is not intended for process control or as the sole tool for comprehensive workplace assessment.

Intended use also includes compliance with all safety and operating instructions described in the documentation supplied with the appliance.

The precise definition of these types of use and operating modes is intended to ensure that the Dustlight is only used in suitable environments and by qualified, trained personnel.

5.5 Control elements:

The Dustlight only has a single button as a control element, which is located on the right-hand side of the housing in the upper third. To protect it from dust, the button is integrated into the flexible part of the housing and is haptically labelled with an on/off symbol. The button distinguishes between a single, short press to navigate and a long press (hold down) to switch the device on and off.

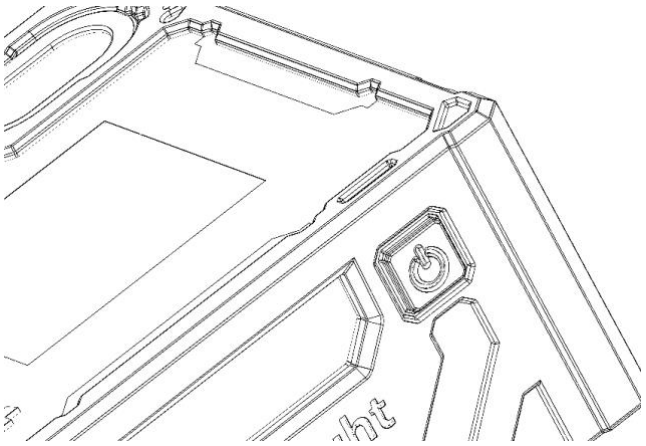


Illustration 1: Button for controlling the DUSTLIGHT

5.6 Optical display devices

The Dustlight has two optical indicators, the LED sidelights (1) and the display (2).

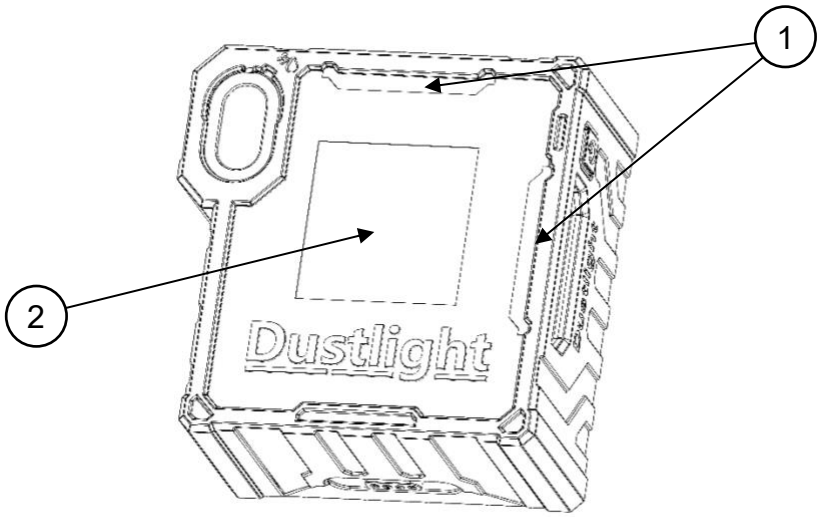


Illustration 2: Front view of the device

5.7 LED sidelights

The sidelights are located on the front, top and right-hand side of the device and can cover the RGB colour spectrum. The meaning of the colours in detail is shown in the following table:

Colour		Meaning
Green		The current measured value is below the warning threshold and the limit. **In AQI mode: The AQI is in the first category (Good).**
Yellow		The warning threshold has been reached, there is a clear exposure to fine dust particles. Preventive measures should already be taken here to reduce the release of dust. **In AQI mode**: The AQI is in the second category (Moderate).
Orange		**In AQI mode**: The AQI is in the third category (Unhealthy for sensitive groups).
Red		The limit value was exceeded, and the dust concentration is in a range that is harmful to health in the long term. More effective measures should be taken to avoid dust and personal protective equipment should be worn if dust exposure cannot be avoided. **In AQI mode**: The AQI is in the fourth category (Unhealthy).
Blue		The device is waiting for confirmation of the wireless connection with a smartphone and the Dustlight app. Please press the button on the Dustlight to confirm the connection.
Magenta		There is an error on the device. Please check the display and try to rectify the fault using the help in section 11.4 or contact the manufacturer.
Deep Violet		**In AQI mode**: The AQI is in the fifth category (Very unhealthy).
Brick Red		**In AQI mode**: The AQI is in the sixth category (Hazardous).

In STEL & TWA screen: When a short-term value is reached, Dustlight signals it with **four flash pulses** together with five beeps, in yellow or red depending on the level. If the exposure stays too high, the device reports again **every five minutes.** And if the situation worsens from yellow to red, it warns immediately, without waiting for the five-minute interval. After the STEL warning, the LED sidelights return to their normal status colour, based on real-time readings.

5.8 Display

The device also has a high-resolution 1.54" LCD colour display. In addition to the start page, the Dustlight has four other displays with different content, which are explained below.

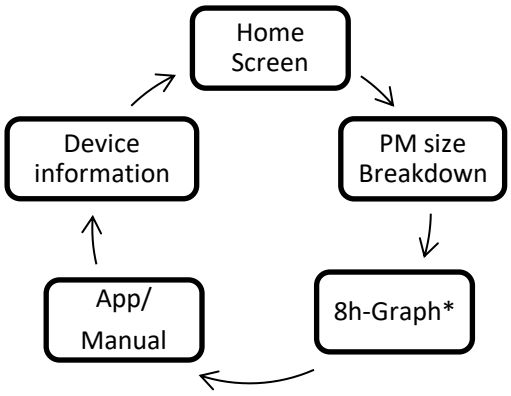


Illustration 3: Menu system of the Dustlight

To switch between the displays, briefly press the side button to move one display to the right. After the fifth display, the first display appears again.

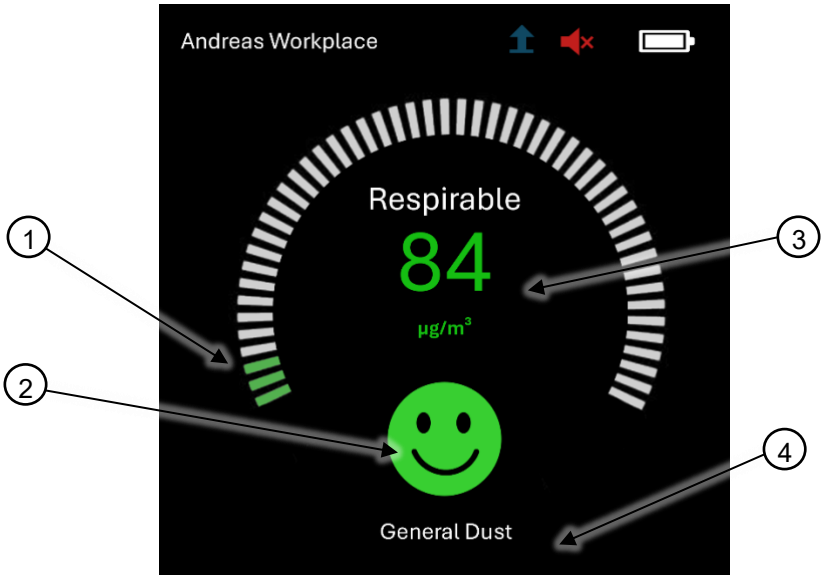
*In the AQI mode, the 8-hour graph is not shown on the device screen.

Status bar



Meaning	
1	Device name (can be changed in the settings)
2	Wireless communication disabled, connection only via USB
3	“No-storage mode” activated
4	Synchronisation with the app in progress
5	Blue: Dustlight is connected to the app via a wireless connection White: Dustlight is connected to the app via USB
6	Acoustic warning is turned off
7	The Dustlight has lost the time. Please connect it to the app to update the time.
8	Battery charge status, the flash indicates that the battery is currently being charged.

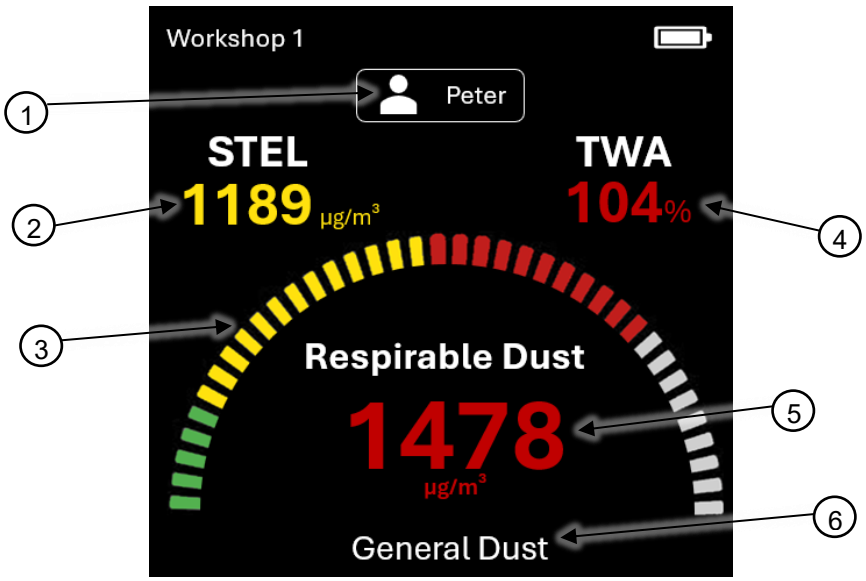
Home Screen: Smiley and Warning Theme



Meaning	
1	Scale representation of the current dust pollution
2	Graphic display of the current warning level, depending on the setting in the app, this can be a smiley or Warning Symbol.
3	Value of the current respirable dust concentration in µg/m³
4	Currently selected material configuration

Home Screen: Exposure Theme with STEL / TWA

This screen is available on every Dustlight and in every software plan and replaces the Smiley/Warning Theme screen. It can be selected under Device Settings → Theme → Exposure Theme.



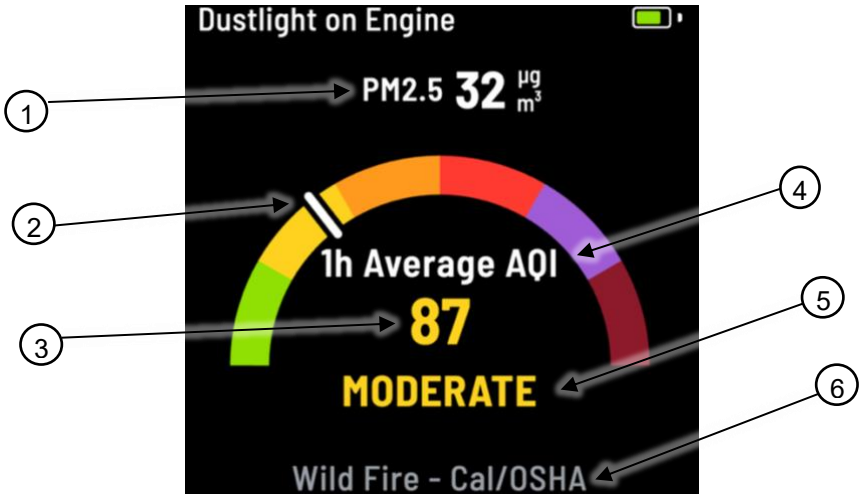
Meaning	
1	Name of the current user account selected (not yet available in the app, subject to a future update)
2	Current STEL (15-min average) value with colour-coded warning: Yellow when the 15-minute average exceeds the TWA limit. Red when the 15-minute average exceeds the STEL limit.
3	Scale representation of the current dust pollution
4	Current TWA dose (in per cent) with colour-coded warning: Green up to the defined warning threshold. Yellow between the warning threshold and the TWA limit. Red when the daily TWA limit has been exceeded.
5	Value of the current respirable dust concentration in µg/m³
	Currently selected material configuration

The sidelight and the acoustic signal follow the real-time reading, as they do without STEL and TWA — green, yellow and red always show the dust concentration at that moment. On top of that, the short-term logic adds an alert of its own. When a short-term value is reached, Dustlight signals it with four flash pulses together with five beeps, in yellow or red depending on the level. The sidelight then returns to its normal status colour, based on real-time readings. If the exposure stays too high, the device reports again every five minutes. And if the situation worsens from yellow to red, it warns immediately, without waiting for the five-minute interval.

Home Screen: Air quality index for wildfires (Wildfire AQI)

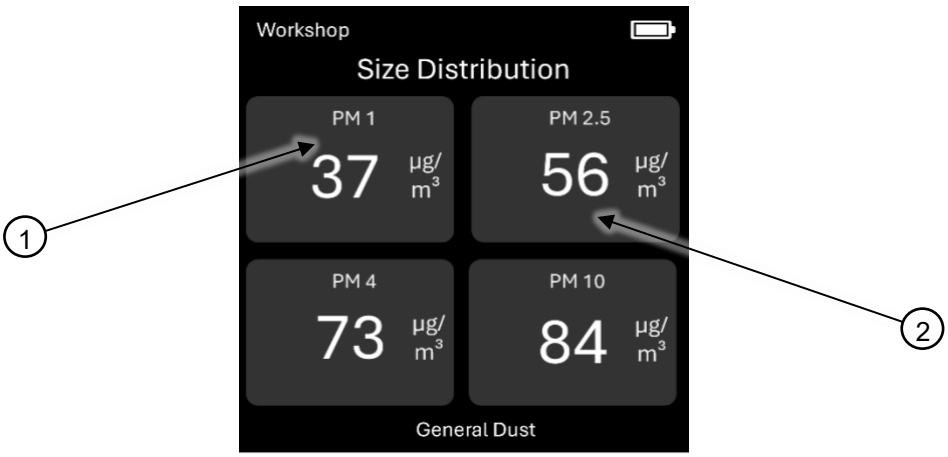
In addition to the dust concentration, the Dustlight can display a wildfire air quality index (Wildfire AQI). The index is calculated from PM2.5 readings. The index that applies in the customer region can be selected in the app: US EPA or Cal/OSHA and the averaging period: one minute or one hour average.

The air quality index is shown on the device only. Evaluation of the index in the software – history, trends and reporting – will be available in the future. It can be selected under Device Settings → Theme → Wildfire AQI.



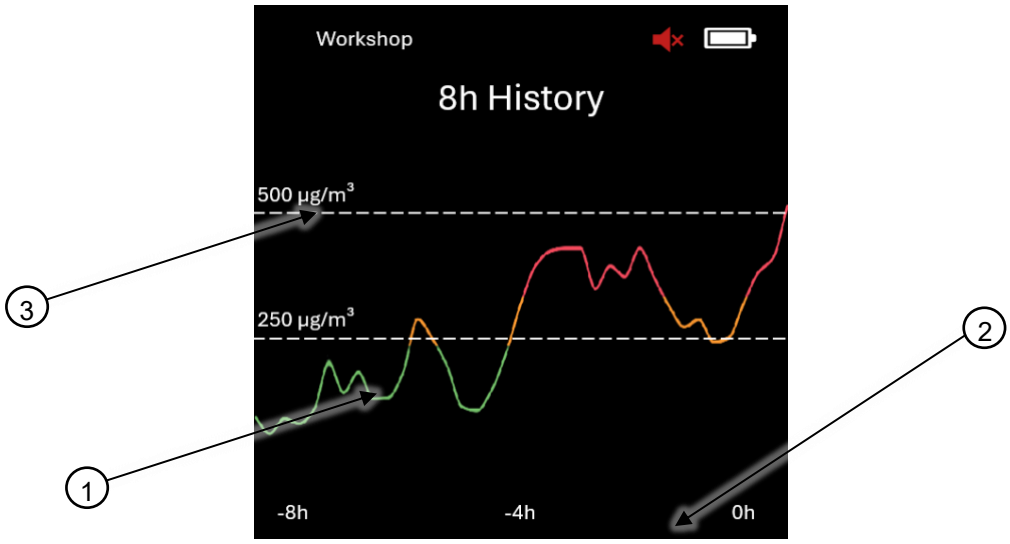
Meaning	
1	Current PM2.5 concentration, updated every second
2	Position of the current AQI-value on the scale
3	Current AQI, based on the selected standard and averaging period
4	The six AQI-categories from 0 (green) to 500 (dark red)
5	Category in written text
6	Currently selected configuration and AQI Standard

Size distribution



Meaning	
1	Current concentration of that size fraction in µg/m³
2	Size fraction 1µm, 2.5µm, 4µm or 10µm

History graph



Meaning	
1	Graph of the measured values
2	X Axis with the last 8 hours
3	Y Axis scaled automatically according to peak measurements

More screens



The QR code displayed can be scanned with a mobile phone (some models require an app for this) and takes you to your Dustlight website. Here you will find further information, the operating instructions, and the download links for the app for Android and iPhone.



The last screen displays device information, including the software version of the Dustlight, the country in which the Dustlight is operated and its applicable limit values which are automatically adopted via the app.



This screen appears during the first startup of the Dustlight. Please scan the QR code and download the app or open the web app and connect your Dustlight. This is important, so your Dustlight knows in which country it is being used, and the correct limits are selected. After the first connection this screen will not be shown again. You can dismiss this screen by clicking the button.

5.9 Acoustic warnings

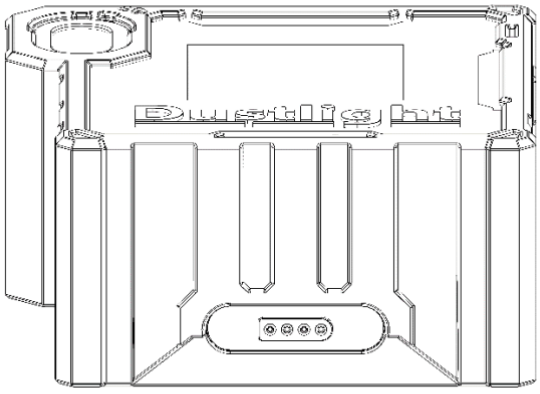
The Dustlight features an acoustic warning which can be activated and deactivated via the app as required. Three types of acoustic signals are implemented:

Meaning of the signalling tones	
One short beep	First warning level reached, the device changes from green to yellow and confirms this with a single beep.
Three short beeps	The limit level is reached and the device changes from yellow to red and confirms this with three short beeps in quick succession.
Five short beeps	When a short-term value is reached, Dustlight signals it with four flash pulses together with five beeps. If the exposure stays too high, the device reports again every five minutes. And if the situation worsens from yellow to red, it warns immediately, without waiting for the five-minute interval.

5.10 Interfaces

The Dustlight has a four-pin magnetic connection on the underside of the device. This is used to supply the device with power via the pin connector of the original USB charging cable and, from firmware 3.6.0 also to transfer measurement data to the Dustlight web app – either with the charging cable or through the docking station. Due to its design, the connection is protected against dirt, splash water, short circuits, overvoltage and reverse polarity.

Transferring data to the web app via USB requires the Business or Corporate plan. This is also the only way to retrieve measurement data from a device on which privacy mode has disabled the wireless connection.



To connect to the free Dustlight app, the device has a wireless connection. Further information on downloading, setting up, connecting, and using the app can be found in section **8 Setting up the Software.**

6 Assembly

The appliance is delivered ready for use and no further assembly steps are required before commissioning.

The Dustlight is supplied with a plastic clip that can be used to attach it to clothing.

Disassembling the clip

To remove the clip, loosen the Phillips screw on the back of the device in the clip by turning it anticlockwise. The clip and the screw can now be removed and replaced with the Klick Fast® connector or a new clip.

Mounting the Klick Fast® connector

To do this, insert it into the cloverleaf-shaped recess on the back of the device in the orientation shown and secure it by turning the enclosed screw clockwise. Make sure that the U-shaped opening of the adapter points towards the top of the Dustlight.

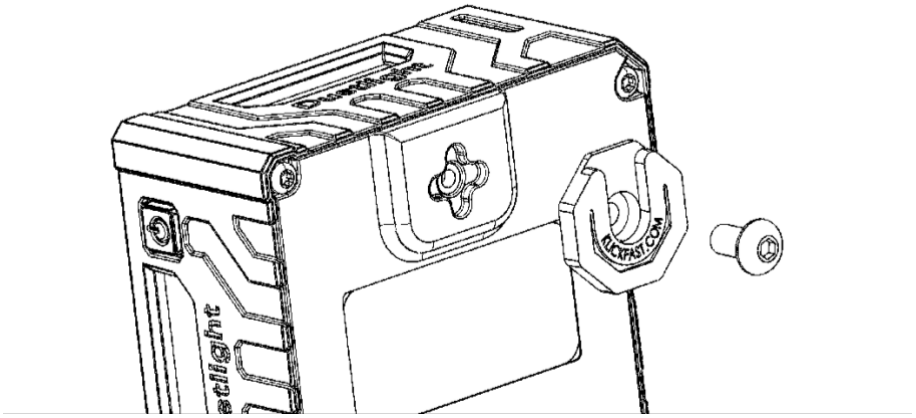


Illustration 5: Mounting the Klick Fast® connector

The screws supplied are already coated with screw locking varnish to prevent accidental loosening of the screw. If the screw is opened several times, we recommend replacing it with a removable screw locking varnish or using a new screw.

⚠	**Warning**
Only use the screws supplied and never use longer screws than intended. Failure to do so may result in serious damage to the appliance and injuries. Do not use permanent screw locking varnish.	

Klick Fast® system

If a fall-proof attachment to clothing, helmets or stationary equipment is required, this clip can be exchanged for our Klick Fast® connector, allowing the Dustlight to be used with all certified Dustlight accessories from the Klick Fast® range.

To insert the Dustlight with mounted connector simply slide it into the accessory until you hear a clicking sound.

To remove it, turn the Dustlight 180 degrees and slide it out of the accessory.

The following accessories are available:

Item number	Name
23004.1	Klick Fast® - Leather loop for belts
23005.1	Klick Fast® - Replacement clip
23006.1	Klick Fast® - Wristband black
23007.1	Klick Fast® - Clothing fastening
23008.1	Klick Fast® - Chest strap
23011.1	Klick Fast® - Connector

To order, please order directly via our website at www.dustlight.com or write to us at info@dustlight.de, where you will receive further information on prices and delivery times.

7 Commissioning and setup

7.1 Commissioning the DUSTLIGHT

The battery must be fully charged before use. To do this, remove the Dustlight and the supplied USB charging cable from the packaging and charge it as described in section 10.2, Charging the DUSTLIGHT.

Before each start-up, check that the appliance, in particular the air inlet and air outlet grilles, are free from visible **damage** and, if not, contact the manufacturer or replace the air grille yourself as described in section 12.

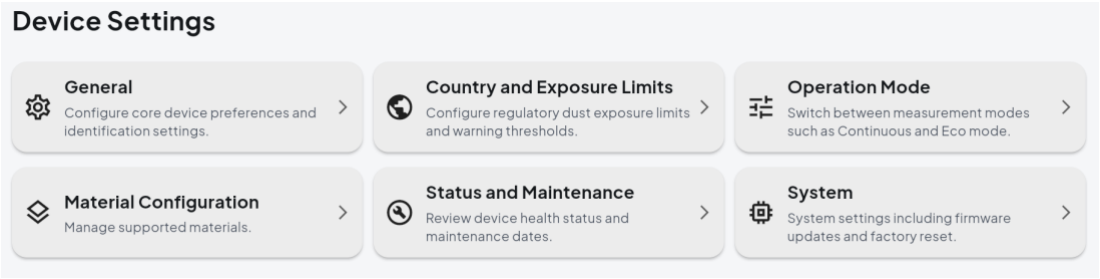
Before each use, check that the appliance, in particular the air inlet and air outlet grilles, are free of visible **dirt** and clean them with a damp cloth or brush. If there is dirt such as dried paint on the air inlet grille that cannot be removed, replace it as described in section 12.

7.2 Setting up DUSTLIGHT

The Dustlight can be used immediately after purchase and does not necessarily require calibration, setup or connection to the Dustlight app to start measuring.

However, to be able to use the full range of functions of the Dustlight, we strongly recommend downloading and setting it up via the app, as this is the only way to make settings on the device, adjust limits and visualise the measured values.

The following parameters can be adjusted via the app:



General

This page holds the basic settings for an individual Dustlight. Device name sets the name under which the device appears in the app and in reports. Acoustic warning makes Dustlight sound a tone in addition to the warning light whenever an exposure limit is exceeded. Device theme determines what the display shows — the dust concentration, the exposure metrics (STEL / TWA) or the air quality index (AQI). Device language applies only to the text on the Dustlight itself, not to the language of the app.

Under Advanced you will find two settings with far-reaching consequences: with No Storage Mode, Dustlight measures and warns as usual but stores no measurement data — no history, shift reports or exports will be available for that period. Disable Bluetooth permanently cuts the device off from the mobile app; it can then only connect to the web app via USB.

Country and exposure limits:

This page defines the exposure limits Dustlight measures against. Country is the fastest route: select the country you work in, and Dustlight applies that country's statutory limits automatically — for Germany, an 8h-TWA of 1250 µg/m³.
The two entries under Dust Limits set the colour thresholds on the device: the 8h-TWA Exposure limit is the point at which the indicator turns from yellow to red, and the 8h-TWA Warning Limit the point at which it turns from green to yellow. The warning limit defaults to 10 % of the exposure limit, so you can see a trend developing before the limit itself is reached.

In addition, all values can be customised to meet specific operational requirements such as materials with stricter limits.

Turn on Extended Workshifts if your shifts run longer than eight hours — Dustlight then scales the limits using the Brief & Scala model, since the same concentration adds up to a higher dose over a longer shift with less recovery time in between.
Advanced Settings for Workplace governs the short-term values: the STEL Exceedance factor sets how far the 15-minute average may exceed the TWA (factor × TWA), the Allowed STEL Period Length how long a single excursion may last, the Number of Allowed STEL Periods how many are permitted in one working day, and the Time Between STEL Periods the minimum gap between two of them. All four are preselected from your country's regulations — change them only if you know the applicable rules.

Notice

Despite careful checking, it cannot be guaranteed that the limit values stored in the app always comply with the latest regulations due to the constantly changing legal framework. For this reason, the limit values set for the colour change are to be understood as examples. The responsibility for researching and correctly setting the limit values always lies with the user and not with the manufacturer of the Dustlight.

Operation modes

The Dustlight has three predefined operation modes that influence the measuring interval, brightness and therefore the battery life. In addition to the standard mode, which is activated ex works, the device has a continuous and an energy-saving mode. All below settings can be changed by the user, which switches the device to the operating mode “Custom”. Based on the settings applied, the Dustlight app shows the estimated battery runtime. Display and sidelights cannot be switched off at the same time, to show that Dustlight is running.

All modes distinguish between active usage and idle. After switching on, the device is in active operation, after a certain time it switches to idle, in which it continues to measure and warn, but depending on the mode, different measures are taken to save energy. As soon as the button is pressed, the

device switches back to active operation. The following table provides an overview of the different modes:

Operating mode:	Continuous	Standard	Eco
Change from active mode to idle after	5 minutes	5 minutes	30 seconds
Measuring interval Active Usage	every second	every second	every second
Measuring interval Idle	every second	60 seconds	60 seconds
Storage Interval	60 seconds	60 seconds	60 seconds
Wireless Connection	Permanently activated	Activated for 5 minutes after last button press	Activated for one minute after last button press
Sidelight brightness Active Usage	high	high	low
Sidelight brightness Idle	high	high	low
Display brightness Active Usage	high	high	low
Display brightness Idle	low	Display off	Display off
Battery life	up to 7 hours	up to 20 hours	up to 40 hours

Material Configuration

Dust does not scatter light the same way for every material — density and optical properties differ, so an optical sensor reads the same mass differently depending on what it is measuring. A material configuration adapts the measurement to a known environment and improves accuracy wherever you know what the dust consists of. Note the limit: Dustlight still cannot identify materials or determine what share a given material makes up of the total dust. The configuration adjusts the calculation; it does not analyse the composition. Material configurations are part of the Business and Corporate plan.

Under Default Materials you pick from the configurations shipped with Dustlight — from General Dust as the universal preset through to material-

specific ones such as Crystalline Silica, Wood Dust, or Oil Mist, plus Wild Fire for the AQI display. Entries marked with a padlock are not unlocked for your account; contact us to add them.

The Correction Factor Configurations tab holds the configurations your own organisation has created, where readings are scaled by a correction factor you derived from a gravimetric reference measurement. To create a correction factor carry out a gravimetric reference measurement alongside the Dustlight over the same period. Enter the laboratory result in the app. The correction factor against the gravimetric reference is calculated from it.

Where the laboratory has also determined the share of the component to be assessed – for example 30 % quartz – that share can be entered as well. The Dustlight then warns when the share being assessed reaches the limit value, instead of when total dust crosses a threshold.

A calibration factor can be released for the whole organisation and is then available to all of its users. Any number of factors can be created, for example per material, site or process.

Status and Maintenance

This page shows whether the sensor is still within its service interval, and until when. Sensor Condition is the summary — OK means the device sits within its valid maintenance and calibration period, has no error warnings and nothing is required of you.

Maintenance due from gives the date on which the current interval expires. Dustlight tracks this itself and notifies you ahead of time, so you can schedule the service rather than be surprised by it. As the date approaches, the status changes to a warning and the page offers to book an appointment; once the date has passed, the status shows the service as due. Dustlight keeps measuring in both cases — maintenance is not a lockout — but only devices serviced within the prescribed intervals can hold a consistent measurement accuracy and sensor life across the device's full service life.

System

Device ID is the Dustlight MAC address — the number support and your distributor will ask for, and the one that identifies the device in licence management. Firmware Version shows what is currently installed.

Under Software Updates, Dustlight checks against the release server and reports either that the device is up to date or that a newer version is available; the button on the right re-runs that check. An update takes roughly four to six minutes, during which neither the app nor the Dustlight can be used, so start it when the device is not needed.

Reset to Factory Settings deletes all stored measurements and custom settings and returns the device to its delivery state. Please note that this does not remove the device from your organisation — that happens under licence management — and it cannot be undone, so export any measurements you still need beforehand. The reset is confirmed in a separate dialogue before it runs.

8 Setting up the Software

Without the software, Dustlight can be used as a standalone measuring device. With the software, it becomes a scalable management and compliance solution that supports occupational safety, air quality improvement, and structured reporting in professional environments.

To export measurements, change settings and use the extensive Dustlight analytics platform you will need the Dustlight software. It is available as mobile app for iOS and Android devices that you can download free of charge from the Google Play Store and the Apple App Store under the name “Dustlight”.







The software is also available as a browser-based web app (no download required) for computers with Google Chrome or Microsoft Edge browser, this can be reached under:

app.dustlight.com

8.1 Software functionality

A software plan is selected based on how the Dustlight system is intended to be used. Every Dustlight device can be operated with the free **Basic Plan**, where measurement data is stored locally on the smartphone.

For professional and industrial use, cloud-based plans are typically required to enable centralised data storage, access across multiple devices, and structured analysis. Dustlight therefore offers three software plans: **Basic**, **Business** or **Corporate**.

The Basic plan is the default version after creating an account and is already included in your Dustlight purchase. The Business and Corporate plans offer additional functions and require one software licence per Dustlight device, which can be bought from your distributor.

The **Basic plan** provides the core functions of the Dustlight app:

- Display of current dust values for respirable dust and the PM1, PM2.5, and PM10 size fractions
- Synchronisation, storage, and display of historical measurement values
- Graphical visualisation of measurement values
- Export of measurement data as a CSV file
- Configuration of warning and limit value, display brightness, measuring

intervals, and operating modes
- Configuration of the acoustic warning and device name
- Overview of sensor service life and maintenance intervals, with the option to book calibration and maintenance
- Over-the-air firmware updates for Dustlight
- Knowledge database on dust as a health hazard and on protective measures

All data in the Basic plan is stored locally on the smartphone and is available even without an active connection to the Dustlight device.

The **Business plan** includes all Basic functions and extends them with additional features:

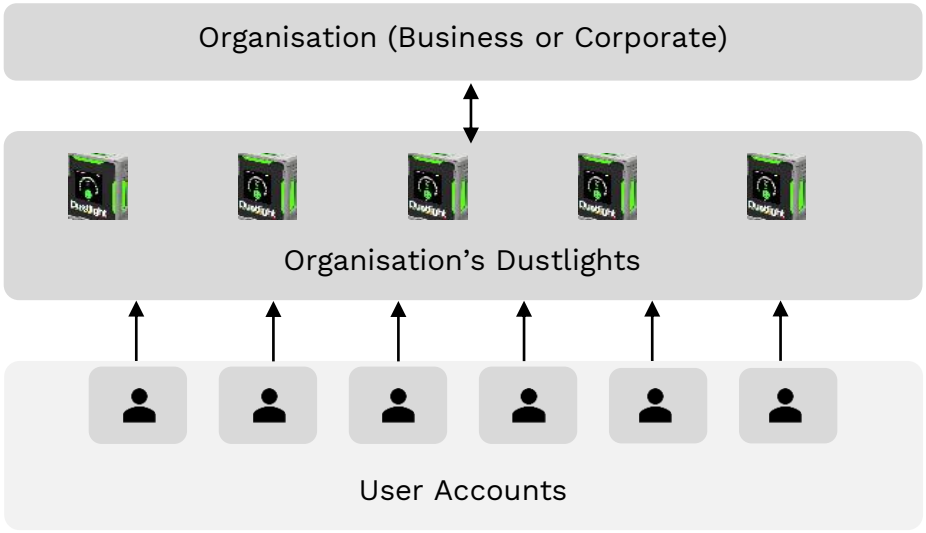
- Dustlight Cloud: after synchronisation, all measurement values are automatically stored in the cloud, with unlimited storage capacity
- Access to data across all devices
- Access to the Dustlight web app for visualisation and reporting on larger screens
- Evaluation of short-term and long-term exposure in the software (history, trends, reporting) (STEL & TWA) – note: the STEL and TWA values themselves are shown on the device display in every plan, including Basic
- Event logging (exceedances, warnings, or incidents)
- Material configurations included: wood dust, welding fumes, diesel particles and oil mist
- Option to create user-defined calibration factors from a gravimetric reference measurement
- Read-out of measurement data via USB and the docking station
- Display of temperature and relative humidity – requires a device that has been upgraded during maintenance

The **Corporate plan** is designed for companies with many Dustlight devices and larger teams. This plan enables efficient management and analysis of measurement data within organisations. It includes all Business plan functions and adds:

- Long-term analytics of dust exposure across teams and time periods
- Comprehensive fleet management for high numbers of Dustlights
- Creation and management of teams, roles, and hierarchies
- Centralised access to and evaluation of measurement data across teams

8.2 Structure of cloud-based software plans

Before explaining how to get started with the Dustlight software plans, this section provides an overview of the basic functionality of the Dustlight software and defines key terms.



User Accounts

To use the Dustlight software, every user must create a **user account**. User accounts are free and only an email address and name are needed. User accounts can then be assigned to organisations, giving this user access to the paid software features and measurement data of that organisation. To become a member of an organisation you either create a new one or get invited to an existing one. Both ways are described in detail in section 9.

Organisation

Dustlight is primarily used within companies. The highest level in the software structure is therefore always an **organisation**. The first step in starting with the paid software plans is therefore to create an organisation. This can be easily done directly from the mobile or web app.

In most cases, an organisation corresponds to the entire company. In larger enterprises, however, it can make sense to create separate organisations for **branches** or **departments**. The key principle is: All Dustlight devices that should be managed together must be placed under the same organisation.

As described in Chapter 8.1, there are two paid software plans: **Business** and **Corporate**. The selected plan always applies to the entire organisation and to all associated devices. Mixing Business and Corporate licences within a single organisation is not possible.

Licences

For every Dustlight device used with a paid software plan, a **licence** is required. A licence is defined by its associated plan (Business or Corporate), and its runtime. Licences are managed at the organisation level and assigned to individual devices. Every user belonging to an organisation can use all Dustlight devices of that organisation. The data visible for the users in their software depends on the chosen plan and individual settings.

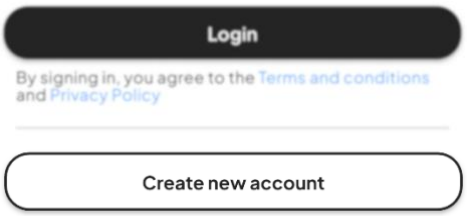
To obtain new licences or extend existing ones you get licence tokens from your distributor, that can then be redeemed via the mobile or web app.

Roles

User accounts can have two different roles in an organisation. A **User** can use all functions included in their software plan like cloud storage or reports, change their account settings and add licences to their organisation. Software users with the **Admin** role can additionally invite new users to their organisation or remove users and can assign licences to devices.

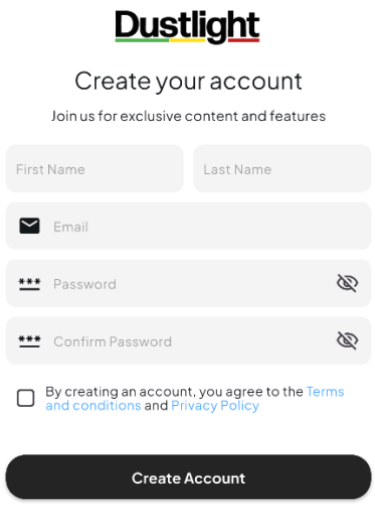
8.3 Creating your account

The Dustlight user account ensures that measurement data, device settings, and licences are securely managed and linked to the correct user. An account also provides access to cloud functions, organisational roles, and reporting features. Without an account, the software cannot be used. The account can be created either from mobile or web app and then be used across all devices.



Open the Dustlight mobile or web app and tap on

“Create new account.”



Fill in your first and last name and your (company) email address.

Set a password and confirm it by entering it again.

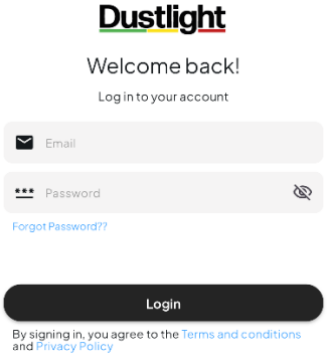
Read and accept the Terms and Conditions.



After submitting, you will receive a confirmation email. Open the email and click on the confirmation link.

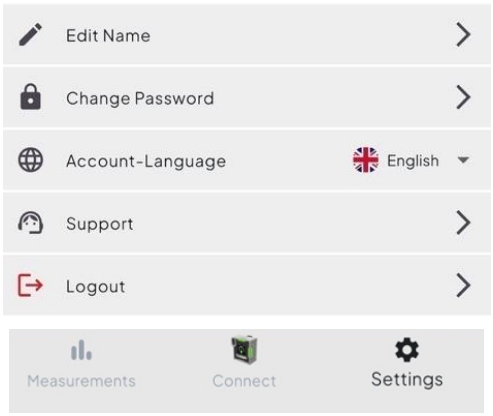
If you can't find the mail, please check the spam folder, check that you entered the correct email address, or resend the email.

Note: The confirmation link does not expire. The timer shown in the app only indicates when a new confirmation email can be requested.



Once the email link has been confirmed, return to the app.

Enter your email and password to sign in.



The account settings menu provides options such as changing your account language or password, signing off and deleting your account.

At the top of the settings page, you can see your current software plan. If you just created your account, you are automatically on the Basic Plan.

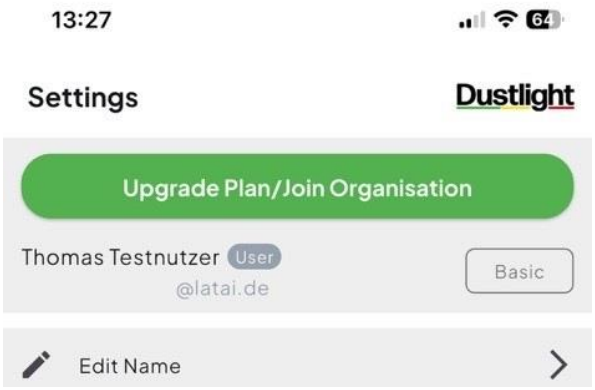
9 Upgrading to a cloud-based software plan

To upgrade your Dustlight devices to the Business or Corporate plan, you first need to obtain the required device licences. Your Dustlight sales representative will provide a software token, which is used to activate the selected plan and add the licences to your account.

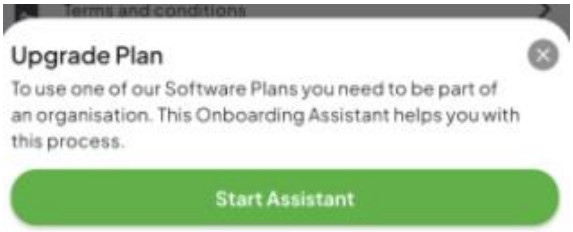
9.1 Setting up an organisation as company administrator

During the initial setup, one person in your company takes the first step, becomes the first administrator of your Dustlight Software and **creates the organisation** in the system.

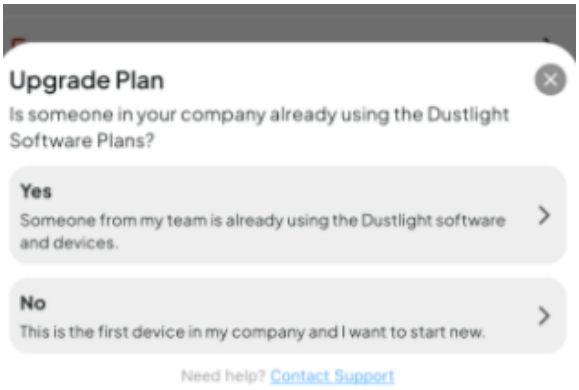
This user automatically becomes the first administrator and redeems the software token to add the required licences. Once the organisation is set up, additional users can be invited, and admin rights can be assigned as needed.



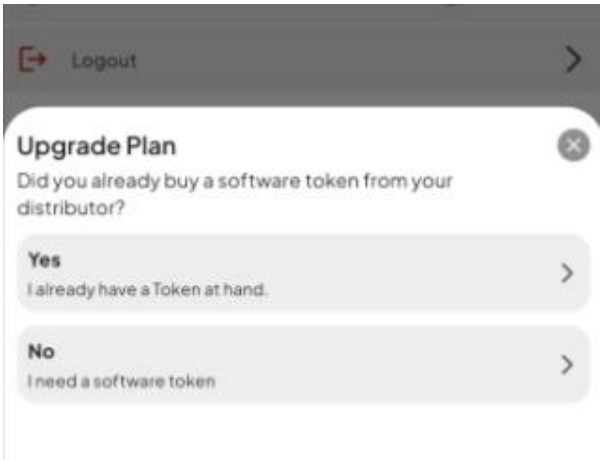
Click the “Upgrade Plan/Join Organization” button in the Settings Menu of your Dustlight mobile or web app



Click on “Start Assistant”

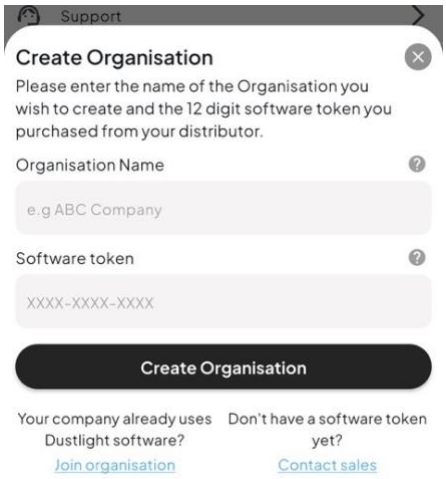


Select “NO” to set up a new organisation.



Select “YES”, when you have already received a software token from your Distributor.

Otherwise please contact them to buy one.



You choose a name for your organisation. In most cases, it makes sense to use your company name. If your company has multiple sites or departments, you may want to reflect that in the organisation name as well. The name can always be changed later.

In the second field, you enter the software licence token you received to activate your software plan.

The software is now activated and the features included in your selected plan are available to you. To enable access for all additional team members, licences need to be added, and users can be invited to the organisation.

9.2 Adding Licences

If you have received multiple licence tokens, you need to add them to the organisation now. To add licences, go to **App Settings → License Management.**

In this section you can see all licences of the organisation. Total licences are all licences that have been added to this organisation, assigned licences are the licences that are already being used by a Dustlight and unassigned licences tell you, how many more Dustlights you can connect with your account based on your current total licences.

In the screenshot below, your organisation owns 20 Licences, 11 of them are already being used by Dustlights, but you have 9 more free and unassigned licences that you could use to connect more Dustlights.



To add new licences to an organisation, click the +Add New License button and enter the token.

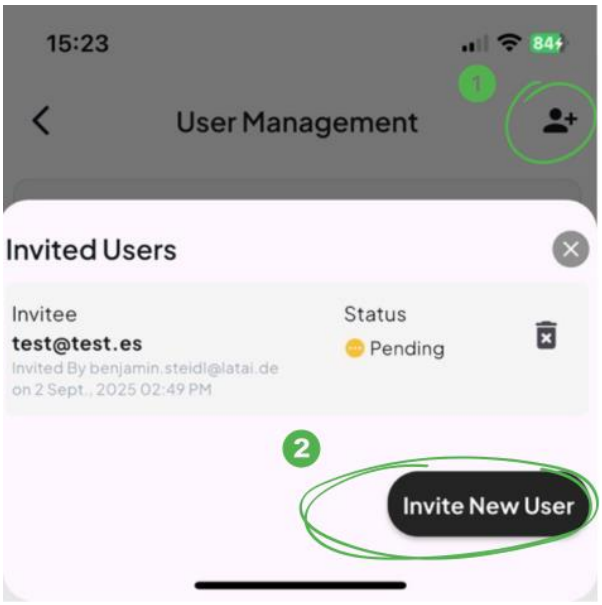
A new unassigned licence will be added to the organisation. The expiration date will be one, three or five years (depending on the licence runtime that you bought) from the date the token is entered.

9.3 Inviting Users

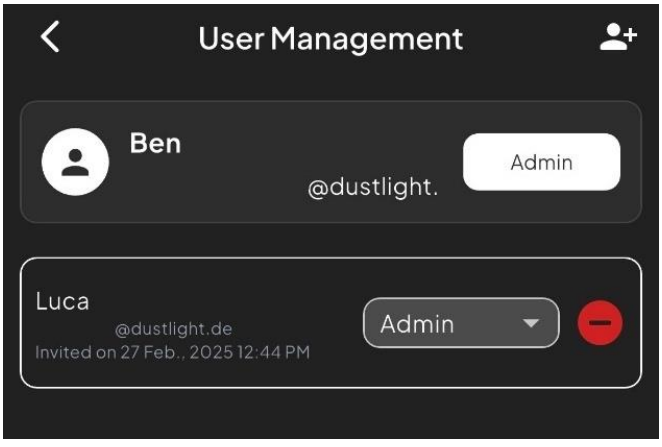
To invite users to the organisation, navigate to **App Settings → User Management** and click on the icon in the top right corner (1).

In the screen that is now opening, you can view all previous invitations, that are still pending. Pending invitations can be cancelled by clicking the **trash can** icon.

To add new users, tap the “Invite New User” button (2) and enter the email address of the person to be invited.



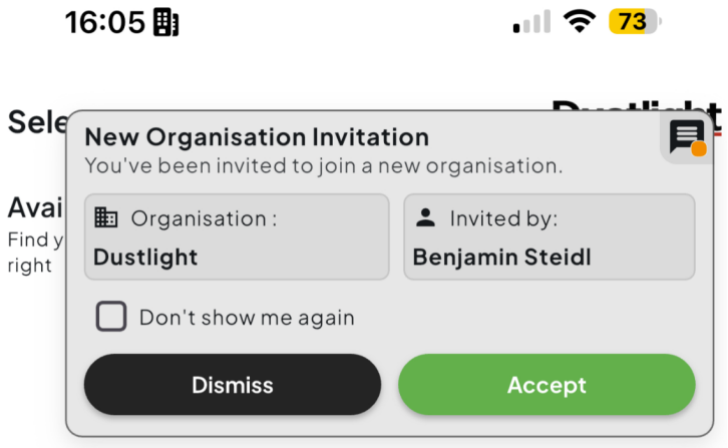
The user receives the invitation automatically via the app, allowing them to join, but will also get a notification via mail. The process is described from a user perspective in Chapter 9.4.



In the user management section, the admin will later be able to see a list of all users in their organisation. After a user joins, they always have the “User” role, in the dropdown you can assign the “Admin” role.

9.4 Joining the organisation as team member and user

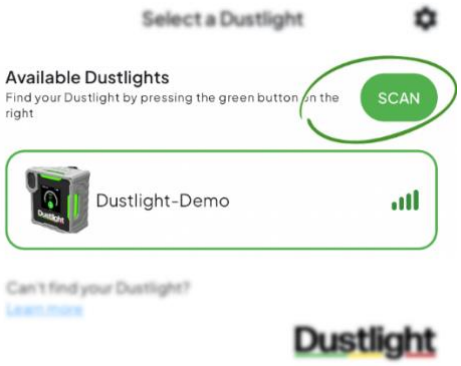
Once you have been invited to an organisation, you log in to the Dustlight app using your personal user account. After login, a pop-up notification appears informing you about the invitation. By accepting the invitation, you join the organisation and gain access to the features included in the organisation's software plan.



You join an organisation as a regular user by default. If you should also act as an administrator, your role can be changed by an existing admin in the User Management section of the software.

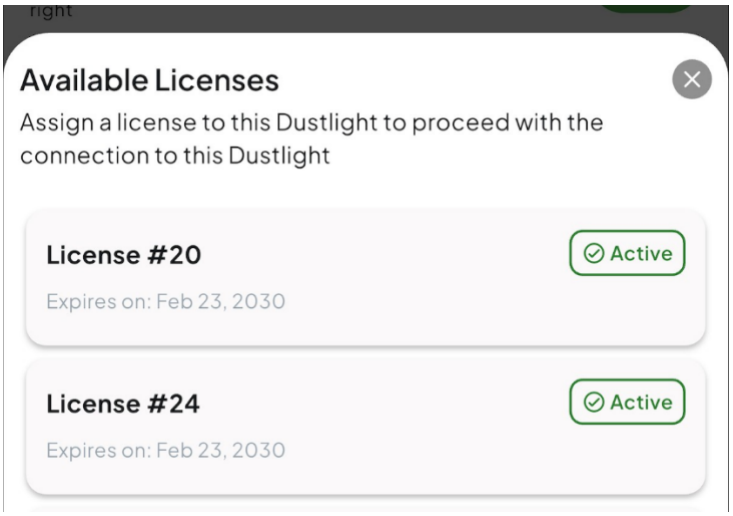
9.5 Connect your Dustlight

To connect the Dustlight with the app, tap the green button in the app to start the search. By default, the Dustlight is ready for connection for five minutes after switching it on or pressing the button.



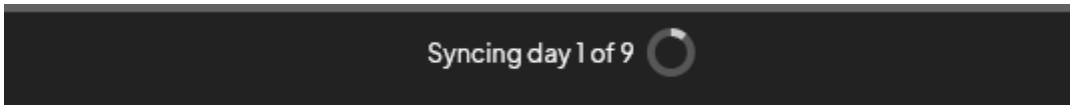
As soon as your Dustlight is displayed in the list, select it. The device will then flash blue and show the connection request on the display. Please press the button on the Dustlight to confirm the connection.

After connecting to a Dustlight device for the first time, a licence must be selected and assigned. This step can be performed by any user within the organisation and does not require a specific role.



Once a licence is assigned, the Dustlight device becomes linked to that organisation. This ensures that measurement data is protected and cannot be accessed by unauthorised parties. For data protection and theft prevention reasons, a Dustlight device must be explicitly removed from an organisation before it can be connected to and used with another organisation.

The connection is now established, and you can use the app with your Dustlight. On the top of the screen, you see a progress bar, while the Dustlight synchronises all measurement data with your phone and the cloud.

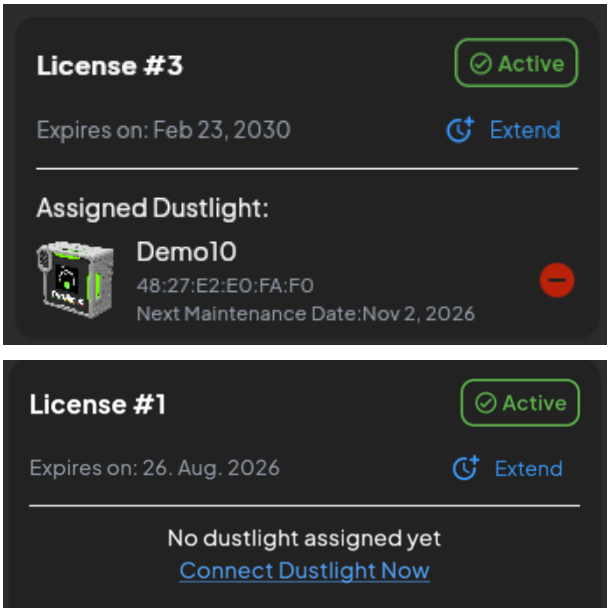


If your device is not in the list of devices found in the app, make sure that the respective wireless connectivity is enabled on your mobile device and that the wireless connectivity of Dustlight is on (display is on). Also check whether the wireless connection is permanently disabled (aeroplane symbol is shown in the status bar), then the device cannot be found by the app.

More troubleshooting tips based on your system are available under https://onboarding.dustlight.com/troubleshooting.

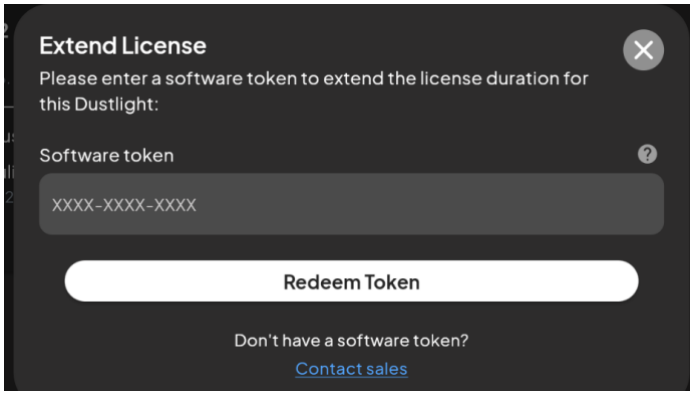
9.6 Extending Licences

To extend a licence, at least one active licence must already exist. The licence does not need to be close to its expiration date to be extended, the new licence period is simply added to the current expiration date.



The “Extend License” button is displayed next to both assigned and unassigned licences.

After clicking the extend button, a popup will appear in which the software token can be entered. For a single software licence token, the redeemed token is applied directly to extend the selected licence. For a multi-licence token the user can decide which licences to extend and which to add as new licences.



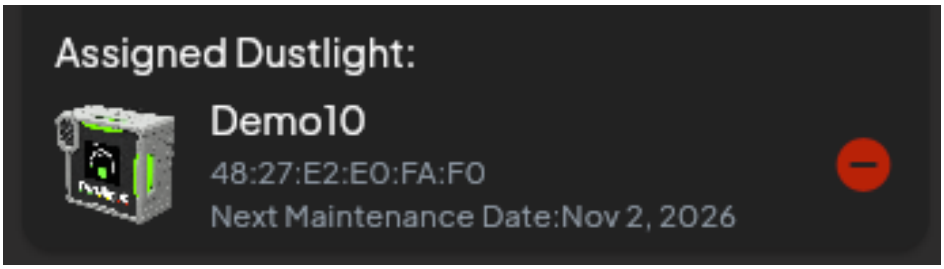
Notice

Licences can only be extended by redeeming a token via the Extend option next to an existing licence. If a token is redeemed to add new licences, a new licence will be created instead. This action cannot be undone. Always ensure whether the intended action is to extend or to add a licence.

9.7 Removing Dustlights from an organisation

A Dustlight device can only be actively used within the organisation to which it is assigned. Before another organisation can use the device, it must first be removed from the previous organisation. Once removed, the previously assigned licence becomes available again and can be assigned to another Dustlight device. The device can also be reconnected to the same organisation later, provided that an available licence exists.

To remove the Dustlight, navigate to App Settings → License Management and select the Dustlight device that should be removed.



Click the red icon to remove the device from the organisation and confirm the removal in the pop-up window.

Notice

Removing a device from an organisation does not delete the measurement data stored on the Dustlight itself. If the customer wants to completely delete all data on the device, a factory reset must be performed in the device settings.

Removing a Dustlight device also does not automatically delete historical measurement data stored within the organisation's account. If required, the measurement series can be deleted manually in the "Measurements" section of the app.

10 Operation

The Dustlight is used to analyse the exposure of workers to harmful particles and can therefore help to detect potential health risks by continuously monitoring air quality and subsequently minimising them by taking appropriate protective measures.

In addition to dust-generating work in enclosed spaces, such as during construction, renovation or refurbishment projects, there are many other conceivable application environments for the Dustlight. Applications can include production facilities, factories, and other industrial environments where dust and particles are generated during many processes. Warehouses and storage areas can also be sources of dust, especially if dry materials are stored or handled there. A dust monitor can help to monitor air quality in such environments and provide early warning of potential problems. This section contains information about the safe use of the Dustlight.

10.1 Warning of residual risks

Although these operating instructions provide detailed instructions for the safe use of the Dustlight fine dust monitor, there may be residual risks that are not explicitly mentioned in these instructions. These residual risks can occur unpredictably during operation and represent potential hazards. Always remain alert and pay attention to your surroundings.

The Dustlight is intended to provide you with a general overview of the concentration of dust in the environment by means of indicative measurements. It has not been developed for use as an official measuring device for official or legal workplace measurements. In the event of regulatory requirements or legal obligations to carry out fine dust measurements, we recommend that you contact qualified experts and accredited measurement technicians. Only they can perform the required measurements in accordance with applicable standards and regulations.

Regular calibration and maintenance must be carried out in accordance with the manufacturer's instructions to guarantee long-term accuracy.

10.2 Charging the DUSTLIGHT

Only use the magnetic charging cable supplied or the Dustlight charge and data dock to charge the device. The cable is specially designed for the Dustlight dust monitor and ensures safe and efficient charging.

Connect the charging cable to a USB power supply unit. You can either use a USB power adapter that you already own or purchase one from us. Make sure that the USB power supply meets the recommended specifications (5 V, 1 A charging power) to ensure optimum charging speed. Dustlight should only be charged from 5 V USB power adapters that qualify as Limited Power Sources (LPS).

Connect the magnetic end of the charging cable to the connection on the DUSTLIGHT. The charging process starts automatically and the display on the screen shows the progress. The charging process stops automatically when the device is fully charged.

Safety instructions

Only use the supplied magnetic charging cable and a suitable USB power adapter or the Dustlight charge and data dock. The use of unauthorised accessories can cause damage to the device and invalidate the warranty.

Place the Dustlight on a stable, non-flammable surface away from liquids for charging. Make sure that the charging port on the device is clean and dry to ensure an optimal connection.

Monitor the device during the charging process. Disconnecting it from the mains adapter when charging is complete optimises the service life of the battery.

Avoid exposing the device to excessive heat during the charging process. Do not expose it to direct sunlight or other sources of heat.

The device is designed for safe operation in ambient temperatures up to 40 °C in accordance with IEC 61010-1. To maximise battery life and long-term performance, we recommend charging the device only within an ambient temperature range of 0 °C to 30 °C.

Charging the battery at ambient temperatures below 0 °C or above 30 °C may lead to accelerated ageing and capacity loss due to increased thermal stress. There is no automatic charging cut-off above 30 °C. Please ensure that charging is performed under suitable ambient temperature conditions.

Safety instructions

The integrated lithium battery cells meet the requirements of IEC 62133-2 and have successfully passed the thermal abuse test at 70 °C (no fire, no explosion).

Charging above 30 °C is therefore not a safety concern, but not recommended from a functional standpoint.

10.3 Switch on DUSTLIGHT

To switch on the Dustlight, press and hold the button on the right-hand side of the switched-off appliance for at least 2 seconds.

10.4 Switch off DUSTLIGHT

To switch off the Dustlight, press and hold the button on the right-hand side of the device for at least 2 seconds during operation. The device switches also off automatically when a critical charge level is reached to protect the internal battery.

10.5 Use DUSTLIGHT

Once switched on, the Dustlight can be attached to clothing using the clip on the back. Care should be taken here to always place the device as close as possible to the airways, i.e. on a breast pocket or collar. The separately available Klick Fast® accessories, such as the armband or chest strap, are also helpful here, allowing the Dustlight to be securely attached to the body. To do this, the clip is replaced with the Klick Fast® adapter, as described in section 6 Assembly.

During operation, the Dustlight signals to the person wearing it if the set fine dust limit values are exceeded via a visual and optionally activated acoustic signal. In addition, the current measured value is shown on the display in large plain text. Depending on the energy setting, the display is deactivated after a certain time, but the device continues to measure and warn. The display is reactivated by briefly pressing the side button. The duration can be adjusted via the settings in the app.

Even if the appliance is designed for such loads, please take care not to expose the appliance to excessive amounts of dust and flying parts, as these can have a negative impact on the service life of the appliance. If the charge level is low, the device should be charged according to the instructions in section 10.2, Charging the DUSTLIGHT.

Stationary Mode

In Stationary Mode the Dustlight measures continuously for as long as it is connected to a power supply. The mode does not have to be activated; it engages automatically when the device is connected to power. This makes it possible to use the Dustlight for room or area monitoring or in cabins of vehicles, for example on a docking station or a USB power supply, in addition to body-worn personal measurement. Please note that stationary monitoring cannot replace personal monitoring.

Continuous operation in stationary mode will still affect the service life of the battery, even if it is not being utilised.

11 Maintenance

This section contains information for the safe maintenance of the Dustlight. It includes all technical and organisational measures during the life cycle of the Dustlight to ensure the safe, economical and functional condition of the device and to prevent environmental damage.

Maintenance includes:

- Maintenance
- Repair
- Troubleshooting



WARNING – Maintenance by Unauthorised Persons

Maintenance must only be performed by Latai GmbH or certified personnel.

Unauthorised repairs or modifications may void safety certifications and create hazards.

11.1 Loss of warranty claims

The manufacturer's warranty for the Dustlight dust monitor guarantees that the product will function perfectly under normal operating conditions. To maintain the validity of this warranty, please observe the following conditions:

Unauthorised opening of the housing:

Any attempt to open the housing of the Dustlight dust monitor will immediately invalidate the warranty. The housing may only be opened by authorised service personnel.

Changes to the device:

Any unauthorised modifications, manipulations or changes to the device will result in the immediate loss of warranty claims. This also includes attempts to modify firmware, software, or other system components.

Independent replacement of components:

Any unauthorised replacement of components not expressly approved by the manufacturer will invalidate all warranty claims. All repairs or replacements must be carried out by authorised service personnel.

Please note that the loss of warranty claims due to the above conditions is not exhaustive and further conditions may apply in accordance with the manufacturer's warranty provisions.

11.2 Maintenance and calibration

The Dustlight does not require any maintenance or calibration by the user.

It must, however, be serviced and calibrated by the manufacturer at the intervals described in this section, and it should be cleaned regularly as described in **section 12, Cleaning.**

The Dustlight has an intelligent maintenance and calibration display. Depending on the operating time and the prevailing dust concentration in the working environment, Dustlight calculates the minimum maintenance intervals itself. However, to guarantee safe operation and accurate measurement at all times, maintenance and calibration must be carried out by the manufacturer every 12 months at the latest, or sooner depending on the ambient conditions and operating time. The current sensor status can be checked via the app. When 80 % of the maintenance threshold is reached at the latest, a notification about the imminent maintenance is shown on the integrated display and in the app. Once the maintenance time has been reached, this warning remains active every time the device or app is started.

To carry out maintenance, please visit our website at www.dustlight.com, where you can view the packages on offer, including the current prices, and order maintenance directly. Alternatively, contact us at info@dustlight.de for a customised quote based on the number of your devices and the desired maintenance services. By using refurbished devices, continuous operation can also be guaranteed without interrupting dust monitoring during maintenance.

11.3 Repair

Any repair work, including the replacement of components or the repair of malfunctions, may only be carried out by the manufacturer itself or by its authorised service personnel.

The Dustlight contains complex structures and safety-relevant components. Unauthorised repairs by users or unauthorised third parties can lead to serious safety risks.

In the event of malfunctions or the need for repairs, please contact the manufacturer, quoting the serial number, for appropriate support and instructions:

Manufacturer:

Latai GmbH

Agnes-Pockels-Bogen 1

80992 Munich

www.dustlight.com

info@dustlight.de

Distributor:

11.4 Troubleshooting

If you experience problems with your device, you can carry out the following troubleshooting steps to identify possible causes and find solutions:

Problem: The device cannot be switched on

- Check the charge status of the battery and connect the Dustlight to the mains using the enclosed charging cable and a USB power supply unit and try again after a while.

Problem: The device cannot be charged

- Check the charging cable for external damage and replace it if necessary.
- Check the power supply unit used for damage and sufficient power (at least 1 A). Replace it if necessary.
- Check the function of the socket used and use a different one if necessary.

Problem: The device does not seem to measure correctly

- Check the air inlet and air outlet of the appliance for dirt and clean or replace them if necessary.
- Check whether there are maintenance and calibration warnings in the app or on the device screen.
- Check whether there are any error messages on the device display or in the app and rectify them as described below.

Problem: The device shows an error message on the display

Please proceed as follows depending on the error message:

Error code	Error	Remedy
E01	Critical error	Please contact the manufacturer or your local service partner.
E02	Sensor error	Please restart the Dustlight. If the error persists, contact the manufacturer or your local service partner.
E03	No sensor found	Please restart the Dustlight. If the error persists, contact the

		manufacturer or your local service partner.
E04	Fan error	Please check the air inlet and air outlet of the Dustlight for damage and dirt and clean them if necessary. Restart the Dustlight. If the fault persists, contact the manufacturer or your local service partner.
E05	Fan speed error	Please check the air inlet and air outlet of the Dustlight for damage and dirt and clean them if necessary. Restart the Dustlight. If the fault persists, contact the manufacturer or your local service partner.
E06	Time error	The Dustlight has lost the time due to insufficient battery charge. Please connect the Dustlight to the app to update the time.
E07	Memory full	The internal memory of the Dustlight is full. Please connect the Dustlight to the app to synchronise the data on your smartphone and prevent data loss.
E08	Maintenance notice	The sensor unit has reached 80 % of the maintenance threshold. Please find out about service options in your region or contact the manufacturer or your local service partner.
E09	Maintenance interval reached	The sensor unit requires maintenance. Please contact your local service partner or book maintenance via our website www.dustlight.com.

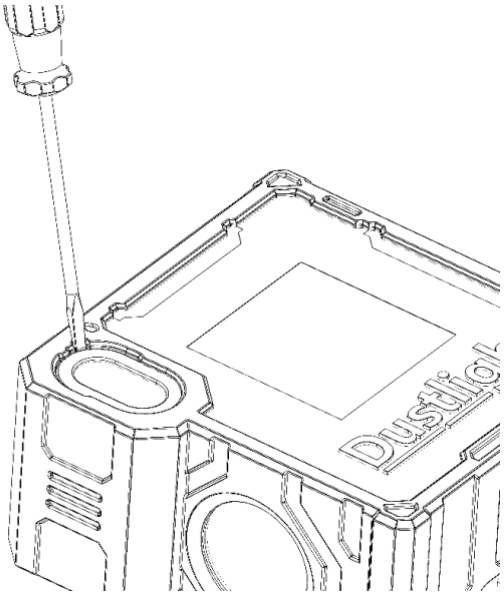
12 Cleaning

To ensure the proper functioning and safety of your Dustlight, use dry and soft materials, such as a microfibre cloth or brush, to clean the outside of the housing. Carefully remove dust and dirt and take particular care to avoid getting dust into the air openings of the device, especially at the air inlet and outlet grilles. Regularly check the charger, charging cable and connections for any dirt and remove it if necessary.

For stubborn dirt, you can also wipe the Dustlight with a damp cloth, taking particular care to ensure that no moisture can get into the openings of the device. Do not use cleaning agents, solvents or aggressive chemicals, as these can damage the housing and surfaces.

Notice **Never use compressed air to clean the Dustlight. This can destroy the air duct and sensors of the appliance.**

As the air inlet at the front of the appliance is naturally subject to the most soiling, the stainless-steel grille can be removed for easier cleaning. To do this, use a pointed object such as a screwdriver to the point provided on the top right-hand side of the metal grille (see Illustration below) and lift it out. Now you can wash it under running water with a brush and mild detergent. If there are any paint residues on the grille, you can also remove them with cleaning benzine or acetone. Allow the grille to dry thoroughly after cleaning.



If the grille is damaged or can no longer be cleaned, you can simply replace it. The replacement filters are available in our shop or by emailing your distributor. When removed, the pre-chamber of the air duct can also be cleaned simply by shaking it out. More stubborn dirt can be loosened with a long, pointed object such as a small screwdriver, a cotton bud or a small

round brush and removed by shaking it out again.

To insert the grille, push it into the rubber holder from above and press on it so that the nose at the top of the inlet holds the grille in place. If this is not possible by pressing alone, lift the nose with your fingernail or a small object so that it lies over the grille and holds it in position.

Notice

Please follow these cleaning instructions carefully to prolong the life of your appliance and ensure safe use. Any improper cleaning may result in damage that is not covered by the warranty.

13 Storage

To ensure the optimum functionality and longevity of your device, please observe the following guidelines for the correct storage of the Dustlight. The Dustlight is stored in the following cases:

- After decommissioning for a longer period of non-use
- After decommissioning for a relocation
- After decommissioning for calibration or repair

Store the Dustlight in a dry place and do not expose it to extreme temperatures, be it cold or heat, to avoid possible damage. Also avoid direct sunlight, as this can shorten the performance and service life of the components, especially the built-in batteries and sensors.

Store the device in an environment that is as dust-free as possible and protect it from dirt particles. This will help to ensure that the sensor and other components function properly in the long term.

If you have purchased the device with accessories, store them in a safe place together with the Dustlight to prevent loss or damage. This will ensure full functionality if required. If possible, keep the device in its original packaging. This offers optimum protection and also makes it easier to send it in for maintenance and repair work.

Do not store the appliance near electrical appliances that could generate strong electromagnetic fields.

Check the charge status of the batteries before storage. Never store the device with fully discharged batteries but charge them fully before storing them.

14 Certification Statements

14.1 FCC statement for USA

Part 15 Clause 15.105:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Part 15 Clause 15.21

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Part 15 Clause 19(a)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

RF Exposure Information

This device complies with FCC radiation exposure requirements for portable devices as defined in FCC 47 CFR §2.1093.

The Dustlight has been tested and certified for use **directly on the body** without the need for a separation distance. To maintain compliance with

FCC RF exposure limits:

- Operate the device only as instructed in this manual.
- Do not modify the antenna or add any external RF components.
- Use only accessories approved by Latai GmbH.

	**WARNING - Unauthorised Modifications**
Changing or modifying the device in any way not approved by the manufacturer may result in malfunction, regulatory non-compliance, and loss of FCC authorization to operate the device.	

14.2 Statement for Canada

CAN ICES-3 (B)/NMB-3(B)

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1) l'appareil ne doit pas produire de brouillage;

2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF Exposure Information

This device complies with the portable device RF exposure limits specified in Innovation, Science and Economic Development Canada (ISED) RSS-102, Issue 5.

The Dustlight has been evaluated for use **directly on the body** (body-worn operation) without requiring a separation distance.

To ensure continued compliance:

- Follow all usage instructions as provided in this manual.
- Use only Latai GmbH-approved accessories.
- Do not modify the RF components or antenna structure.

Informations sur l’exposition aux RF

Cet appareil est conforme aux limites d’exposition aux radiofréquences (RF) pour les appareils portables, conformément à la norme RSS-102 d’Innovation, Sciences et Développement économique Canada (ISDE), édition 5.

Le Dustlight a été évalué pour un fonctionnement **porté sur le corps** sans nécessiter de distance de séparation.

Pour garantir la conformité :

Suivez toutes les instructions d’utilisation de ce manuel.

Utilisez uniquement les accessoires approuvés par Latai GmbH.

Ne modifiez pas les composants RF ou l’antenne.

15 Waste disposal



Please note that electrical and electronic appliances must not be disposed of with household waste. Old appliances can be handed in free of charge at designated collection points. There they will be professionally collected, disposed of or prepared for possible reuse. We appeal for your active participation in order to make a joint contribution to the environmentally friendly and sustainable disposal of electrical and electronic appliances.

The return of old appliances is required by law, as some of these appliances may contain harmful substances that can damage both the environment and human health. In addition, the return enables the recycling of the raw materials contained, which benefits the environment. If the old electrical or electronic device contains personal data, you are responsible for deleting it yourself before returning it.

In accordance with the provisions of Directive 2008/98/EC on waste and its implementation in the legislation of the Member States of the European Union, waste prevention measures are generally prioritised over waste recycling measures. In the area of electrical and electronic equipment, the prolongation of the service life by repairing defective equipment and the sale of functional used equipment are particularly favoured instead of disposing of them.