



## PartSens 4.0 / PartSens+ 4.0

Portable measuring system for particle measurement on surfaces according to ISO 16232 (VDA19) and I4644-9\*

The PartSens 4.0 is a portable surface particle counting system with a wireless measuring head for determination of particulate contamination on surfaces.

The PartSens 4.0 offers unique features:

- Fast measurement and immediate results
- Extreme ease of use
- Low cost of equipment and consumables
- Mobile and versatile
- Self-sustaining use (analysis, data storage, power)

Glancing light technology (acc. ISO 14664-9) allows reproducible and highly accurate results. Using the PartSens eliminates complex sampling by extraction and subjective measuring methods such as microscopy or multistage procedures such as surface rinsing and subsequent filter analysis.

PartSens 4.0 reports size and quantity of particles between 5 and 3,000  $\mu\text{m}$  on the measured surface. For particles  $\geq 25 \mu\text{m}$  and for fibers  $\geq 50 \mu\text{m}$ , the PartSens+4.0 differentiates between metallic, non-metallic particles and fibers on surfaces. The measurement result – including the high resolution image – is immediately displayed. The live image allows low-resolution viewing for the precise placement of the measuring head or the inspection of surface features. Saving and archiving of data can be automated and logged.

A complete record of all detected particles, including location information, can be included in the dataset.

Particle count and size data, plus the raw images are saved for later analysis. For QA systems that rely on paper records, the optional wireless printer is the ideal reporting tool.

For rough or curved surfaces that can not be measured directly, TapeLift Pads provide the means for particle extraction and sampling from any dry surface.

For applications where suction extraction is employed TapeLift Stripes are used. TapeLift ParticleTraps are optimized to monitor particle deposition rates. Each strip is exposed for a defined period before being analyzed by the PartSens.

TapeLift Pads, Stripes and ParticleTraps are all made from the same material: a carbon-hydrate based matrix; non-toxic and no silanes/siloxanes in the pad materials.

Using Pads or Stripes eliminates the influence of surfaces characteristics such as roughness, scratches, curvature.

The deep black color and removable protective cover ensure a true zero-count surface prior to sampling. white, black and transparent particles can all be detected using the same instrument settings.

- Particle measuring range:  $< 5 \mu\text{m}$  to  $> 3000 \mu\text{m}$ .
- Standard particle size channels configured according to ISO 16232/VDA 19.2 and to ISO 14644-9.
- Optional bespoke particle size channels defined by customer.
- Differentiates between non-metallic and metallic particles and fibers.
- Time from sample acquisition to result  $< 10 \text{ s}$
- High resolution touch screen designed to be used with gloved fingers.
- On board buffer capacity: 3000 measurements.
- Optional masking tool software add-on enables detailed post-sampling manipulation of individual particles.

Cleanliness inspection with PartSens 4.0 is fast, simple, effective and low-cost:

- Inspection and evaluation of critical surfaces.
- Incoming raw material surface inspection and outgoing product testing.
- Quality control of manufacturing processes and spaces.
- Check contamination before and after cleaning processes, to quantitatively demonstrate the effectiveness of cleaning operations.
- Instead of product testing, monitor particle contamination of controlled environments with ParticleTrap Stripes.

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| Size range                                       | < 5 µm to > 3000 µm   |
| Measurement accuracy                             | +1 pixel (5 µm)   |
| Size channels (µm) pre-installed                 | ISO 13232 / VDA 19, ISO 14644-9   |
| Metallic particles / Non-Metallic particles      | > 25 µm to > 3000 µm  |
| Fibres   | > 50 µm to > 3000 µm  |
| Measuring area                                   | 2,68 cm <sup>2</sup> (19,36 mm x 13,82 mm)  |
| Zero-count on TapeLift Pad, Stripe, ParticleTrap | 0 Particles   |
| Types of measurements                            | Single and Serial measurements, plus stitching with TapeLift ParticleTrap and TapeLift Stripes  |
| Display modes of PSD                             | Distributive; Distributive /1000 cm <sup>2</sup><br>Cumulative; Cumulative /1000 cm <sup>2</sup>  |
| Pass-Fail Alarm settings                         | Separate settings for particles, metallic particles and fibers within chosen graduation/ binning. Alarms are highlighted on the touchscreen and printouts |
| Display base station                             | 12.1" - TFT touch screen  |
| Display measuring head                           | LCD-touch screen  |
| External data transfer                           | USB, File transfer (TCP/IP)   |
| Output ports                                     | RJ-45 Ethernet, USB Typ A, HDMI   |
| Instrument data-storage volume                   | 3000 measurements (single)  |
| Languages  | German, English, French, Japanese   |
| Internal communication                           | WLAN 2,4 Ghz  |
| Range mobile measuring head                      | max. 10 meters  |
| Weight Measuring head                            | 280 g   |
| Dimensions base station (h x d x w)              | 210 mm x 386 mm x 330 mm  |
| Dimensions Mobile Measuring Head (h x d x w)     | 110 mm x 65 mm x 65 mm  |
| Contact surface area mobile measuring head       | 48 mm x 48 mm   |
| AC voltage (Voltage to AC adapter)               | 100-240V AC-1,4A 50/60Hz - Universal-Power Supply   |
| DC voltage (Voltage to Base Station)             | 24VDC @ 5.0 A   |
| Battery  | High capacity Li-ion batteries, replacable, rechargeable. Up to 8 hours self-sustaining system use (average work load)                                    |
| Weight   | 7,7 kg with batteries, 6,7 kg without batteries   |
| Warranty   | 12 months   |
| Operating range                                  | 5 °C bis +30 °C; 20 % to 95 % RH, noncondensing   |
| Storage range                                    | 0 bis 50°C; up to 98 % RH, noncondensing  |