# FPS502

Free Flow Profiler

**PROFILING SYSTEMS**

**SICK**
Sensor Intelligence.

## Ordering information

| Type | part no. |
|------|----------|
| FPS502 | 1111841 |

**Included in delivery:** Traffic Controller FPS (1), LMS511 SE (2)

Other models and accessories ➜ www.sick.com/Free_Flow_Profiler

CE UK CA

## Detailed technical data

### Features

| | |
|---|---|
| **Application** | Measurement of vehicles and objects in motion<br>Verification of compliance with vehicle dimension regulations<br>Optimization of the loading process for ferries and car trains (RoLa)<br>Basis for a size-based toll or payment system |
| **Number of covered lanes** | Up to 4 lanes at best performance<br>Max. 9 sensors per system |
| **Scanner design** | 2-scanner solution |
| **Vehicle data** | Vehicle dimensions (length, width, height)<br>Vehicle classes<br>Driving direction<br>Lane assignment<br>Confidence level for all vehicle datas<br>3D point cloud |
| **Sensor** | 2D LiDAR sensor |
| **Classification system** | Europe, Asia, North America |
| **Amount of vehicle classes** | Up to 30 classes |
| **Recommended distance between max. vehicle height and sensor** | ≥ 1 m |
| **Recommended vehicle distance** | 0.6 m at v < 30 km/h<br>2.2 m at v < 120 km/h |
| **Calibration** | Automatic |
| **Stop-and-go functionality** | Yes |
| **Scanning frequency** | 75 Hz, for LMS Width<br>35 Hz, for LMS Length |
| **Max. range with 10 % reflectivity** | 40 m |
| **Aperture angle** | 190°, per LMS511 SE |
| **Laser class** | 1, eye-safe (IEC 60825-1:2014) |
| **Heating** | ✓ |
| **Internal computer** | Traffic Controller FPS<br>✓ |
| **Internal memory** | 32 GB |
| **Application** | Vehicle measurement, Toll systems, Verification of compliance with vehicle dimension regulations, Optimization of the loading process |

### Mechanics/electronics

| | |
|---|---|
| **Installation position** | Overhead or at the side |

| Installation height | 5 m … 8 m<br>At least 1 m higher than the maximum vehicle height<br>Angle between LMS and vehicle > 15° |
|---|---|

## Performance

| Counting accuracy | 99.8 % |
|---|---|
| Classification accuracy | 98 % (For TLS8+1 classes) |
| Length measurement accuracy | ± 400 mm at v < 30 km/h (± 2σ) [1]<br>± 1,000 mm at v < 120 km/h (± 2σ) [1] |
| Width measurement accuracy | ± 50 mm at v < 30 km/h (± 2σ) [2]<br>± 100 mm at v < 120 km/h (± 2σ) [2] |
| Height measurement accuracy | ± 30 mm at v < 120 km/h (± 2σ) [3] |
| Minimum object size | 1 m x 0.6 m x 0.6 m (L x W x H) |
| Maximum object size | 32 m x 3.5 m x 5 m (L x W x H) |
| Minimum detectable object | 190 mm x 130 mm x 130 mm < 30 km/h<br>525 mm x 130 mm x 130 mm < 120 km/h |

[1] Applies only if the LMS is mounted in such a way that vehicle tracking is possible.

[2] Applies only if the LMS is mounted in such a way that the vehicle can be examined from both sides.

[3] Applies only if the LMS is mounted in such a way that the vehicle roof is visible.

## Interfaces

| Output data | Vehicle data |
|---|---|

## General notes

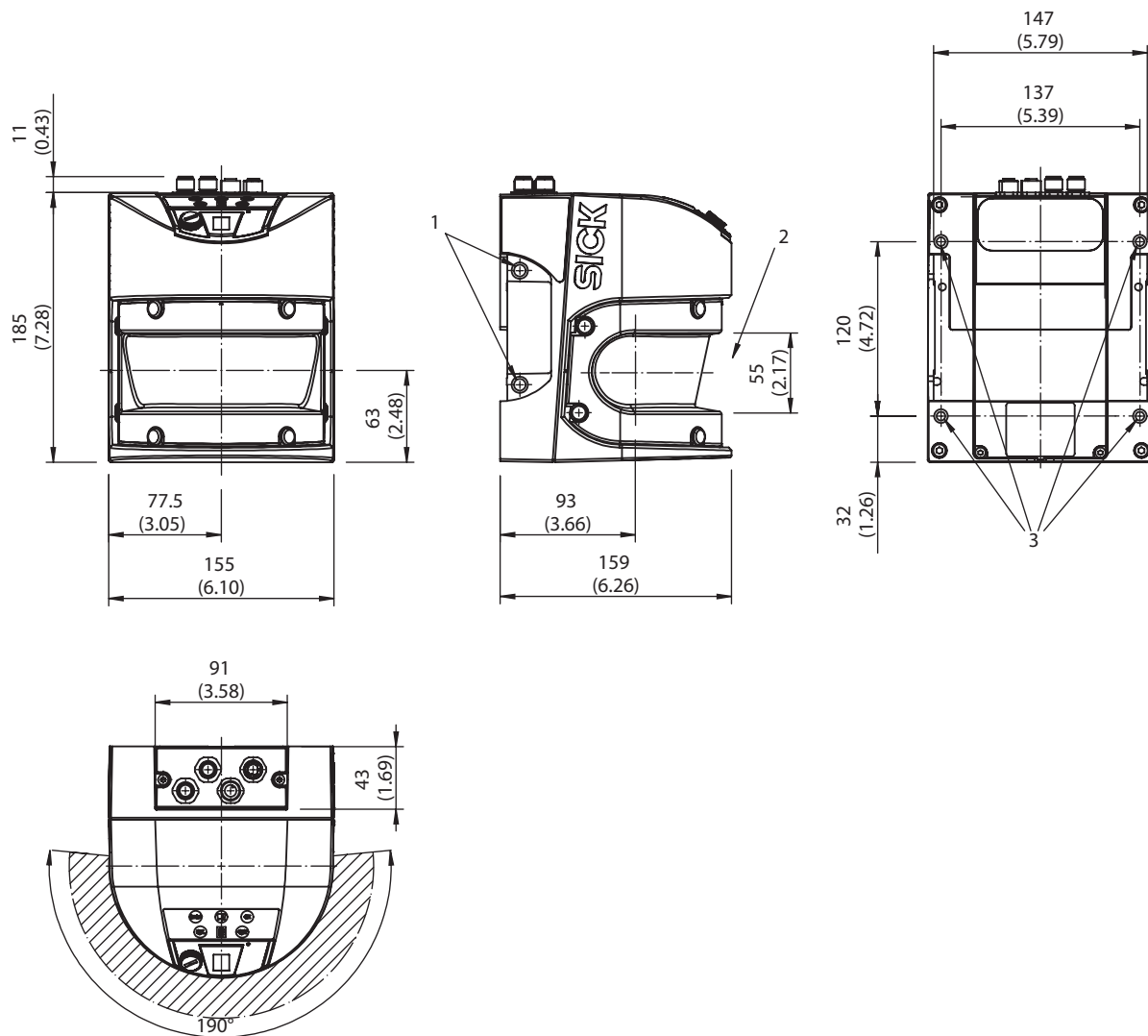| Items supplied | 2D LiDAR sensor LMS511 SE (2 x)<br>Traffic Controller FPS including software<br>USB stick with TEMS info sample client, source code for TEMS info sample client, TEMS analyzer and operating instructions |
|---|---|

## Certificates

| EU declaration of conformity | ✓ |
|---|---|
| UK declaration of conformity | ✓ |
| China RoHS | ✓ |

## Classifications

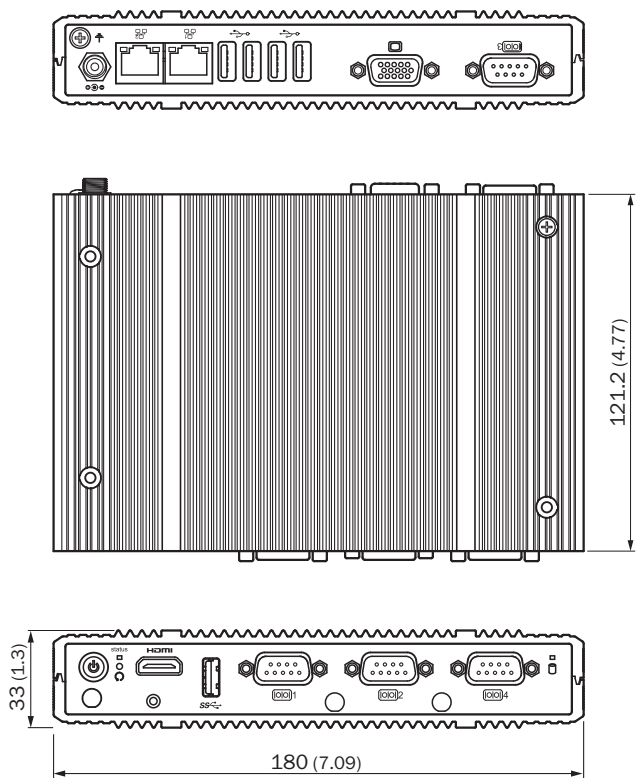| ECLASS 5.0 | 27281001 |
|---|---|
| ECLASS 5.1.4 | 27280190 |
| ECLASS 6.0 | 27280190 |
| ECLASS 6.2 | 27280190 |
| ECLASS 7.0 | 27280190 |
| ECLASS 8.0 | 27280190 |
| ECLASS 8.1 | 27280190 |
| ECLASS 9.0 | 27280190 |
| ECLASS 10.0 | 27280190 |
| ECLASS 11.0 | 27280190 |
| ECLASS 12.0 | 27280190 |
| UNSPSC 16.0901 | 41111615 |

## Dimensional drawing LMS511

Dimensions in mm (inch)
① 4 screw holes M8 x 9
② do not block front screen
③ 4 screw holes M6 x 8

## Dimensional drawing Traffic Controller FPS



121.2 (4.77)

33 (1.3)

180 (7.09)

Dimensions in mm (inch)

## Recommended accessories

Other models and accessories ➔ www.sick.com/Free_Flow_Profiler

| | Brief description | Type | part no. |
|---|---|---|---|
| **Mounting systems** | | | |
| | • **Description:** Mounting kit for wall-mounting (adjustment bracket)<br>• **Material:** Steel<br>• **Details:** Steel, zinc coated (1.0330) | Mounting kit | 2018303 |
| | • **Description:** Mounting bracket for LMS5xx (for retrofitting, if 2018303 is already in use)<br>• **Material:** Stainless steel<br>• **Details:** Stainless steel V2A (1.4301) | Mounting bracket | 2059271 |
| **connectors and cables** | | | |
| | • **Connection type head A:** Female connector, M12, 4-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Cable:** 20 m, 4-wire, PUR, halogen-free<br>• **Description:** Shielded<br>• **Application:** Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation | YF2A64-200UE1XLEAX | 6050687 |
| | • **Connection type head A:** Male connector, M12, 4-pin, straight, D-coded<br>• **Connection type head B:** Male connector, RJ45, 4-pin, straight<br>• **Signal type:** Ethernet, PROFINET<br>• **Cable:** 20 m, 4-wire, CAT5, CAT5e, PUR, halogen-free<br>• **Description:** Ethernet, shielded, PROFINET<br>• **Application:** Cold bending resistant, Outdoor, Zones with oils and lubricants, seawater resistant | YM2D34-200P-N4MRJA4 | 6050685 |

| Brief description | Type | part no. |
|---|---|---|
| **Commissioning aids and test equipment** | | |
| • **Product:** Alignment aids<br>• **Description:** Alignment aid for detecting the infrared light (wavelength 780 nm to 1050 nm) of SICK sensors | Alignment aid | 2101720 |

# SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is "Sensor Intelligence."**

# WORLDWIDE PRESENCE:

Contacts and other locations –**www.sick.com**

SICK AG  |  Waldkirch  |  Germany  |  www.sick.com

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Sensor Intelligence.