

SCAPE Pro Industrial 3D Scanner™

Product Option OP18-12/13/14



Introduction

The SCAPE Pro Industrial 3D Scanner comes in three variations and is mounted above the scene. It is a binocular scanner which is optimal for bin-picking tasks and certain other tasks where different view-angles are beneficial. The advantages of a stationary scanner compared to a robot mounted scanner are faster cycle times since the robot is not involved in acquiring data. In some cases, the scanner can handle two bins next to each other.

How it works: The scanner projects several patterns onto the scene and records them by means of two cameras. As a result, the object is digitalized as a 3D point cloud. Neither the object nor the 3D sensor is in motion, which means that scanning is conducted quickly and extremely precise.

Technical Performance Specifications

The SCAPE Pro Industrial 3D Scanner comes in 3 different sizes corresponding to 3 different scan volumes and resolutions. All models generate up to 2.0 M points and use blue laser light (447 nm).

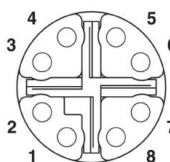
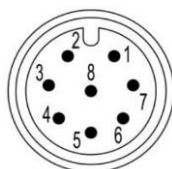
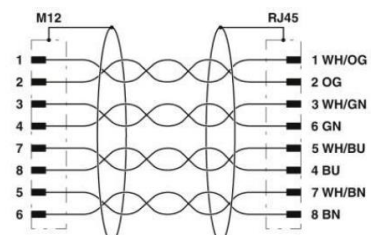
| Model | Pro-M (OP18-12) | Pro-L (OP18-13) | Pro-XL (OP18-14) |
|---|-----------------|-----------------|------------------|
| Working Range (Z-direction) | 969-1573 mm | 1326-2800 mm | 1100-3500 mm |
| Extended Range ¹ | - | 2800-4000 mm | 3500-4900 mm |
| Field of View (see plots on page 2) ² | 1300 x 1000 mm | 2100 x 1800 mm | 3200 x 3100 mm |
| Lateral Resolution (XY-plane) ² | 0.820 mm | 1.369 mm | 2.155 mm |
| Min Surface Area for Scanning ² | 2.9 x 2.9 mm | 4.8 x 4.8 mm | 7.5 x 7.5 mm |
| Depth Uncertainty RMS Closest to/Furthest from Scanner | 0.97/1.57 mm | 1.3/2.8 mm | 1.1/3.5 mm |
| Baseline | 200 mm | 400 mm | 400 mm |

Electrical Connections

Power + GPIO port Use 24 VDC to power the scanner. Use only the supplied power adapter.

Ethernet port Connect 1 Gbps ethernet cable with RJ45/M12-X connector (supplied with scanner). If supplying own cables: Use category Cat5e or better ethernet cables (cables capable of 1 Gbps or 10 Gbps transfer rate). Powering the device through PoE is not possible.

| No. | Signal definition | Function description | Color | Electric parameter | Unit |
|-----|-------------------|-----------------------------------|--------|--------------------|------|
| 1 | Trigger_OUT | Trigger signal output | white | Trigger Power | V |
| 2 | Sys_VCC | System VCC | brown | 12 ~ 30 | V |
| 3 | Sys_GND | System GND | green | 0 | V |
| 4 | Trigger_Power | Trigger signal power | yellow | 12 ~ 24 | V |
| 5 | Trigger_GND1 | Trigger circuit GND1 | grey | 0 | V |
| 6 | Trigger_IN1 | Trigger circuit Input1 | pink | Trigger_Power | V |
| 7 | Trigger_GND2 | Trigger circuit GND2 | blue | 0 | V |
| 8 | Trigger_IN2 | Trigger circuit Input2 (reserved) | red | Trigger_Power | V |



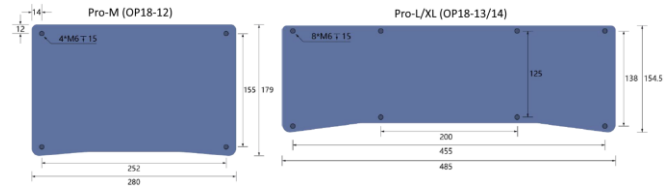
¹ Extended range: Good point clouds can still be acquired in this working range, but the accuracy decreases compared to the normal "Working range"

² At max. distance

Indicator Status

| Status | Red | Green | Yellow |
|---|-------|-------|--------|
| Power off | Off | Off | off |
| Starting | On | Off | Off |
| Startup complete, faulted | Flash | Off | Off |
| Startup complete, disconnected | Off | On | Off |
| Startup complete, connection successful/ no data transfer | Off | On | On |
| Connection successful & Data transmitted | Off | On | Flash |

Mounting (all models):



Physical Specifications

Dimensions and Weight

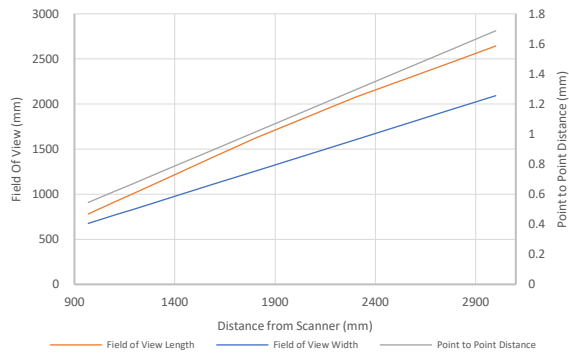
| | |
|---------------------------|--------|
| Pro-M: 280 x 165 x 74 mm | 2600 g |
| Pro-L: 480 x 148 x 65 mm | 3700 g |
| Pro-XL: 480 x 148 x 68 mm | 3740 g |

Safety Classification (EN 62471) and Protection

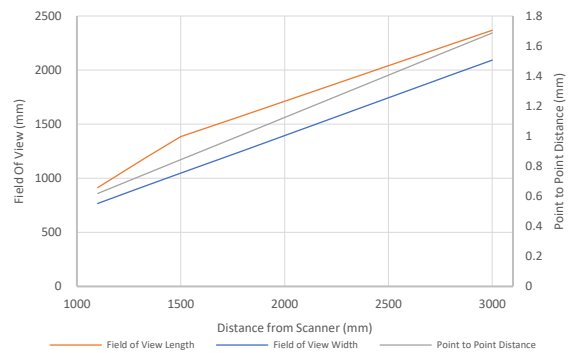
Class 3R. Class 3R lasers are considered safe when handled carefully. Avoid direct eye exposure. IP65.

Field of View and sensor resolution as a function of scanning distance

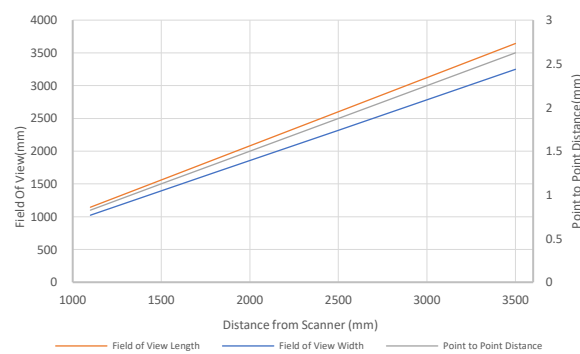
Pro-M



Pro-L



Pro-XL



SCAPE Pro Industrial 3D Scanner™ Box Content

- SCAPE Industrial 3D Scanner (Pro-M, Pro-L, or Pro-XL)
- Power Supply (100-240 VAC/50-60 Hz, 1.3 A, Output: 24VDC, 90 W) incl. 1.8 m cable to wall outlet and 6 m between power supply and scanner
- Ethernet cable RJ45/M12 X-coded 10 m (between SCAPE Controller PC and scanner)
- Shutters to prevent projected light outside bin(s) or scene

SCAPE Controller PC Extra Requirements

1 Ethernet connector, 1 Gbit

Optional SCAPE Stationary Scanner Tower

The SCAPE Stationary Scanner Tower is an option for mounting the SCAPE Stationary Scanner above the scene. Please contact Scape for more information.



Position of Scanner relative to the scene

Scape provides a CAD model including scan volume for each scanner model. This makes it easy to position the scanner in the correct position during the layout phase. As an example, the CAD model for Pro-L (OP18-13) is shown below.

