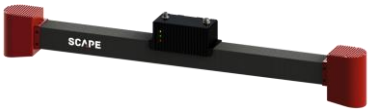
HARDWARE SPECIFICATION

SCAPE Ultra 3D Scanner™

Product Option OP18-35/36



Introduction

The SCAPE Ultra series comes in two different sizes and is stationary mounted. It is a monocular scanner with high precision and low noise on the acquired point cloud. It includes built-in shutters to prevent projected light outside the scene which can cause decreased data quality. The advantages of a stationary scanner compared to robot mounted scanners are faster cycle times since the robot is not involved in acquiring data.
How it works: The scanner projects several patterns onto the scene and records them by means of a camera. As a result, the scene is digitalized as a 3D point cloud. Neither the scene nor the 3D sensor is in motion, which means that scanning is conducted extremely precise.

Technical Performance Specifications

The SCAPE Ultra 3D Scanner comes in two different sizes corresponding to two different scan volumes and resolutions.
Ultra-L generates 2.0 M points whereas Ultra-XL generates 3.1 M points. Both models use blue laser light (447 nm).

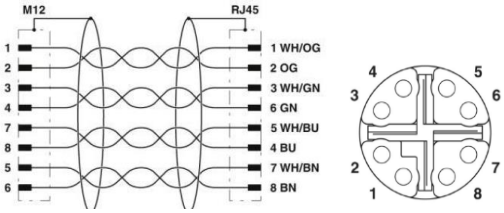
Model	Ultra-L (OP18-35)	Ultra-XL (OP18-36)
Working Range (Z-direction)	1057-2070 mm	1521-3800 mm
Field of View (see plots on page 2)[1]	1700 x 1400 mm	2600 x 2500 mm
Lateral Resolution (XY-plane)[1]	1.05/1.13 mm	1.27/1.63 mm
Min Surface Area for Scanning[1]	3.9 x 3.9 mm	4.6 x 4.6 mm
Depth Uncertainty RMS Closest to/Furthest from Scanner	1.06/2.07 mm	1.5/3.8 mm
Baseline	550 mm	860 mm

Electrical Connections

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

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

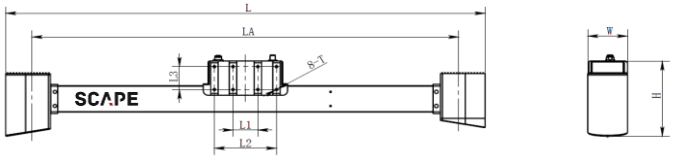
Ethernet port Connect 1 Gbps ethernet cable with RJ45/M12-X connector (supplied with scanner). If supplying your own cables: Use category Cat5e or better ethernet cables (cables capable of 1 Gbps or 10 Gbps transfer rate). Powering the device through PoE is not possible.



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):



[1] At max. distance

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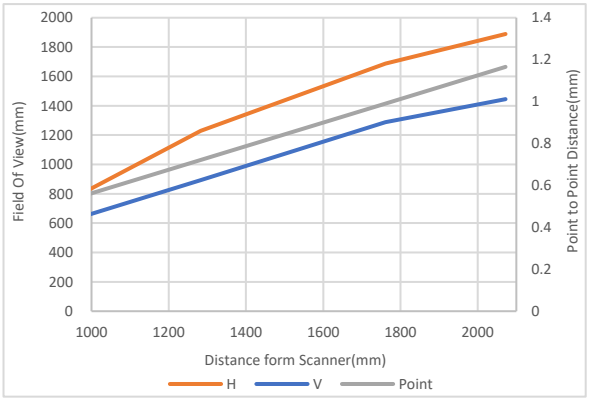
Physical Specifications

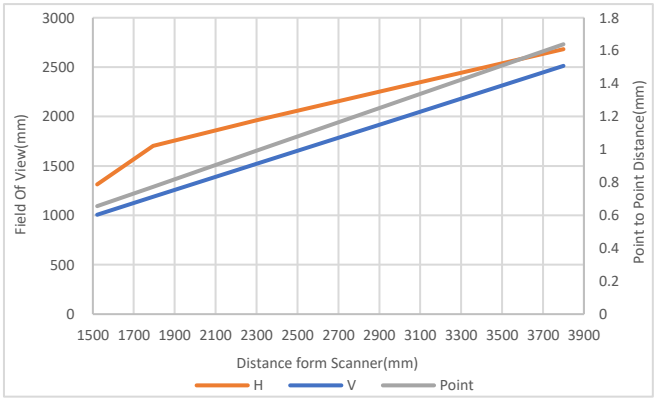
Dimensions and Weight	Ultra-L: 647 x 165 x 78 mm Ultra-XL: 966 x 165 x 80 mm	2490 g 2950 g
Safety Classification (EN 62471) and Protection	Class 3R. Class 3R lasers are considered safe when handled carefully. Avoid direct eye exposure. IP65.	

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

Ultra-L



Ultra-XL



SCAPE Ultra Industrial 3D Scanner™ Box Content

- SCAPE Ultra Industrial 3D Scanner (Ultra-L or Ultra-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 10 m between power supply and scanner
- Ethernet cable RJ45/M12 X-coded 10 m (between SCAPE Controller PC and scanner)
- Both ethernet and power supply cables can be ordered in 5, 15, 20 or 25 m per request

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 Ultra-XL (OP18-36) is shown below.