

# MV-DP4090-01P

## 3D Laser Profile Sensor



### Introduction

With high-speed, high-resolution, and large-pixel element image chips, built-in high-accuracy algorithm, image process algorithm of wide dynamic range as well as data integration algorithm, MV-DP4090-01P can output high accurate 3D point cloud data in real-time by combining high frame rate chip and accurate laser control. With compact structure, high integration, and easy operation, it is widely applied into consumer electronics, electronics manufacturing, automobile, etc.

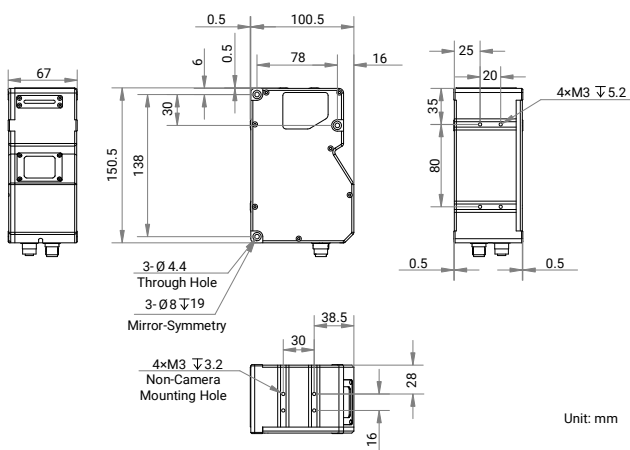
### Available Model

MV-DP4090-01P

### Applicable Industry

Consumer electronics, electronics manufacturing, automobile, etc.

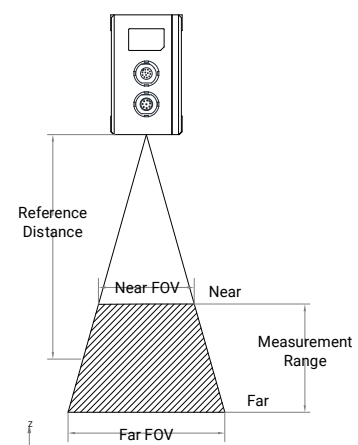
### Dimension



### Key Features

- Adopts high-speed, high-resolution, and large-pixel element image chips.
- Adopts FPGA hardware with 49 KHz scan frame rate.
- Provides customized large iris lens and ultra-uniform laser optical solution.
- Adopts ultra-high subpixel algorithm and accuracy is up to submicron level.
- Supports multiple exposure modes with good robustness.
- Adopts multiple-frame integration technology to provide complete profiles.
- Provides multiple filter modes with stable data.
- Adopts integrated design for easy installation and debugging.

### Measurement Range Diagram



## Specification

Parameter	Model	MV-DP4090-01P
		<b>3D Laser Profile Sensor</b>
<b>Performance</b>		
Data points/profile		4080
Reference distance		94 mm
Measurement range (Z-axis)		42 mm
Measurement range (X-axis)		44 mm @ near field of view 51.5 mm @ reference distance 59 mm @ far field of view
Resolution (Z-axis)		1.87 $\mu\text{m}$ to 3.98 $\mu\text{m}$
Repeatability (Z-axis)*		0.66 $\mu\text{m}$ @ data that sensor tests gauge block on optical platform
Linearity Z-axis ( $\pm\%$ of MR)		0.01
Profile data interval		10.6 $\mu\text{m}$ to 15.9 $\mu\text{m}$
Scan frame rate		2.5 kHz (within max. measurement range), max. 49 kHz (in ROI mode)
Data output		Profile data, depth image, brightness image
Trigger mode		Software trigger, hardware trigger (differential encoder)
Wavelength		405 nm
Laser safety class		Class 3R
<b>Electrical feature</b>		
Data interface		Gigabit Ethernet (1000 Mbit/s), compatible with Fast Ethernet (100 Mbit/s)
Digital I/O		12-pin M12 interface provides power and I/O, including differential input $\times$ 3 (Line 0/3/6), differential output $\times$ 1 (Line 1), and RS-232 $\times$ 1
Power supply		24 VDC
Power consumption		Typ. 20.6 W @ 24 VDC
<b>Mechanical</b>		
Dimension		150.5 mm $\times$ 100.5 mm $\times$ 67 mm (5.9" $\times$ 4.0" $\times$ 2.6")
Weight		Approx. 1150 g (2.5 lb.)
Ingress protection		IP67
Temperature		Working temperature: 0 $^{\circ}\text{C}$ to 45 $^{\circ}\text{C}$ (32 $^{\circ}\text{F}$ to 113 $^{\circ}\text{F}$ ) Storage temperature: -30 $^{\circ}\text{C}$ to 80 $^{\circ}\text{C}$ (-22 $^{\circ}\text{F}$ to 176 $^{\circ}\text{F}$ )
Humidity		20% RH to 85% RH (no condensation)
<b>General</b>		
Client software		3DMVS (V3.1.0 and above), VM3D, or third-party software
Operating system		32/64-bit Windows 7/10, 64-bit Windows 11 (8 GB memory and above, and i5 CPU recommended)

\*This data is obtained via testing gauge blocks in a laboratory, and it is an average from 4096 tests.