

LPF2 Series



Product Features

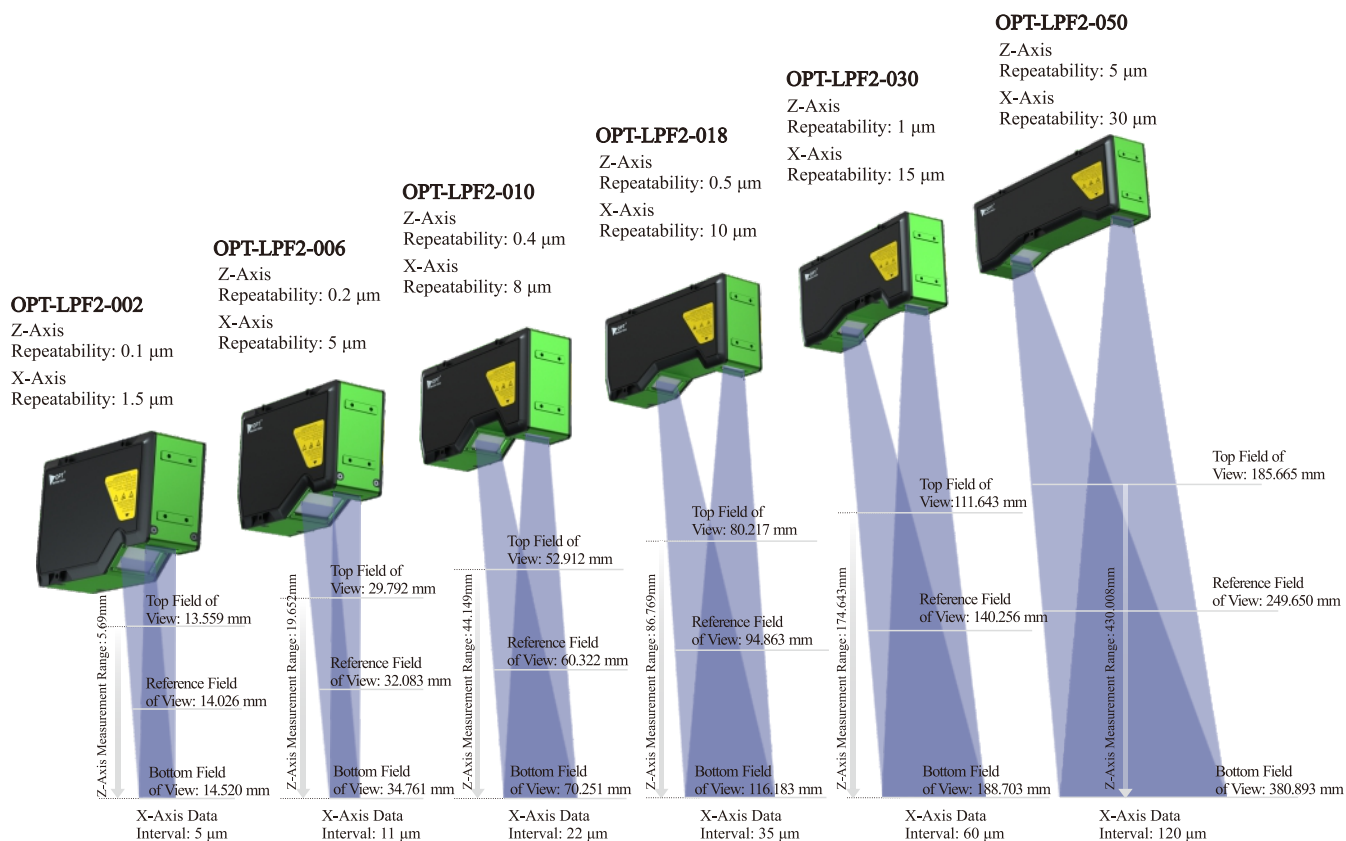
- Integrated 3D sensor design eliminates the need for external controllers, enabling independent operation with simple and quick deployment.
- New product iteration in mid-to-high-end series offers up to 3200 profile points along the X-axis, delivering higher accuracy and more detailed product contour reproduction.
- Equipped with high-performance chips and FPGA edge acceleration technology, it supports a maximum frame rate of 18 kHz, allowing high-speed acquisition and output of point cloud data.
- Features HDR functionality, combined with anti-vibration correction algorithms and post-processing algorithms, achieving better contour restoration and compatibility for scanning products with various background colors.
- Comes with both hardware and software integration, as all 3D sensors are compatible with Opt's full-featured algorithm platform software, Smart3, enabling zero-code, visualized graphical programming for quick deployment of 3D applications.
- Complies with Gige Vision 2.0 protocol, GenICam standards, as well as EMC and ROHS certifications.

Product Model and Parameters

Model		OPT-LPF2-002	OPT-LPF2-006	OPT-LPF2-010	OPT-LPF2-018	OPT-LPF2-030	OPT-LPF2-050
Reference distance(CD)		20mm	60mm	100mm	180mm	300mm	500mm
Z axis measuring range(FS)		5.69mm	19.652mm	44.149mm	86.769mm	174.643mm	430.008mm
Width of X axis	Near-end	13.559mm	29.792mm	52.912mm	80.217mm	111.643mm	185.665mm
	Reference distance	14.026mm	32.083mm	60.322mm	94.863mm	140.256mm	249.650mm
	Far-end	14.520mm	34.761mm	70.251mm	116.183mm	188.703mm	380.893mm
Z axis repeatability		0.1μm	0.2μm	0.4μm	0.5μm	1μm	5μm
X axis repeatability		1.5μm	5μm	8μm	10μm	15μm	30μm
X axis data interval		5μm	11μm	22μm	35μm	60μm	120μm
Profile points along the X-axis		3200 profile points	3200 profile points	3200 profile points	3200 profile points	3200 profile points	3200 profile points
Size(mm)		180.5*112*58	171*114*58	199.35*101*58	211.35*98*58	218.5*103*58	252.35*96*58
Weight(kg)		1.398	1.313	1.276	1.288	1.345	1.419

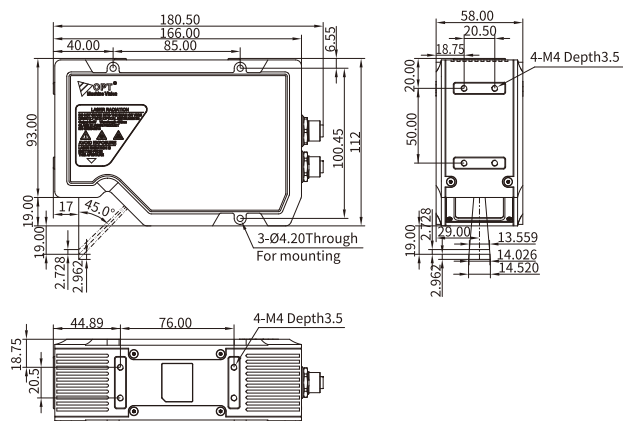
Scanning Speed (Frame Rate)	3000~18000 Hz
Z-Axis Linearity (%)	*±0.02%FS
Laser Wavelength	405 nm
Laser Safety Class	Class 2
Laser Output Power	6 mW
Overall Reference Power Consumption (W)	17.5W (Full power operation at 24VDC under normal temperature conditions)
Power Requirements	24VDC Power Supply
I/O Interface	2 Optocoupler Inputs, 3 Optocoupler Outputs
Operating Temperature	0~50°C
Storage Temperature	-20~70°C
Operating Humidity	35%~85% Non-condensing
ESD Protection	Contact Discharge: 4kV, Air Discharge: 8kV, Complies with IEC61000-4-2 Standard
EFT Protection	Power Port: 2 kV/5 or 100 kHz, Signal Port: 1 kV/5 or 100 kHz, Complies with IEC61000-4-4 Standard
Vibration (Environmental Resistance)	Frequency: 1~2500 Hz, Max Amplitude: ±25.5 mm, Max Velocity: ±2 m/s, Root Mean Square (RMS) Acceleration: 3g, Random Vibration in X, Y, Z Directions for 2 Hours Each
Enclosure Protection Rating	IP55, Complies with IEC60529 Standard
Compatible Software	3D Sensor Client Software: OPT LP Viewer, Algorithm Platform Software: Smart3
Operating System Requirements	Windows 7/10 32/64-bit, Windows 11 64-bit (Recommended: 8GB RAM, i5 or equivalent processor configuration)
Secondary Development System Support	Linux/Windows

Field of view range for F2 Series

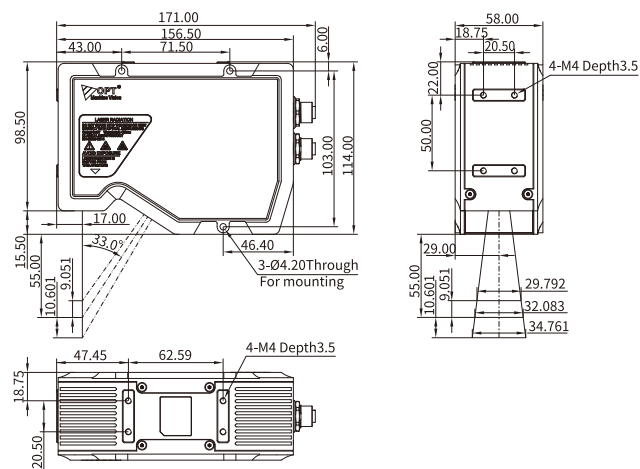


Dimensions(mm)

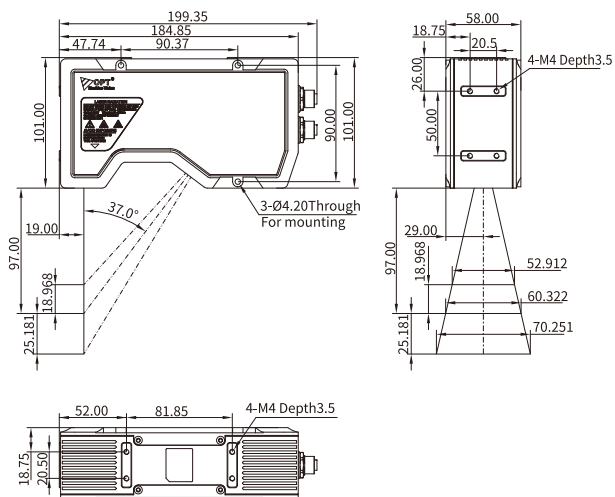
OPT-LPF2-002



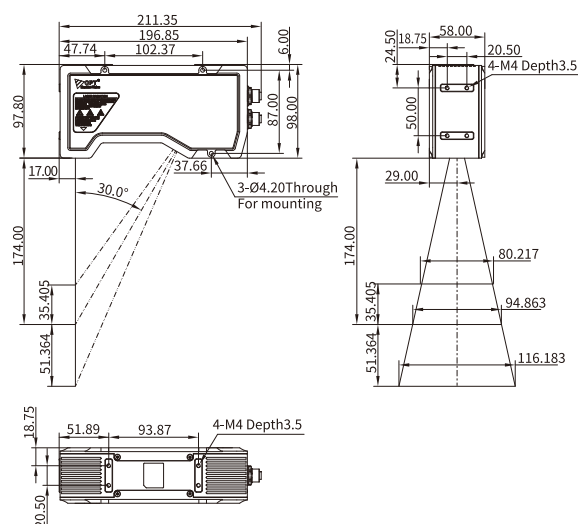
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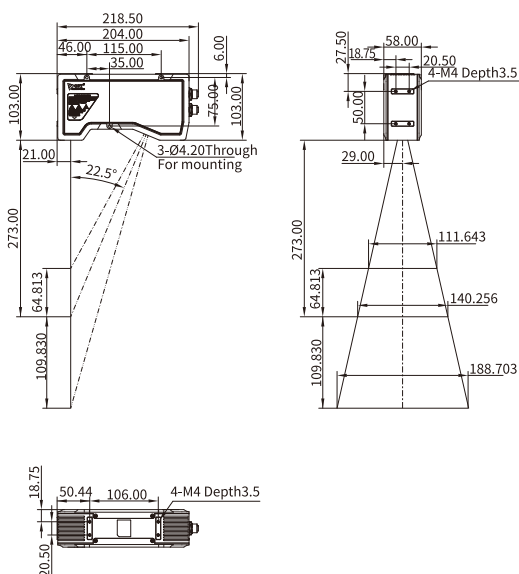
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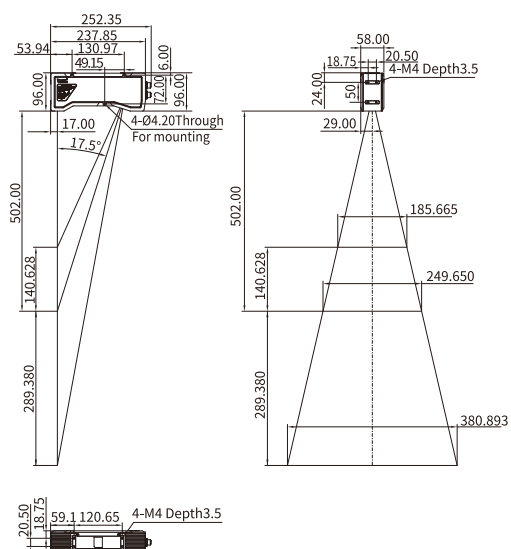
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OPT-LPF2-030

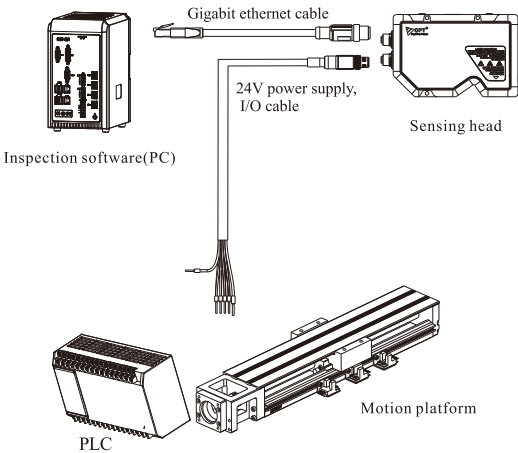


OPT-LPF2-050

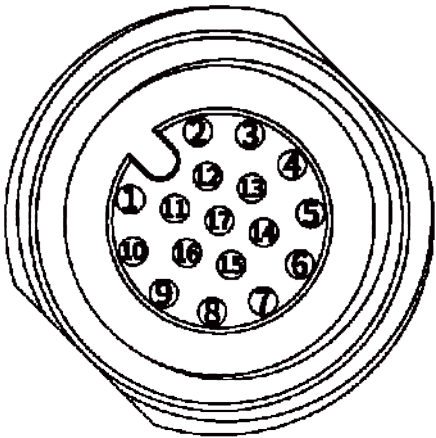


Multi-interface Trigger Mode

LPF2 Series Trigger Modes

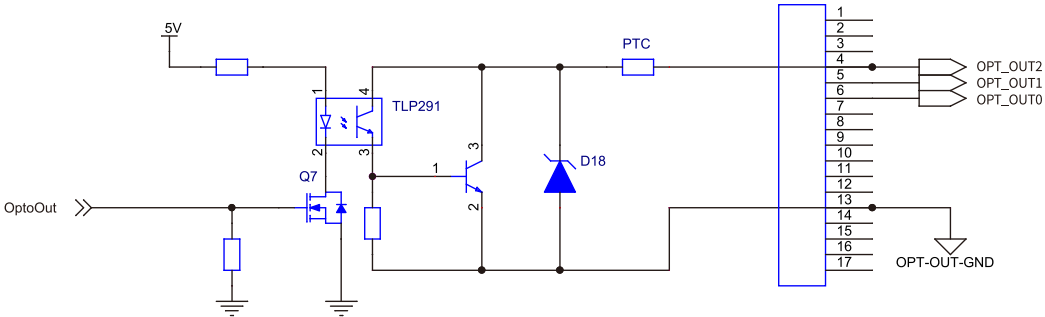


IO Interface Description



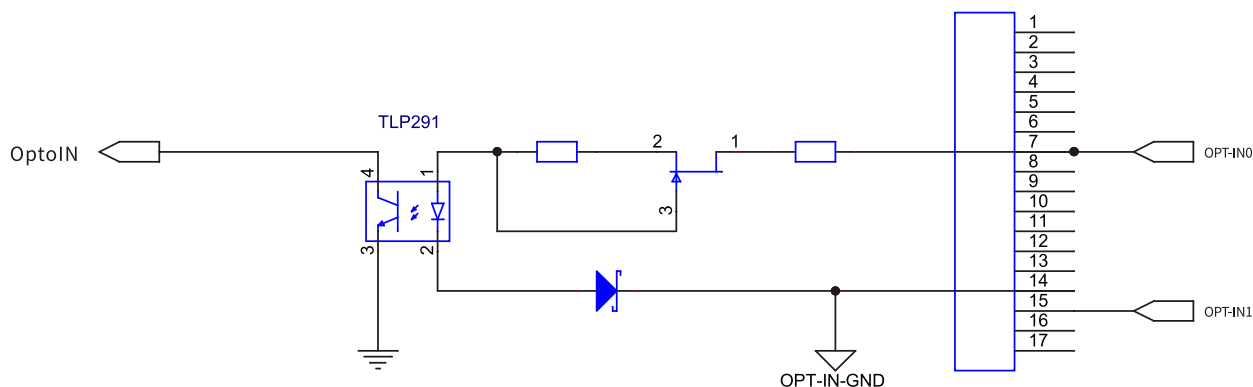
Pin	Signal	Illustrate
1	ENC_B-	Differential Encoder Channel B Negative Input, Optically Isolated
2	ENC_A-	Differential Encoder Channel A Negative Input, Optically Isolated
3	ENC_A+	Differential Encoder Channel A Positive Input, Optically Isolated
4	OPT_OUT2	General Digital Signal Output 2, Optically Isolated
5	OPT_OUT1	General Digital Signal Output 1, Optically Isolated
6	OPT_OUT0	General Digital Signal Output 0, Optically Isolated
7	OPT_IN0	General Digital Signal Input 0, Optically Isolated
8	ENC_Z-	Differential Encoder Channel B Negative Input, Optically Isolated
9	ENC_Z+	Differential Encoder Channel Z Positive Input, Optically Isolated
10	ENC_B+	Differential Encoder Channel B Positive Input, Optically Isolated
11	24V_IN_GND	Power (0V) GND
12	24V_IN	Power (+24V)
13	OPT_OUT_GND	General Digital Signal Output Ground, GND
14	OPT_IN_GND	General Digital Signal Input Ground, GND
15	OPT_IN1	General Digital Signal Input 1, Optically Isolated
16	ENC_GND	Differential Encoder Signal Ground, GND
17	Retain	Reserve

General Digital Signal Electrical Parameters



Parameters	Symbol	Test method	Nominal value
Open-Drain Output Logic "0" Leakage Current	I _{off}	External Pull-Up Voltage of 24V	10 uA.
Open-Drain Output Logic "1" Voltage	V _{on} +	/	<1V!
Maximum Sink Current of Output Interface	I _{in(max)}	/	50 mA
Maximum Pull-Up Voltage	I _{Vup(max)}	/	30 V
Output Delay Time	T _{outdelay}	External Pull-Up Voltage of 24V, Pull-Up Resistor 5kΩ	<30 us

General Digital Signal Electrical Parameters



Parameters	Symbol	Nominal value
General Digital Signal Safe Voltage Input Range	V _{in}	-40V ~ +40V
Voltage Input for Logic "1"	V _{IT+}	> 1.6V
Voltage Input for Logic "0"	V _{IT-}	0V ~ 1V
Minimum Input Pulse Width Holding Time	T _s	0.1 us

Supporting Cables

F2 Series Accessory Cables

Cable length		F2 Series			
		Ethernet cable model		Trigger cable model	
		Straight ethernet cable	Right angle ethernet cable	Straight IO cable	Right angle IO cable
3m static		CB-GE-M12A8MRJ45-S3M	CB-GE-M12A8MUARJ45-S3M	CB-M12-A17M010-S3M	CB-M12-A17MLA010-S3M
5m static		CB-GE-M12A8MRJ45-S5M	CB-GE-M12A8MUARJ45-S5M	CB-M12-A17M010-S5M	CB-M12-A17MLA010-S5M
7m static		CB-GE-M12A8MRJ45-S7M	CB-GE-M12A8MUARJ45-S7M	CB-M12-A17M010-S7M	CB-M12-A17MLA010-S7M
10m static		CB-GE-M12A8MRJ45-S10M	CB-GE-M12A8MUARJ45-S10M	CB-M12-A17M010-S10M	CB-M12-A17MLA010-S10M
15m static		CB-GE-M12A8MRJ45-S15M	/	/	/
20m static		CB-GE-M12A8MRJ45-S20M	/	/	/
3m dynamic/drag chain		CB-GE-M12A8MRJ45-T3M	CB-GE-M12A8MUARJ45-T3M	CB-M12-A17M010-T3M	CB-M12-A17MLA010-T3M
5m dynamic/drag chain		CB-GE-M12A8MRJ45-T5M	CB-GE-M12A8MUARJ45-T5M	CB-M12-A17M010-T5M	CB-M12-A17MLA010-T5M
7m dynamic/drag chain		CB-GE-M12A8MRJ45-T7M	CB-GE-M12A8MUARJ45-T7M	CB-M12-A17M010-T7M	CB-M12-A17MLA010-T7M
10m dynamic/drag chain		CB-GE-M12A8MRJ45-T10M	CB-GE-M12A8MUARJ45-T10M	CB-M12-A17M010-T10M	CB-M12-A17MLA010-T10M
15m dynamic/drag chain		CB-GE-M12A8MRJ45-T15M	CB-GE-M12A8MUARJ45-T15M	CB-M12-A17M010-T15M	CB-M12-A17MLA010-T15M
20m dynamic/drag chain		CB-GE-M12A8MRJ45-T20M	CB-GE-M12A8MUARJ45-T20M	CB-M12-A17M010-T20M	CB-M12-A17MLA010-T20M
Interface diagram	Straight connector				
	Right angle connector				

