

LiDAR Sensors from Pepperl+Fuchs

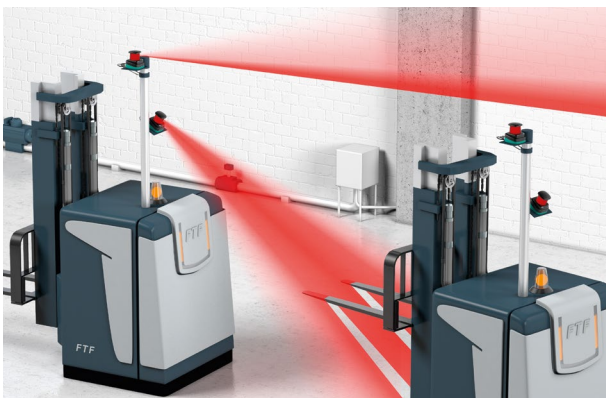
Application Guide



LiDAR Powered by PRT

Pulse Ranging Technology (PRT) is an innovative and industrial-hardened time-of-flight technology from Pepperl+Fuchs. LiDAR sensors with PRT emit very short, high-intensity light pulses and measure the distance to an object by resolving the propagation time of the pulses down to a few picoseconds. This direct-time measurement approach, combined with a high sampling rate (up to 252 kHz), provides reliable and unambiguous measurements with a high degree of repeat accuracy and spatial resolution. The combination also offers short response times and a superior signal-to-noise ratio—even in harsh ambient conditions. LiDAR sensors with PRT are the ideal solution for technologically challenging applications in a wide range of industrial automation applications.

Navigation, Localization, and Mapping





R2000 UHD 2-D LiDAR

Ideal for complex and dynamic tasks, like natural-feature navigation and topography mapping.

Highlights:

- Extremely high sampling rate and measurement density for superior landmark extraction via SLAM
- Real-world localization accuracy to within a few cm

LiDAR Family		R2000 UHD	
			
Model Number		OMD30M-R2000 OMD30M-R2000*T	OMD60M-R2000 OMD60M-R2000*T
Measurement range	90 % white	0.1 m to 30 m	0.1 m to 60 m
	10 % black	0.1 m to 10 m	0.1 m to 20 m
	Reflector	0.1 m to 200 m	0.1 m to 200 m
Scan layers		1	
Horizontal FOV°		360°	
Measurement points per scan		≤ 25,200	
Angular resolution		≥ 0.014°	
Refresh rate		10 Hz to 50 Hz	
Interface Protocol		Ethernet 100 Mbits/s TCP/IP, UDP/IP	
Output data		Distance/angle/signal/timestamp	
Operating temperature		-10 °C to 50 °C (OMD30M) -30 °C to 50 °C (OMD30M*T)	0 °C to 50 °C (OMD60M) -30 °C to 50 °C (OMD60M*T)
Enclosure rating		IP65 IP67 (OMD30M*T)	IP65 IP67 (OMD60M*T)
Availability		OMD30M – in stock OMD30M*T – in stock	OMD60M – in stock OMD60M*T – in stock

Object Perception and Navigation Support


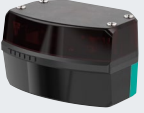


R2300 3-D LiDAR

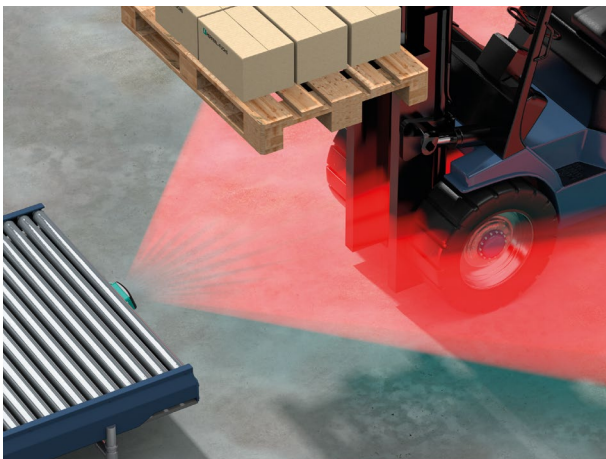
Ideal for perception tasks like object identification, classification, and positioning.

Highlights:

- Solid-state electronics and mechanical beam steering ensure a high sampling rate at low manufacturing cost
- Four scan layers enable data acquisition in 3-D space for improved object perception

LiDAR Family		R2000 HD	R2300
			
Model Number		OMD30M-R2000*HD	OMD10M-R2300*4S
Measurement range	90 % white	0.1 m to 30 m	0.2 m to 10 m
	10 % black	0.1 m to 10 m	0.2 m to 4 m
Scan layers		1	4
Horizontal FOV°		360°	100°
Vertical FOV°		–	9° (±4.5°, ±1.5°)
Measurement points per scan		≤ 8,400	≤ 4,000
Angular resolution		≥ 0.042°	≥ 0.1°
Refresh rate		10 Hz to 50 Hz	12.5 Hz/25 Hz
Interface Protocol		Ethernet 100 Mbits/s TCP/IP, UDP/IP	
Output data		Distance/angle/signal/timestamp	
Operating temperature		–10 °C to 50 °C	–30 °C to 50 °C
Enclosure rating		IP65	IP65
Availability		OMD30M*HD – in stock	OMD10M*4S – Q2/2020

Collision Avoidance and Object Detection




R2100 2-D LiDAR

Ideal for simple tasks like collision avoidance.

Highlights:

- Solid-state design delivers extra durability and is very cost-efficient
- Wide-beam LED emitters ensure reliable object detection regardless of surface texture

LiDAR Family		R2100
		
Model Number		OMD8000-R2100
Measurement range	90 % white	0.2 m to 8 m
	6 % black	0.2 m to 2 m
Scan layers		1
Horizontal FOV°		88°
Vertical FOV°		–
Measurement points per scan		11
Angular resolution		8°
Refresh rate		50 Hz
Interface Protocol		RS-232 Serial (OMD8000*R2), CAN CANopen (OMD8000*B16)
Output data		Distance/angle/signal
Operating temperature		–30 °C to 60 °C
Enclosure rating		IP67
Availability		OMD8000*R2 and OMD8000*B16 – in stock