deceler®

LGA10 series

270° high-performance 2D laser radar

- Accurate and realistic target restoration ±30mm detection precision
- Detecting distance can reach 20m
- 62mmx62mmx83mm (max) compact size
- Customized multi-angle view for different requirement
- 0.18°minimum angular
- Strong recognition ability even low reflectivity

Application Case

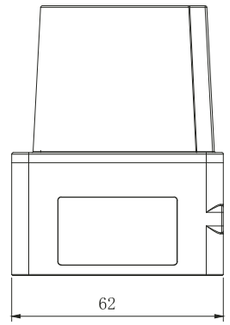
AMR | Forklift | Robot | Mechanical arm

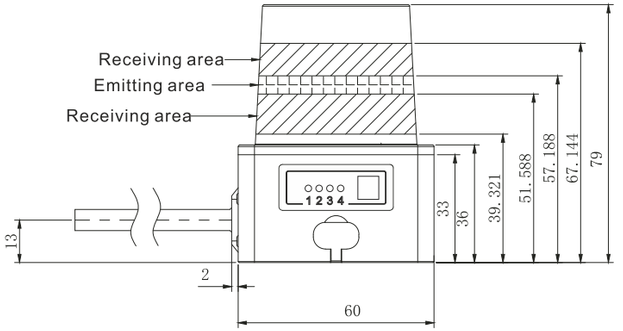
AGV | Safety protection | Smart Traffic | Smart port

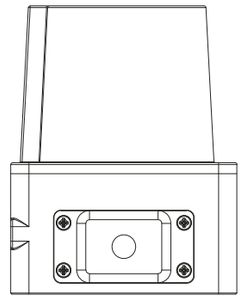
Product parameters

Detection distance	0.1m~8m (10% reflectivity)	
	0.1m~20m (90% reflectivity)	
Detection range	270°	
Scanning principle	Pulse TOF	
Laser level	Level 1(IEC60825-1:2014, EN 60825-1:2014)	
Wave length	905nm	
Sampling rate	20KHz	
Scanning frequency	10HZ、20Hz can be set	
Horizontal angular resolution	0.18°	0.36°
Response time	100ms	50ms
Accuracy	±30mm	
Startup time	8s	
Channel	15 (each channel includes 3 detection areas)	
Operating current (DC24V)	≤100ma (signal output not by IO)	
Switching input	4	
Switching output	4 (2 for NPN area warning signals, 1 pair for NPN OSSD safety output signal) NPN OR PNP output	
Protection rate	IP65	
Anti-optical interference	100000Lux	
Weight	171g	
Dimension (max)	62mm×62mm×79mm	
Sine vibration frequency	10Hz-1000Hz, acceleration 5g, 10 time each at X, Y, Z,	
Random vibration frequency	5Hz-250H, G r.m.s=4.24g, 5 hours each at X, Y, Z direction.	
Impact resistance	196m/(20G) 30000 times each at X□Y and Z directions.	
Electromagnetic compatibility	EN IEC 61000-6-2:2019; EN IEC 61000-6-4:2019	
Indicator	4 (3 for area signals, 1 for faulty signal)	
Communication interface	(USB or RS232or RS485)& Ethernet	
Power supply	DC9-28V	
Rated power	< 1.5W(without load)	
Starting power	< 3W(without load)	
Operating temperature	-10℃~55℃	
Storage temperature	-20℃~70℃	
Operating humidity	Below 85%RH	

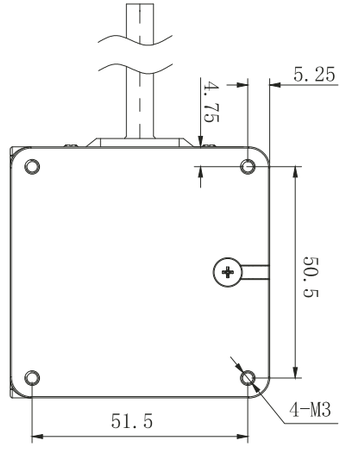
Product size



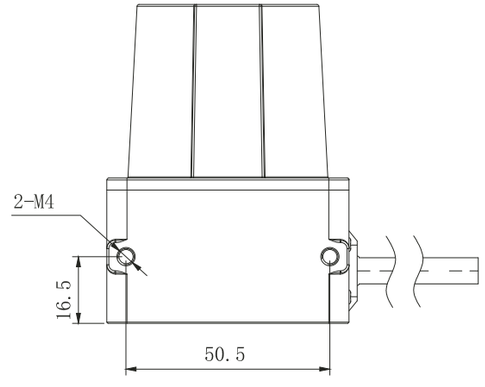




Base



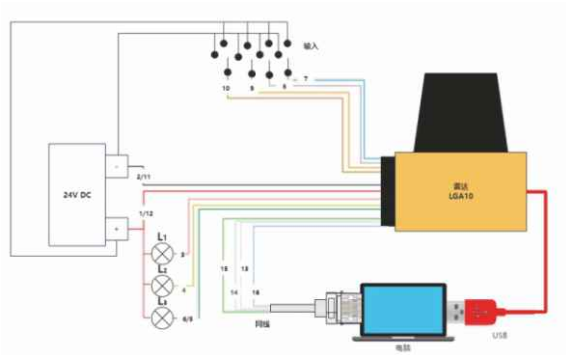
Base bottom diagram



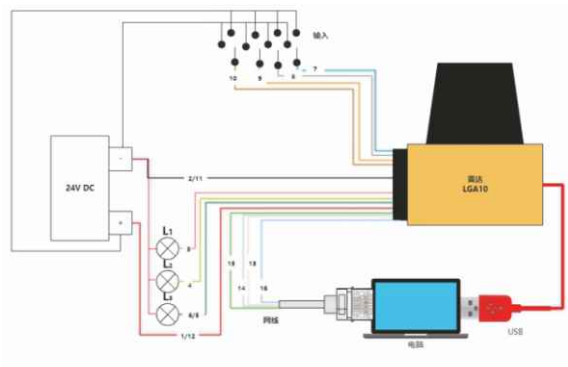
Base side diagram

Wiring Connection

Wire sequence & Related function			
Wire number	Color	Signal definition	Signal description
1	Red 26AWG	VCC	Power supply VCC
2	Black 26AWG	GND	Power supply GND
3	Light red	ALARM2	2 independent NPN outputs, ON state: maximum IOUT = 200mA, VOUT > COMIN + -2V, OFF state: I0UT < 1mA, VOUT is less than 2V. The warning zone is state ON when no obstacles, and state OFF when with obstacles.
4	Black	ALARM1	
5	Yellow	OSSD2	2 independent NPN outputs, ON state: the maximum IOUT is 200mA, VOUT ≥ COM IN +/– 2V, OFF state: IOUT < 1mA, VOUT is less than 2V. The rotected zone is state ON when no obstacles, and state OFF when with obstacles.
6	Dark green	OSSD1	
7	Dark blue	In4	Selection signal in area group, to achieve switching between multiple protected areas through the changes of input signals IN1, IN2, IN3, and IN4.
8	White	In3	
9	Orange	In2	
10	Brown	In1	
11	Grey	COM_GND	Protection input/output GND
12	Purple	COM_IN+	Protection input/output power supply
13	Pink	OUT_RX+	Network port input +
14	Transparent	OUT_RX-	Network port input -
15	Light green	OUT_TX+	Network port output +
16	Light blue	OUT_TX-	Network port output –



NPN wiring diagram



PNP wiring diagram

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LGA60 Series

320° Scan High-performance 2D Laser Radar

LGA60 is a small size and high performance laser scanner, with a Max 30m detection radius and a Min 0.025° angle resolution; Support for obstacle avoidance and navigation; Special algorithm filter surface dust and oil influence; Excellent performance in anti-glare, waterproof, chilling resistance ensure it can be used indoor and outdoor.

320°scanning angle
Up to 320° scanning range.

0.025° angular resolution
Option 0.025°, 0.05°, 0.1°, 0.25°, 0.5°.

Surface coating technology
Greatly reduce dust adhesion and ensure accurate operation.

High speed sampling capability
Max frequency 432KHz for high speed sampling and precise profile.

Navigation & obstacle avoidance
Integrate function of navigation and obstacle avoidance to maximize the satisfaction of development needs.

Multiple echo processing technology
Performs well in complex environments.

Response quickly
33ms quick scanning speed.

Strong vibration resistance
Special internal design ensure its stable performance in vibrate environment.

Applications

AMR | Forklift | Robots | Roboticarm

AGV | Area protection | Battery change for electric vehicle

Technical Parameter

Model	LGA60N4	LGA60N5
Working range	0.1m~6m (@ 1.8%)	
	0.1m~10m (@ 10%)	
	0.1m~30m (@ 90%)	
Working angular	320°	
Workking principle	PRT (pulse ranging technology)	
Laser class	Class 1 (IEC60825-1:2014)	
Laser wavelength	905nm	
Pulse time	5ns	
Sampling rate	144 Khz	432KHz
Scan frequency	10Hz、20Hz	15Hz、30Hz
Ambient light immunity	<100000 Lux	<80000 Lux
Measurement accuracy	±20mm	
Repeatability	±20mm	
Angular resolution	0.025°, 0.025°, 0.05°, 0.1°, 0.25°, 0.5°	
Measurement resolution	1mm	
Power supply	DC 10V~30V	DC 15V~30V
Working current	90 mA	120 mA
Rated consumption	＜3W	＜3W
Interface	3 NPN output signal or fault of red & orange area)	4NPN input, 4 NPN output (output signal or fault of red & orange & yellow area)
	Ethernet TCP/ UDP	
Working indicator	Green	
Output indicator	Red, yellow, orange	
Ambient temperature	-10°C-55°C	-25°C-50°C
Ambient humidity	Less than 80%RH	
Storage temperature	-25°C-70°C	
Mechanical protection	IP65	
Wire port	Rj45 ethernet	
Material	Aluminum alloy (base)	
	PUMA (Scanning window)	
Sine vibration testing	10Hz-1000Hz, 5g; 10 cycles for each axis (GBT2423.10-2019)	
Vibration resistance	50-250Hz, RMS-42.4m/s2, 5h testing for each axis (GBT 2423.56-2018)	
Shock resistance	50g, 3ms, 5000 times impacts on each axis;(G8T2423.5-2019)	
Product size	60*60*83.5mm	60*60*83.9mm
Cable length	2m ethernet cable, 1.5m cable of power & IO	1m ethernet cable, 1m cable of power & IO

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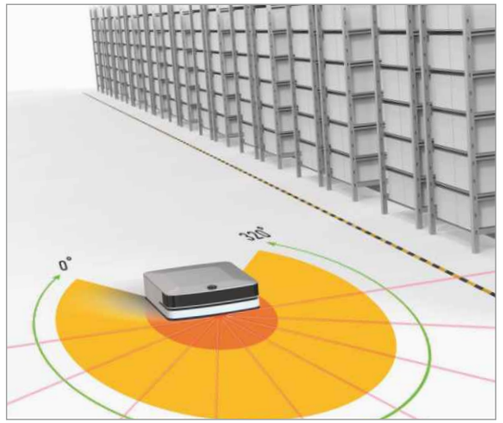
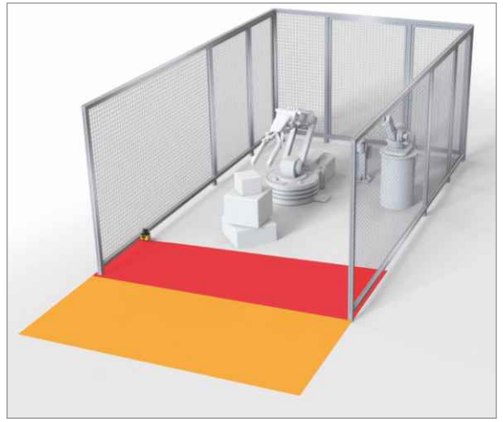
LGA60 Laser Scanner

Application case

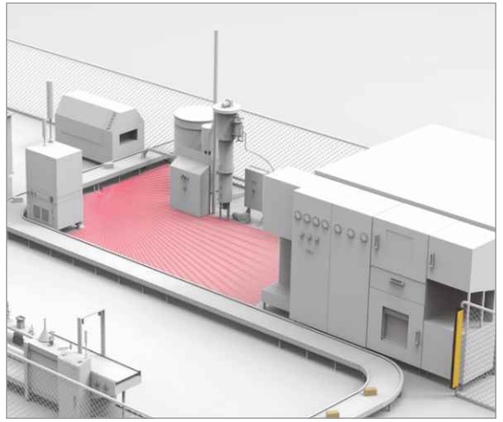
Battery change station
Outdoor use for vehicle guidance, battery positioning.



AGV navigation/obstacle avoidance
AGV trolley, navigation and obstacle avoidance integrated.



Industrial automation safety protection
Area protection and warning in industrial automation application.



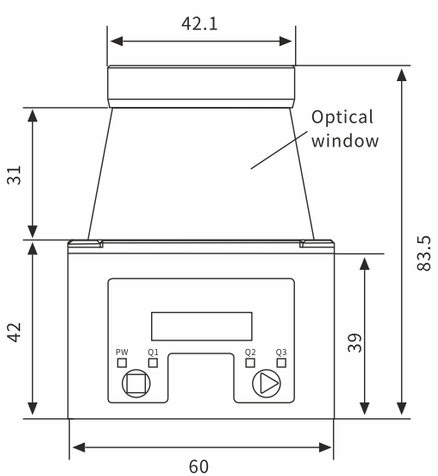
Area safety protection
Area protection and warning in large and complicated application.

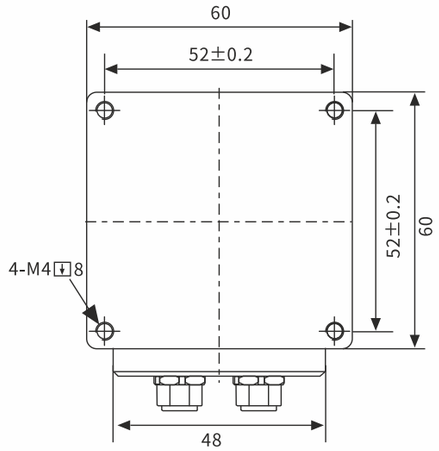
Laser scanner model description (eg, LGA60N4-UB)

Series	Output mode	Communication		Options of bracket
LGA60	□	4	–	□
	N: NPN	4: Ethernet & NPN output 5: Ethernet & NPN output & NPN input		No letter: no brackets UB: U type bracket JX: Vibration absorb bracket

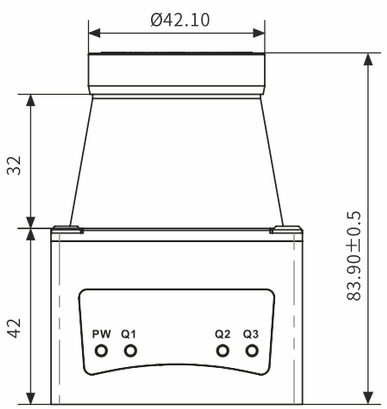
Product size

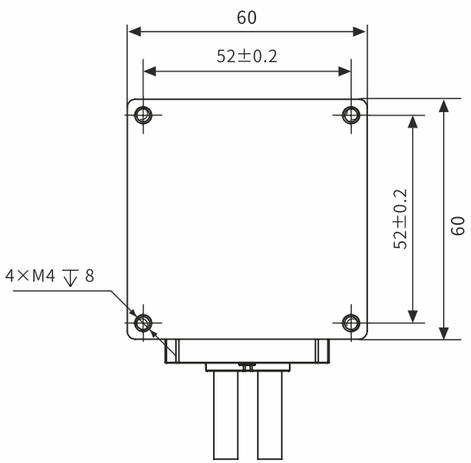
LGA60N4





LGA60N5





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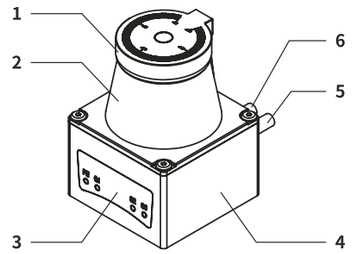
LGA60 Laser Scanner

Assembly unit specification



Serial NO	Function	Remark
1	Upper cover	Mark the scanning range and angular position
2	Sensor detection window	Sensor detection window
3	LED indicator	Status of working
4	Base	Installation position
5	Wire 1	For ethernet
6	Wire 2	For power supply and IO

Brackets option

Serial NO	Brackets	Picture
1	U shape brackets-UB	
2	Vibration absorb-JX	

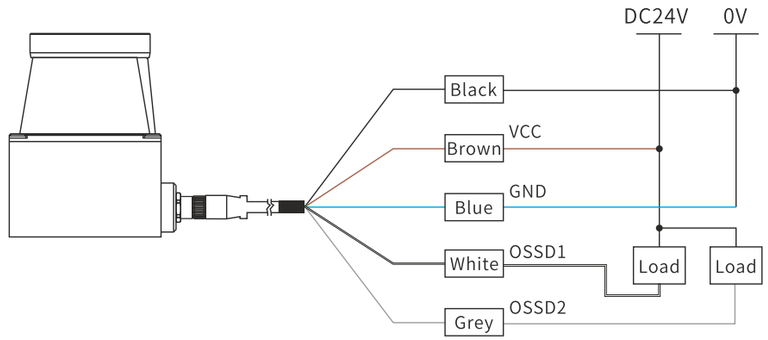
Wire definition

Ethernet port (LGA60N4/LGA60N5)

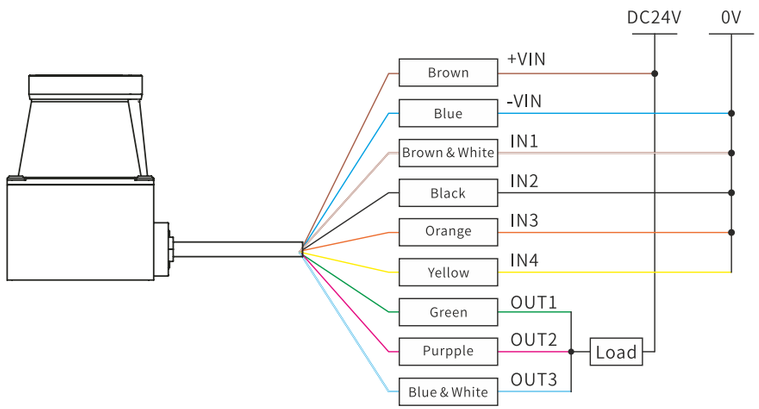
Port	RJ45	Symbol	Color	function
Ethernet wire	Pin1	ETH Tx+	Red & white	Ethernet output +
	Pin2	ETH Tx-	Red	Ethernet output -
	Pin3	ETH Rx+	Green & white	Ethernet output +
	Pin6	ETH Rx-	Green	Ethernet output -

Connection diagram

LGA60N4



LGA60N5



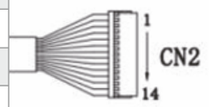
LGA60 Laser Scanner

Power & IO signal port (LGA60N4)

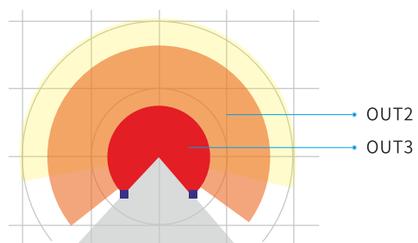
Port	Color	Symbol	Function
Power & IO signal port	White	OUT2	Corresponding to the output 2 of software
	Brown	VCC+	Positive of power
	Orange	C-H	CAN-BUS
	Yellow	C-L	CAN-BUS
	Grey	OUT3	Corresponding to the output 3 of software
	Black	OUT-COM	Output com port
	Blue	VCC-	Negative of power
	Red	OUT4	Output 4

Power & IO signal port (LGA60N5)

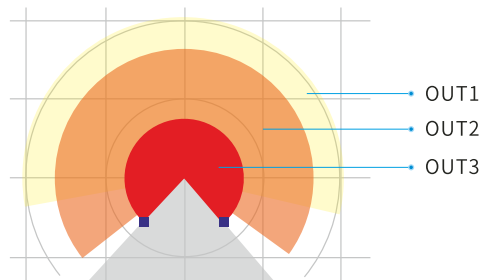
Port	Serial NO	Symbol	Color	Function
Power & IO signal port	Pin1	+VIN	Brown	Positive of supply & com input
	Pin2	-VIN	Blue	Negative of supply & com input
	Pin3	IN1	Brown & White	Input 1
	Pin4	IN2	Black	Input 2
	Pin5	IN3	Orange	Input 3
	Pin6	IN4	Yellow	Input 4
	Pin7	OUT1	Green	Output 1
	Pin8	OUT2	Purpple	Output 2
	Pin9	OUT3	Blue & White	Output 3
	Pin10	OUT4	Grey	Output 4



Output signal connection (LGA60N4 NPN output)

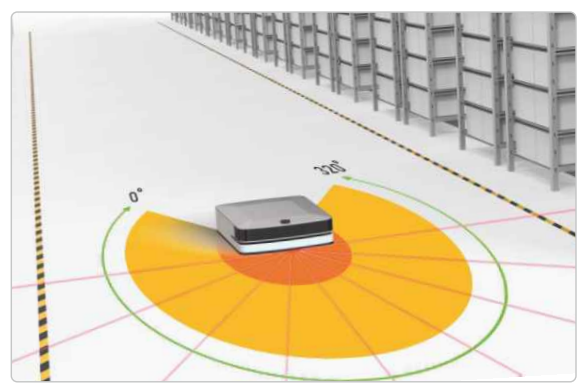
Port	Function	Output logic
OUT2	Slow speed area	Default: normally close, can be changed to normally open through software
OUT3	Emergency stop area	Default: normally close, can be changed to normally open through software
OUT4	Output fault state of sensor	Default: normally close, can be changed to normally open through software
OUT-COM	Com output	
The output port corresponds to the graph drawn of software		

Output signal connection (LGA60N5 NPN output)

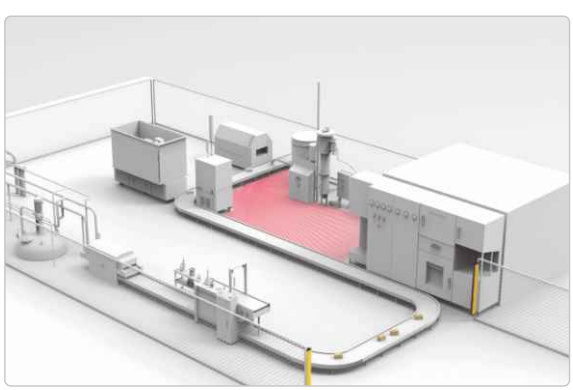
Port	Function	Output logic
OUT1	Warning area	Default: normally close, can be changed to normally open through software
OUT2	Slow speed area	Default: normally close, can be changed to normally open through software
OUT3	Emergency stop area	Default: normally close, can be changed to normally open through software
OUT4	Output fault state of sensor	Default: normally close, can be changed to normally open through software
The output port corresponds to the graph drawn of software		

Application

Small space and complex protection area.



Movable protection area, AGV trolley, gantry crane.



Large protection area, high accuracy requirement.

Safety protection of welding application, even though various interference.