

# Quick Start Use Manual

## A090 Laser Distance Sensor Sensing Reality



QSEN-A090-202103

### 1. Electrical parameters and specifications

Table 1 Electrical characteristics

Input voltage	7-26V
Average current	100mA(Vin=10V)
Peak current	<150mA(Vin=10V)
Type of communication interface	RS485,CAN,1 analog output,2 switching output, 1 switching input

Table 2 Basic parameters

Power consumption	<1.5W
Measuring range	0.05-90m(90%,300lux,single) 0.2-45m(90%,300lux,30Hz) *1
Resolution	0.1mm
Measurement reference	Front-end distance measuring sensor
Accuracy	±1.5mm (90% diffuse reflection, <20m) ±3.0mm (full range)
Measuring frequency	Support single measurement and continuous measurement; frequency of continuous measurement: 5Hz,10Hz,20Hz,30Hz are available.
Light source	650-660nm
Laser class	Class II (laser power is between 0.75~0.95mW)
Typical spot size (distance)	7mm@10m
Initialization time	<1000ms
Holder material	Metal (aluminum)
Type of connection	M12,12P, Male
Weight(excluding accessories and packaging materials)	350g
Dimensions(width x length x height)	79*127*37mm

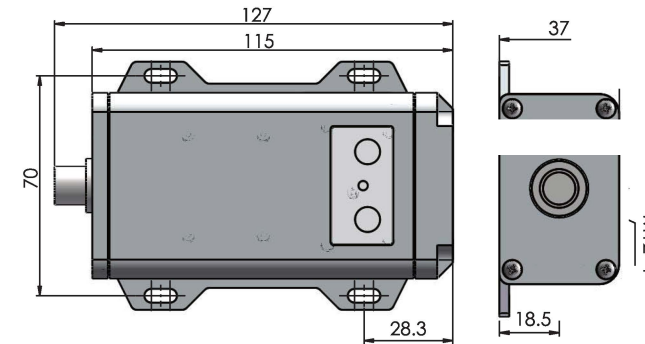
Notice: \*1 The specific measurement range will change due to the measuring frequency, light intensity, and target reflectivity.

### 2. Appearance and dimension

#### 2.1 Appearance



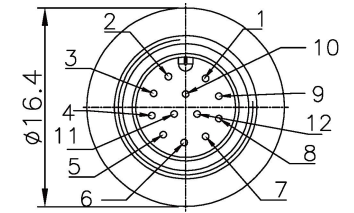
#### 2.2 Installation dimension



### 3. Instruction of wiring

#### 3.1 Description of interface terminal

The external interface adopts 12P, M12 male aviation plug, and the pin sequence is as shown in the figure below:



A 2m-long 12-core molding cable is included, with one end of M12 female aviation plug, and the other end of colored wire.

1	V+	7...26V
2	GND	0V
3	O1	Switching output channel 1, push-pull output, maximum drive current 200mA
4	O2	Switching output channel 2, push-pull output, maximum drive current 200mA
5	VCCIO	IO voltage, 12V-24V
6	485A	485 output A
7	485B	485 output B
8	Multi1	CANH, IIC_SDA,5VIO(toggle switch to shift;program functions also need to be set to corresponding functions through parameters),default to CANH
	Multi2	CANL, IIC_SCL,5VIO(toggle switch to shift;program functions also need to be set to corresponding functions through parameters),default to CANL
10	GNDIO	IO ground
11	I1	INPUT1,switching input channel 1,when not connected, it is high level,Active low
12	AnalogOut	Analog signal output, support -5V,0-10V,4-20mA, 0-20mA,0-24mA,parameter selection is required, default to 4-20mA out ut

#### Notice:

- 1) The 485 interface, CAN interface, analog output, IO output and input all adopt a fully isolated design. Thus do not connect VCCIO and GNDIO with V+ and GND together, otherwise the effect of power isolation will not be achieved.
- 2) If only 485 and CAN are used, VCCIO and GNDIO may not be connected. If the switching output and input functions are used, VCCIO and GNDIO must be connected.
- 3) If analog output is used, GNDIO should be taken as the reference ground.

### 4 Communication interface description

#### 4.1 RS485 modbus RTU communication protocol

Please refer to "Industrial Ranging Sensor Modbus RTU Communication Protocol" for detailed information.

#### 4.2 CAN communication protocol

The CAN communication protocol supports standard frames and extended frames; the communication parameters could be set via RS485 bus. Please refer to "Industrial Ranging Sensor Modbus RTU Communication Protocol" for detailed CAN communication setting method. For CAN communication protocol, please refer to "Industrial Ranging Sensor CAN Communication Protocol".

#### 4.3 Analog output

There are 6 options for analog output function, namely:

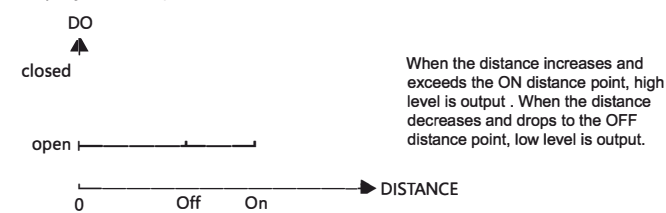
- =0 off
- =1 0-5V
- =2 0-10V
- =3 4-20mA
- =4 0-20mA
- =5 0-24mA

The configuration parameters should to be set via RS485 bus. Please refer to "Industrial Ranging Sensor Modbus RTU Communication Protocol" for details.

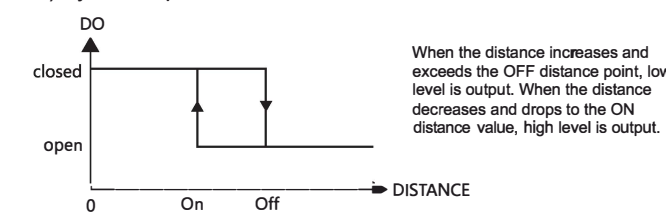
#### 4.4 Switching outputs

The switching output is in push-pull mode and supports two modes of output setting, namely (1: ON> OFF, 2: ON <OFF). The device automatically judges the mode according to the set hysteresis parameters.

##### 1) Hysteresis parameter: ON level>OFF level



##### 2) Hysteresis parameter: ON level<OFF level



The IO output configuration parameters should be set via the RS485 bus. Please refer to "Industrial Ranging Sensor Modbus RTU Communication Protocol" for details.

#### 4.5 Switching input

The functional parameters of the switching input have three modes, as shown below:  
=0 off  
=1 not connected or high level to start measurement, low level to stop measurement  
=2 not connected or high level to stop measurement, low level to start measurement  
IO input configuration parameters should be set via RS485 bus. Please refer to "Industrial Ranging Sensor Modbus RTU Communication Protocol" for details.

### 5. Service and maintenance

Please visit the OLEI official website for enquiry of service and maintenance information;

Website: [www.ole-systems.com](http://www.ole-systems.com)

Path: Service and Support>>>Service and maintenance

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