Data Sheet **Rfinder10D**

Version 1.0 – April. 2024

www.tione.kr

Function

Applications

- **Motion detection**
- **Level monitoring**
- **Robotics**
- **Distance measurement**

Characteristic

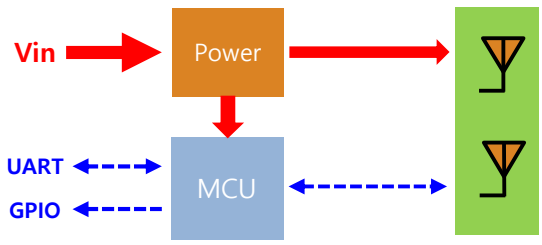
- **Easy to mount and install on equipment.**
- **5V power support**
- **UART support**
- **Detection angle : 8 degree**
- **60GHz PCR (Pulsed coherent radar)**

Product specification

The R-finder10D is a module based on Pulsed coherent radar sensor chip, thus It is compact, lightweight and easy to use sensor module. These modules have a radar transceiver for PCR and is suitable for low power, high precision measurement and detection systems.

- PCR Radar (1RX, 1TX)
- 57~64 GHz frequency band.
- UART interface for data transfer (115,200bps)
- Operating range 10m
- 28 x 28 x 22(mm) product size

Block diagram



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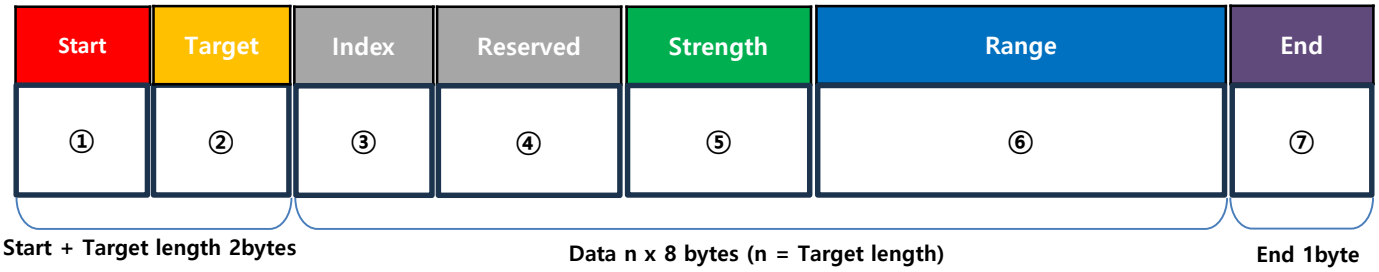
ELECTRICAL CHARACTERISTICS

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Radar						
Frequency range			57		64	GHz
Output power (EIRP)		P_{out}		11		dBm
Sensor						
Detection of range	RCS@100	d		10		m
antenna pattern		E-plane		8.0±1.5		°
		H-plane		8.0±0.8		°
Power supply						
supply voltage (25℃)		V_{CC}			5.0	V
supply current (25℃)	operating current	I_{CC}		100		mA
Environment						
operating temperature		T_{OP}	-20		+50	°C
storage temperature		T_{STG}	-20		+50	°C
Mechanical Outlines						
Outline dimensions	Housing outlines	height length width		22.0±0.50 28.0±0.50 28.0±0.50		mm
	Header pin	pitch contact height		2.54±0.10 0.64±0.01 6.00±0.30		mm
Weight						
		w		13±0.5		g

UART Protocol packet structure 1)



Information	Packet
① **Start**	• 1byte : 0x 0C (uint8_t)
② **Number of Targets**	• 1byte : 0x Variable (uint8_t)
③ **Index**	• 1byte : 0x Variable (uint8_t)
④ **Reserved**	• 1byte : 0x 41 (uint8_t)
⑤ **Strength**	• 2byte : 0x Variable (short little endian), Unit : 0.01dB
⑥ **Range**	• 4byte : 0x Variable (unsigned int little endian), Unit : mm
⑦ **End**	• 1byte : 0x 0E (uint8_t)

1) Total packet length : number of targets x 8 + 3 (bytes)

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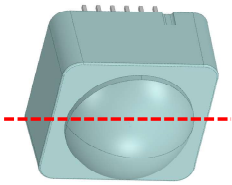
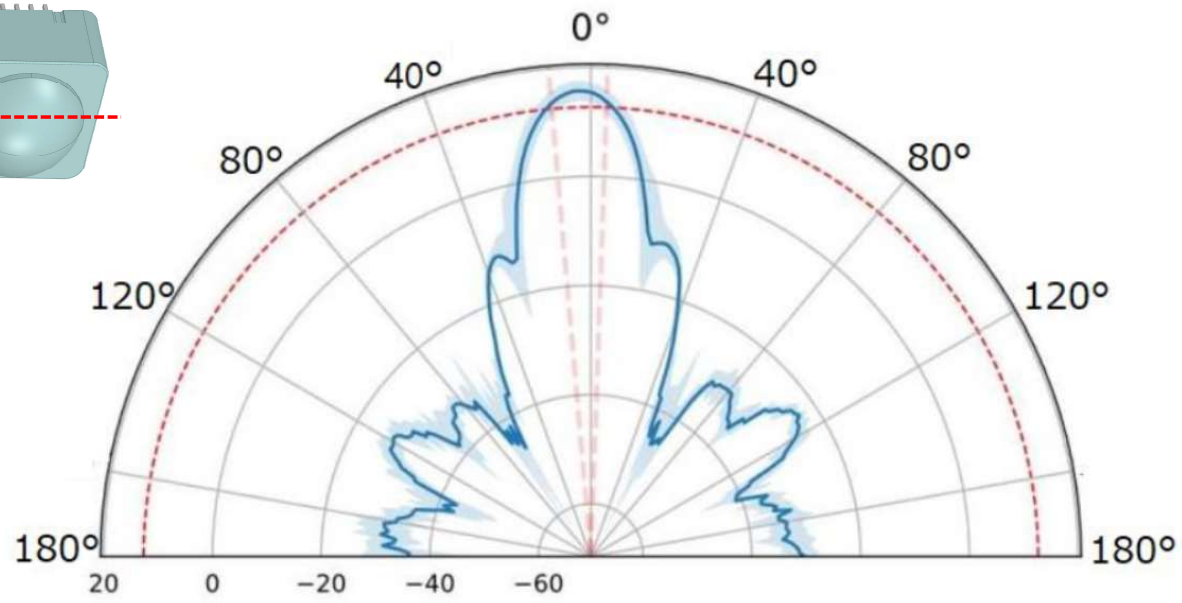
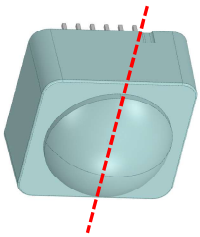
ANTENNA PATTERN

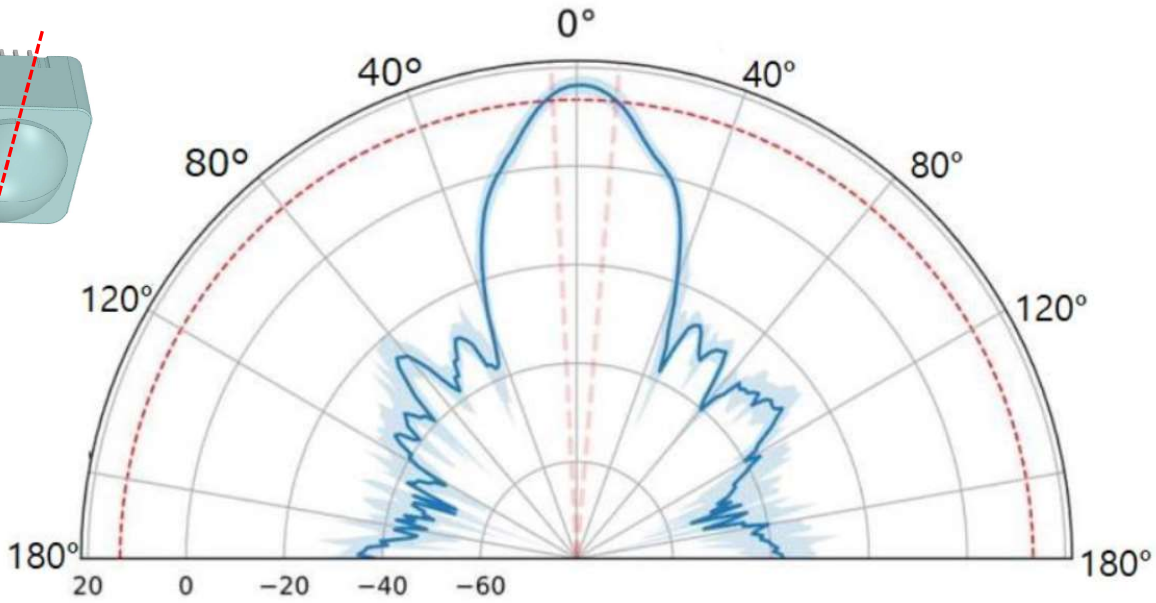
E-plane





H-plane





system pattern	E-plane			8.0±1.5		°
	H-plane			8.0±0.8		°

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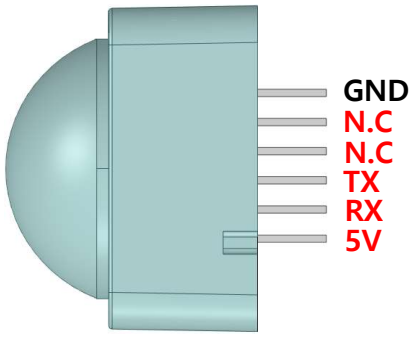
INTERFACE Rfinder10D 2), 3)

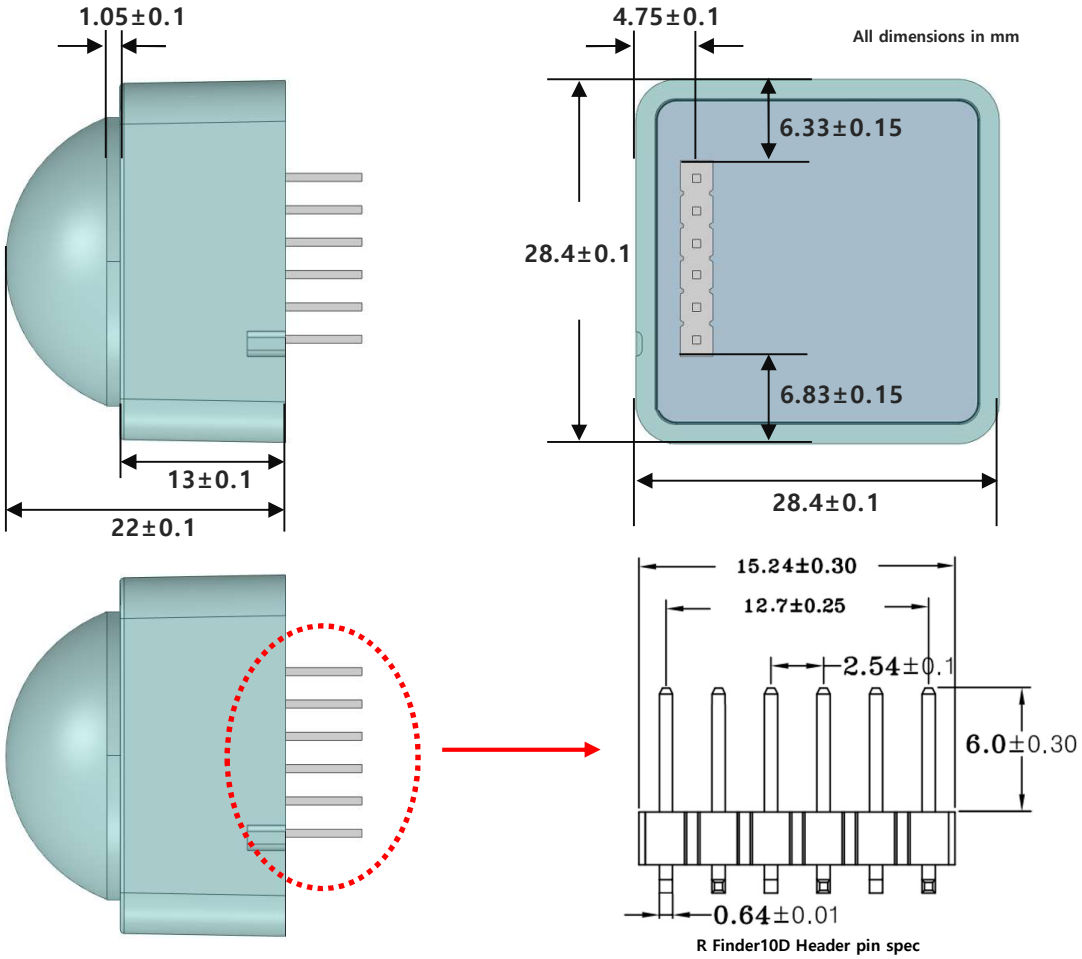


PIN #	DESCRIPTION	IN/OUT	COMMENT
1	VCC	PWR	5.0V Power
2	UART RX 2)	IN	Receiver Data
3	UART TX 2)	OUT	Transmitter Data
4	GPIO 1	N.C	Reserved
5	GPIO 0	N.C	Reserved
6	GND	GND	Ground

2) UART Baud Rate (115200), Data (8), Parity (None), Stop (1), Flow Control (None)
3) Cable not included.

HARDWARE DESCRIPTION 4)

Don't touch Header pin for ESD risk.



R Finder10D Header pin spec

4) Design can be changed later.

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