

Flow_Radar_2021_User Manual

Revision Record

Date	Revision content	Reviser	Revision
2022/4/19	-Initial version	chenjinxian	1.0

Flow_Radar_2021_User Manual	1
1、 Basic Functions	1
2、 core performance	2
3、 External Interface	3
4、 Working condition	4
5、 Standard requirement	5



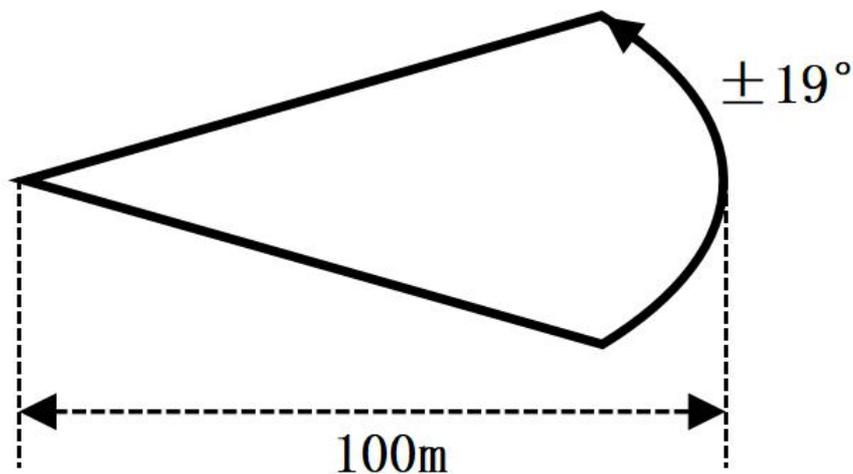
一、 Flow_Radar_2021_User Manual

1、 Basic Functions

Product Name	Flow_Radar_2021
Power Supply	5.8V
Radar accuracy	$\pm 0.3\text{m}$
Earth-like flight distance	0~100m
Optical flow detection distance	0~5m
Transfers mode	UART

2、 core performance

(1) Detection distance and beam width



(2) System indicators

Parameter	Condition	minimal value	Typical Value	Maximum Value	Units
System Features					
radio frequency		24.00	-	24.25	GHz
Output Power (EIRP)		18	-	20	dBm
Radiation power		64	-	100	mW
Modulation Mode		FMCW			
Range/Speed characteristics					
Distance measuring range		0		100	m
range accuracy			±0.3		m
Antenna Specification					
beam width	The X axis direction (-3dB)		40		deg
	The Y axis direction(-3dB)		30		deg
minor level	The X axis direction		-		dB
	The Y axis direction		-16		dB
Other features					
power supply		4.5	5.8	15	V DC

working current		200	-	230	mA
Start the infrared LED current		1.3	1.4	1.7	A
Storage Temperature		-40	-	125	°C
Working Temperature		-40	-	85	°C
Weight			48		g
Dimensions		97x43x9.3(length, width and height)			mm

3、External interface

Pin number	Wire color	Pin function description	
1	Green	UART1_TX	serial portTX
2	Blue	UART1_RX	serial portRX
3	Red	BAT	power supply5.8V
4	Block	GND	ground

LED indicator is defined as follows:

Name	Color	function	icon
LED0	bright green	SD card recording indicator is normal and slow flashing, abnormal or no SD	

		card is inserted.	
LED1	bright green	The system operation indicator light flashes normally, and is usually on or off abnormally	
LED2	bright green	The light of optical flow function flashes normally, and the optical flow module is off if there is no difference or no connection	
PWR	red	Power indicator light, always on after power on	

4、working conditions

- (1) Working Temperature: -20°C to $+85^{\circ}\text{C}$
- (2) Storage Temperature: -40°C to $+105^{\circ}\text{C}$
- (3) working voltage: 5.8V

5、 meet the standard requirements

(1) During transportation, installation and storage of terrain module 2021, static protection measures shall be taken, and the surface chip and sensor parts of terrain module 2021 shall not be touched by hand;

(2) waterproof grade IP65



FCC Statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- - Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- - Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device meets all the other requirements specified in [Part15C, Section 15.249](#) of the FCC Rules.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance [20cm](#) between the radiator & your body.

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users,

and

2) The transmitter module may not be co-located with any other transmitter or antenna.

The OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

IMPORTANT NOTE:

In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for reevaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

The module is tested for standalone mobile RF exposure use condition. Any other usage conditions such as co-location with other transmitter(s) or being used in a portable condition will need a separate reassessment through a class II permissive change application or new certification.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that [20 cm](#) may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "[Contains FCC ID: 2A46G-TR24S100](#)". The grantee's FCC ID can be used only when all FCC compliance requirements are met.

The end product shall bear the following 15.19 statement: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

OEM/Host manufacturer responsibilities

Must use the device only in host devices that meet the FCC/ISED RF exposure category of mobile, which means the device is installed and used at distances of at least 20cm from persons.

OEM/Host manufacturers are ultimately responsible for the compliance of the Host and Module. The final product must be reassessed against all the essential requirements of the FCC rule such as FCC Part 15 Subpart B before it can be placed on the US market. This includes reassessing the transmitter module for compliance with the Radio and EMF essential requirements of the FCC rules. This module must not be incorporated into any other device or system without retesting for compliance as multi-radio and combined equipment.

Additional text needed for the host product manufacturer to provide to end users in their end-product manuals. If RF exposure statements and use conditions are not provided, then the host product manufacturer is required to take responsibility of the module through a change in FCC ID (new application).