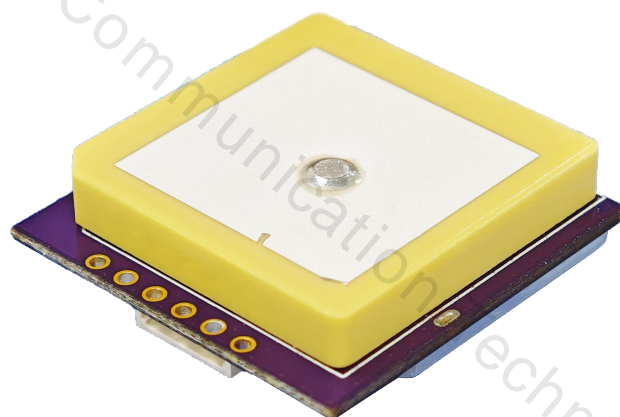


Dalang

DL28U9T





**Dalang Communication
Technology Co., Ltd
Product specification sheet**

Product Name:	GMOUSE
Product model:	DL28U9T
Version number:	V 1.0
Revision Date:	2024.08.02

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Shenzhen Dalang Communication Technology Co., Ltd

1 Product application scenarios

The DL28U9T module integrates advanced UBX-M9140 modules and is equipped with high-performance ceramic antennas that can simultaneously track satellite signals from up to four GNSS constellations, ensuring precise positioning even in challenging environments such as complex urban canyons. This receiver performs excellently in distinguishing positioning signals from environmental noise, and can effectively capture positioning data even under weak satellite signal conditions. This module can be used for automotive and industrial tracking applications, such as navigation, remote information processing, and drones. Refer to Figure 1 for details.



Figure 1 Product Application Scenarios

2 Function

In this chapter, we will delve into and elaborate on the functions and working principles of DL28U9T, detailing how it plays a key role in different applications, as follows:

1. progressiveness technology: The module is designed based on UBX-M9140 series products, which can ensure stable and high-precision positioning performance even in extreme environments. This is thanks to its highly optimized receiver design and advanced signal processing algorithms, which enable the module to provide accurate positioning services even in urban canyons, forest coverage, and high interference areas.

2. Four mode joint solution: Supports the joint solution of Beidou, GPS, Galileo, and GLONASS, demonstrating excellent compatibility with global positioning systems and fast, reliable initialization capabilities. This multimodal fusion technology ensures seamless positioning in any location and under any environmental conditions worldwide.

3. 25Hz data output rate: This module has a high data output rate of 25Hz, demonstrating its high-performance processing capability, which can quickly respond and adapt to dynamically changing environments. This feature makes the module particularly suitable for applications such as drones that require rapid positioning updates, providing powerful support for dynamic control and navigation.

4. Compatibility: Fully compatible with popular automatic flight control systems in the market such as Pixhawk and APM, providing extensive application flexibility and integration convenience. This high level of compatibility ensures that it can be seamlessly integrated into multiple drone systems, accelerating product development and deployment.

5. Ceramic antenna: The built-in 25*25*4 dual polarized ceramic antenna has the advantages of light weight, high gain, high precision, and strong anti-interference ability. This carefully designed antenna combination improves signal reception quality and ensures positioning accuracy in changing environments.

6. Industrial noise reduction: Adopting industrial grade low-noise RF circuit design, it enhances the ability to resist multipath interference and ensures clear signal acquisition even in high noise environments. This industrial grade noise reduction technology provides excellent signal clarity and stability for the module.

7. Industrial grade geomagnetism: The industrial grade geomagnetic compass ISENTTEK IST8310 is used to ensure high-precision direction and position information. This high-performance geomagnetic compass enhances the navigation capability of the module, especially in environments with complex or changing magnetic fields, ensuring high-precision direction recognition and positioning accuracy.

3 Structural characteristics

In this chapter, we will delve into the design details of the product and present its appearance characteristics and precise interface definitions through detailed structural diagrams. This perspective aims to provide a comprehensive framework to deepen the understanding and cognition of product structure. Refer to Figure 2 and Table 1 for details.

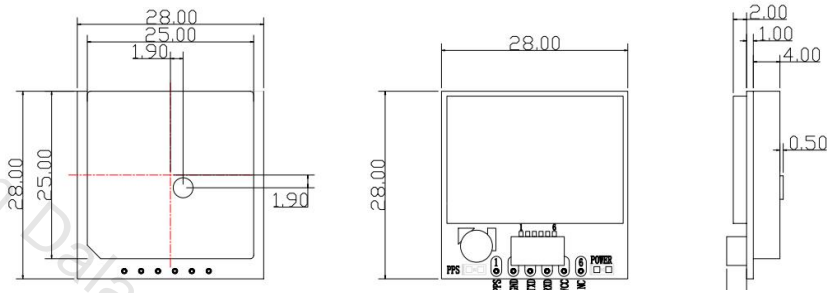


Figure 2 Dimensional drawing (unit: mm)

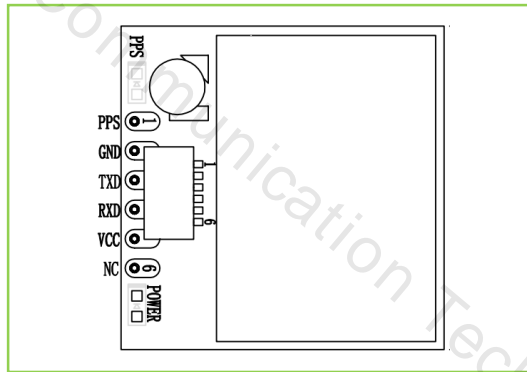


Table 1 Interface Definition

NO.	Name	Describe
SMD-1.25-6P	1	VCC Power input, DC+5V
	2	RXD G-inch PS serial input, 3.3V TTL
	3	TXD GPS serial port output, 3.3V TTL
	4	GND GND
	5	SDA Geomagnetic IIC data pin
	6	SCL Magnetic IIC clock pin
DIP-2.54-6P	1	PPS Second pulse output
	2	GND GND
	3	TXD GPS serial port output, 3.3V TTL
	4	RXD GPS serial input, 3.3VTTL
	5	VCC Power input, DC+5V
	6	NC No internal connection

Note: Customers can choose between two interfaces according to their own needs

4 Specification parameters

In this chapter, we will provide a detailed list and explanation of the product chip characteristics, sensitivity, accuracy, working principle, and other technical details, as shown in Table 2.

Table 2 Product Specification Parameters

Specification parameters			
Chip characteristics	1	chip	UBX-M9140
	2	Signal channel	92-channel
	3	working frequency	GPS: L1 C/A, QZSS: L1 C/A/S, GLONASS: L10F, BeiDou: B1I, Galileo: E1B/C , SBAS L1 C/A: WAAS, EGNOS, MSAS, GAGAN
	4	Time pulse frequency	0.25Hz-25Hz (default 1Hz)
	5	Time pulse signal accuracy	RMS: 30ns 99% : 60ns
	6	Horizontal position accuracy	1.5m CEP (with SBAS) 2.5m CEP (without SBAS)
	7	Start Time	Cold start: 24 seconds Warm start: 2s Hot start: 2s
	8	sensitivity	Tracking: -167dBm Re capture: -160dBm Cold start: -148dBm Hot start: -159dBm
	9	Speed accuracy	0.05m/s
	10	Baud rate	38400bps (default) [Optional: 4800-921600]

	11	Output Protocol	NMEA-0183、RTCM 3.3、UBX
	12	Output level	TTL
	13	Extreme working state	Gravity acceleration limit: 4g Height limit: 80,000m Speed limit: 500m/s
Antenna characteristics	1	Antenna specifications	25*25*4
	2	Maximum gain of antenna	2.5dBi
	3	Polarization mode	RHCP
	4	Noise coefficient	≤0.8dB
	5	LNA gain	L1: 20±2dB
Working characteristics	1	working voltage	3V-5.5V DC(Typical value: 5.0v)
	2	power waste	<100mW @5V
	3	size	28*28*7mm
	4	weight	14g
	5	Connector	SH1.0mm 6pin
	6	working temperature	-35°C-75°C
	7	Storage temperature	-40°C-85°C
Campass	1	campass	IST8310

5 Product physical picture

In this chapter, we will present real-life photos of the product, as shown in Figure 3. Through these pictures, you can see our products from different angles and details. We believe that through authentic display, we can better convey the value and philosophy of the product, thereby enhancing your trust and satisfaction with the product.

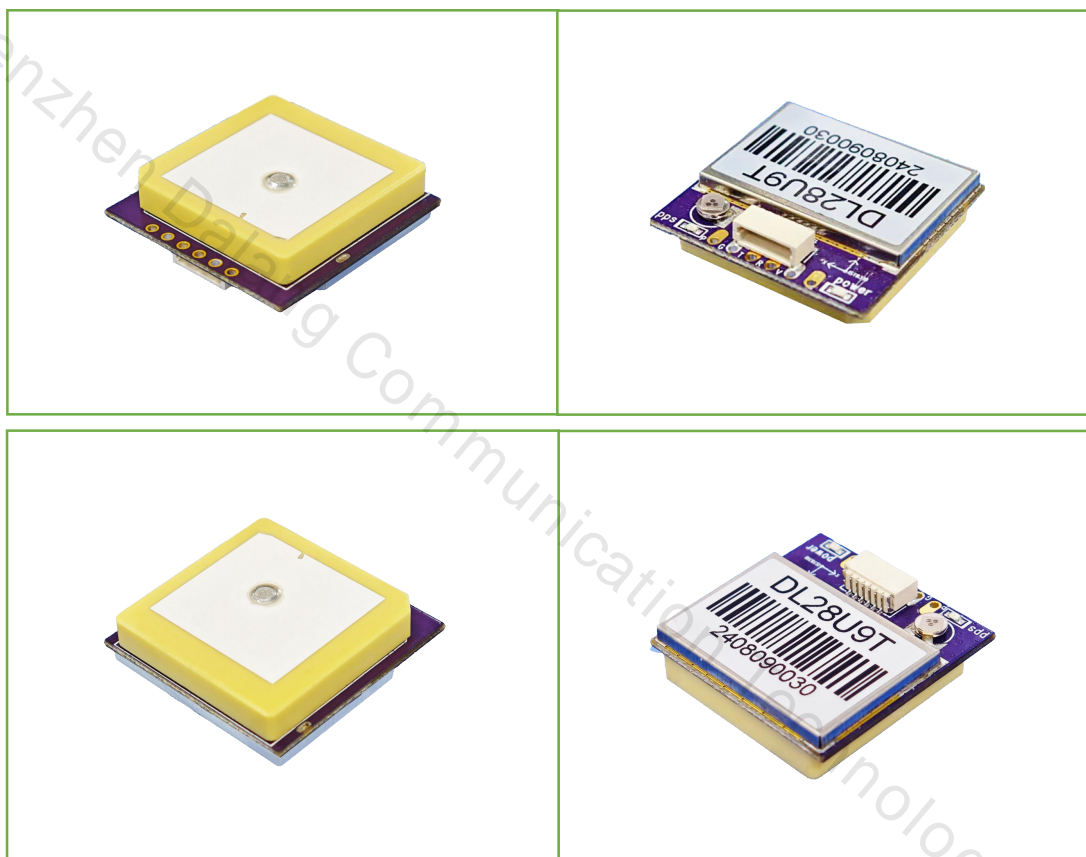


Figure 3:Physical display image