DL28U9C

Dalang Communication Technology Co., Ltd Product specification sheet

Product Name:	GMOUSE
Product model:	DL28U9C
Version number:	V 1.0
Revision Date:	2025.04.18

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Catalogue

1 Product application scenarios

The DL28U9C 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 DL28U9C, 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.

2. Four mode joint solution: Supports the joint solution of Beidou, GPS, Galileo, and GLONASS four modes, demonstrating excellent compatibility with global positioning systems and fast, reliable initialization capabilities.

3.25Hz data output rate: The 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.

4. Compatibility: Supports A-GPS services such as Assist Now Online and Assist Now Offline.

5. Ceramic antenna: The built-in 25 * 25 * 4mm ceramic antenna has lightweight, high gain, high precision, and strong anti-interference ability.

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.

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.

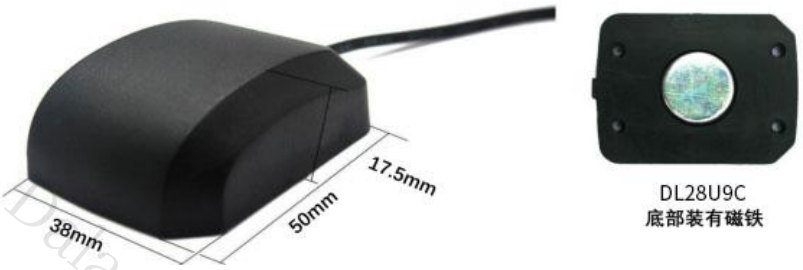

Figure 2 Dimensional drawing (unit: mm）

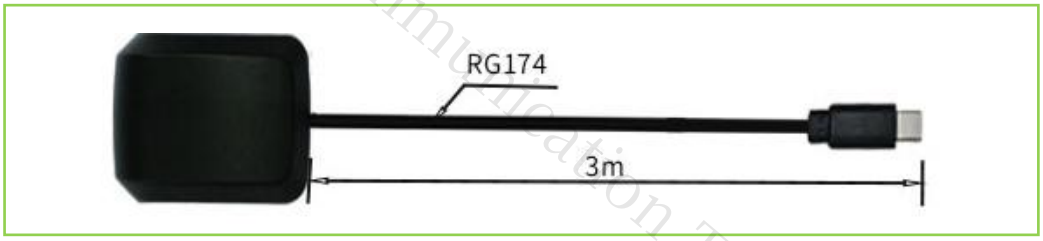

Table 1 Interface Definition

No.	Pin number	signal name	describe
1	A1/A12	GND	Grounding (physically symmetrical, actually on the same pin)
2	A2/A11	TX1+ / TX2+	Ultra high speed differential pair (USB 3.2 Gen1/Gen2)
3	A3/A10	TX1- / TX2-	Ultra high speed differential pair (USB 3.2 Gen1/Gen2)
4	A4/A9	VBUS	Power supply (default 5V, supports PD up to 20V/5A)
5	A5/A8	CC1 / CC2	Configure channels (detect insertion direction, PD protocol)
6	A6/A7	D+ / D-	USB 2.0 differential pair (low-speed data transfer)
7	B1/B12	GND	grounding
8	B2/B11	RX2+ / RX1+	Ultra high speed differential pair (receiving end)
9	B3/B10	RX2- / RX1-	Ultra high speed differential pair (receiving end)
10	B4/B9	VBUS	power supply
11	B5/B8	CC2 / CC1	Configure channel (symmetrical with A5/A8)
12	B6/B7	D- / D+	USB 2.0 differential pair (reverse to A6/A7)

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	50*38*17.5
	4	weight	44.6g
	5	Connector	TYPE-C
	6	wire rod	RG174
	7	Line length	3m（customizable）
	8	working temperature	-35℃-75℃
	9	Storage temperature	-40℃-85℃

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