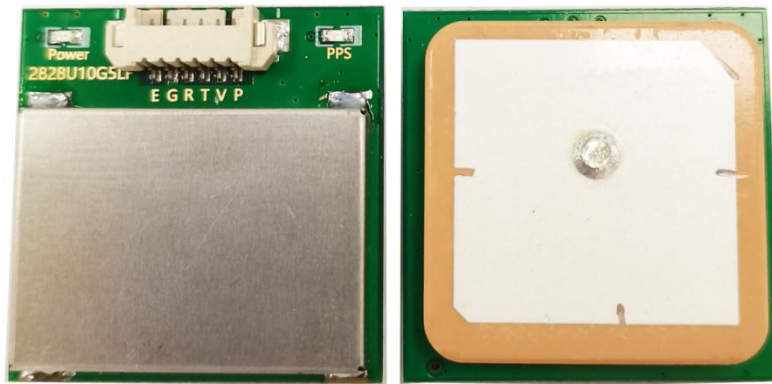


GL-2828U10 GPS+BeiDou Multi-Mode Positioning UBX-M10050



One 6pin, 1.25MM pitch, single-ended 15cm cable is included free of charge with each module, as shown:



Default configuration: GPS+SBAS+Galileo+QZSS multi-mode positioning, built-in FLASH, 3.3V or 5V power supply,

TTL-level output, 38400 baud rate, 1HZ output, NMEA-0183 protocol output.

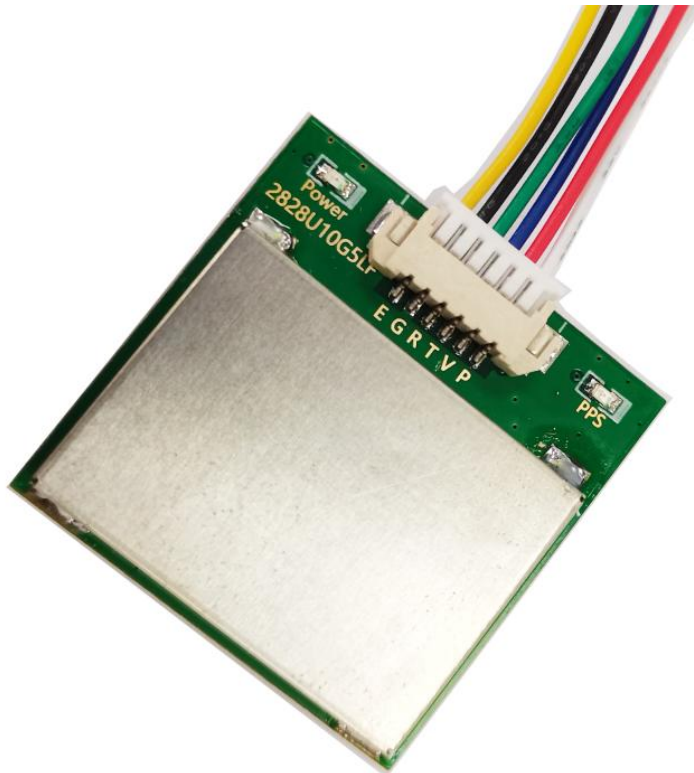
User-configurable settings:

1. Data baud rate: 38400 (default) (options: 4800,19200,38400,57600,115200, etc.)
2. Output sentences: (GGA, GSA, GSV, RMC, VTG, GLL) can be combined freely.
3. Data update rate: 1Hz-10Hz (configurable to output data 1-10 times per second).
4. Configurable PPS pulse (e.g., flash the PPS LED once every 3 seconds for indicator synchronization).

Built-in FLASH retains the configured settings after power-off.

Highlights:

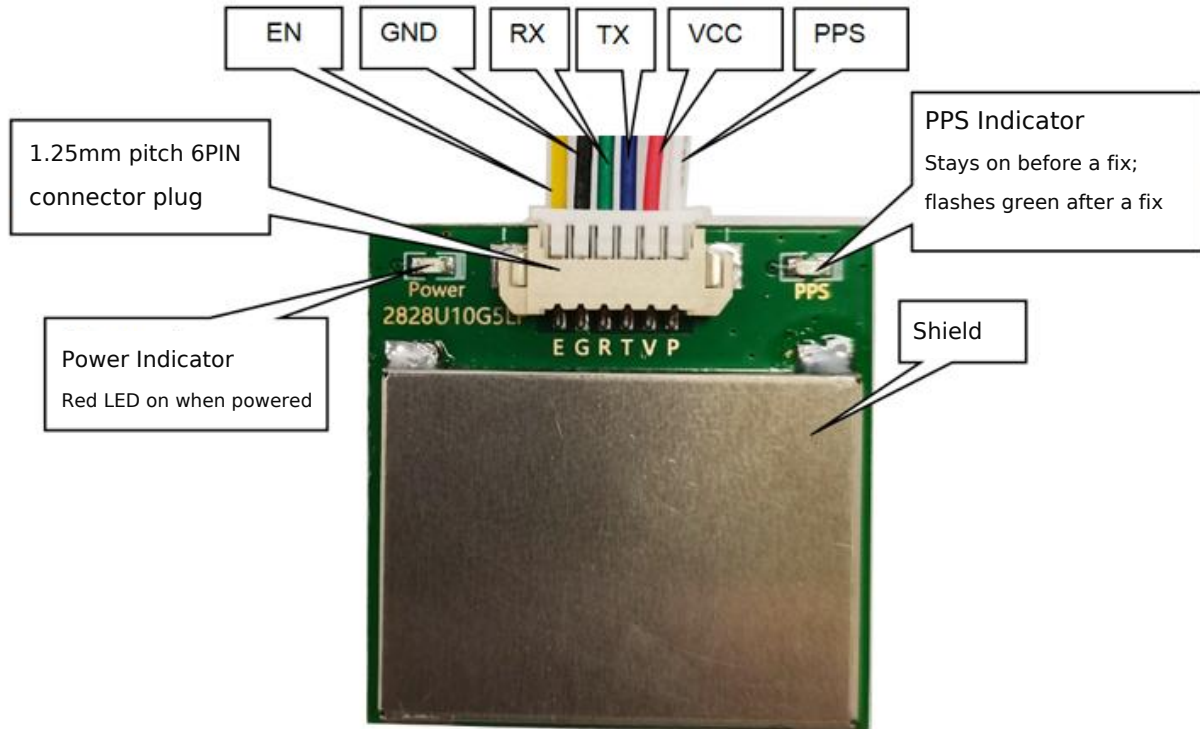
- Main chipset: UBX-M10050-KB
- Supports GPS+SBAS+Galileo+QZSS (default); GPS+GLONASS; GPS+BeiDou multi-mode output
- Product size: 28 x 28 x 8.5 mm
- Built-in LNA signal amplifier
- Built-in Flash; configurable baud rate, output sentences, output rate and PPS parameters
- Industry-standard 25 x 25 x 4mm high-sensitivity ceramic antenna
- Built-in TCXO crystal and Farad capacitor for faster hot start
- 1-10Hz positioning update rate



Product Performance		
Item	Description	Specifications
Chip Features	Chip	UBX-M10050-KB
	Frequency	L1, 1575.42MHz ; L2,1561.10MHz ; L3,1602.00MHz ; B1,1561.098MHz
	Baud Rate	4800bps-921600bps (default 38400bps)
Sensitivity	Tracking	-167dBm
	Acquisition	-160dBm
	Cold Start	-148dBm
Startup Time	Cold Start	Average 26 seconds
	Warm Start	Average 24 seconds
	Hot Start	Average 1 second
Accuracy	Horizontal Accuracy	2.0m CEP 2D RMS with SBAS assistance (open sky)
	Time Accuracy	30 ns
Operating Limits	Max. Altitude	50000m
	Max. Speed	500 m/s
	Max. Acceleration	<= 4G
Data Output	Output Level	TTL level
	Output Protocol	NMEA0183 standard protocol (selectable output sentences)
	Update Rate	1-10 Hz (default 1Hz)
Physical Properties	Dimensions	28 x 28 x 8.5 mm
	Weight	12g
	Connector	6pin socket, 1.25mm pitch
Power Supply	Voltage	DC 3.3V-5V, typical 5V
	Current	Approx. 40mA operating; approx. 0.06mA in low-power (sleep) mode
Indicator LEDs	POWER LED	Red LED lights up when powered
	PPS LED	Stays on before positioning; flashes after a fix
Environment	Operating Temp.	-40°C to 85°C
	Storage Temp.	-40°C to 85°C

Product Dimensions: 28*28*8.5mm

PIN Definition Diagram:



PIN Functions:

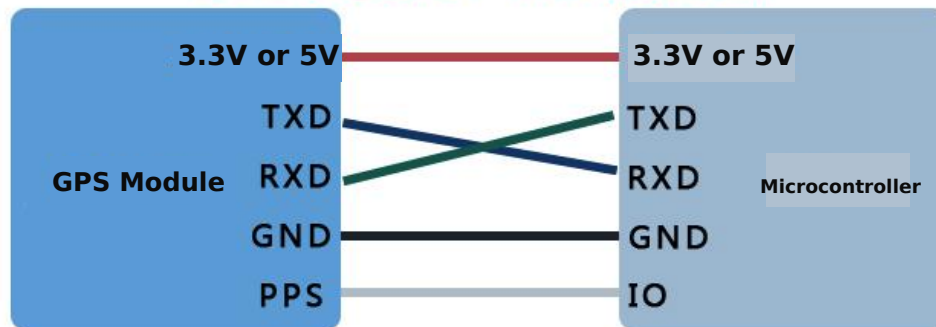
PIN Name	Description
EN	Power enable; high level or floating = on, low level = off
GND	Ground
RXD	TTL serial data input
TXD	TTL serial data output
VCC	System power supply: 3.3V-5V; operating current approx. 40mA
PPS	Time reference pulse output

Indicator	Description
POWER LED	Power LED: red LED lights when power is on
PPS LED	PPS LED: stays on before positioning; flashes after a fix

GPS Module and USB-to-TTL Cable Wiring Diagram



GPS Module and Microcontroller Wiring Diagram



NMEA0183 Protocol

NMEA 0183 Output

GGA: Time, Position, Fix Type

GLL: Longitude, Latitude, UTC Time

GSA: GPS receiver mode, satellites used for positioning, DOP value

GSV: Visible GPS satellite information, elevation, azimuth, SNR

RMC: Time, Date, Position, Speed

VTG: Ground Speed Information

Identifier	Meaning
\$GB	BeiDou Navigation Satellite System
\$GP	Global Positioning System (GPS-global positioning system)
\$GN	Global Navigation Satellite System (GNSS-global navigation satellite system)
\$GL	GLONASS (GLONASS satellite system)
\$GA	Galileo (Galileo satellite navigation system)

GPS+GLONASS Dual-Mode Sample Data:

\$GNGGA,051325.00,2240.60831,N,11359.87030,E,1,12,0.77,85.6,M,-2.7,M,,*69

\$GNGSA,A,3,13,15,02,29,05,24,21,30,,,,,1.31,0.77,1.06*14

\$GNGSA,A,3,83,69,84,79,85,70,,,,,1.31,0.77,1.06*14

\$GPGSV,3,1,10,02,48,116,32,05,41,034,35,06,04,128,20,12,00,197,*75

\$GPGSV,3,2,10,13,73,040,33,15,62,242,47,21,09,318,38,24,17,179,42*7E

\$GPGSV,3,3,10,29,48,278,47,30,11,055,32*73

\$GLGSV,3,1,11,68,03,043,,69,38,006,27,70,40,286,18,71,06,247,*6D

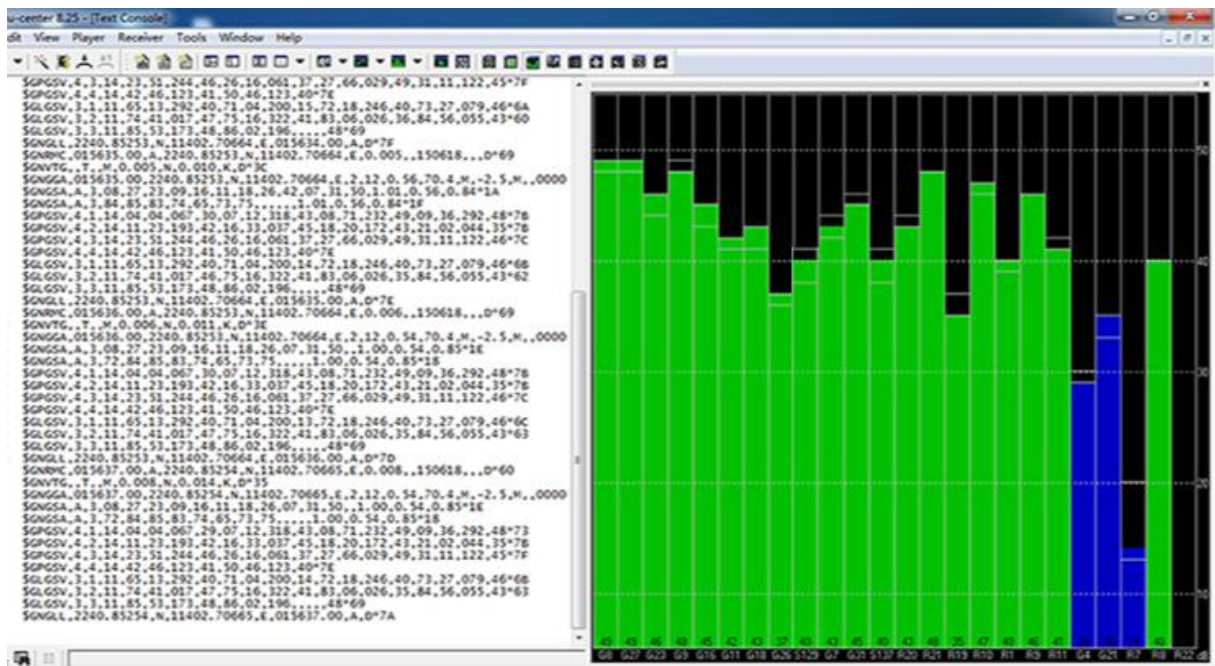
\$GLGSV,3,2,11,78,01,050,,79,09,086,16,80,05,144,,83,30,160,28*68

\$GLGSV,3,3,11,84,84,258,32,85,30,331,27,,,,37*65

\$GNGLL,2240.60831,N,11359.87030,E,051325.00,A,A*7C

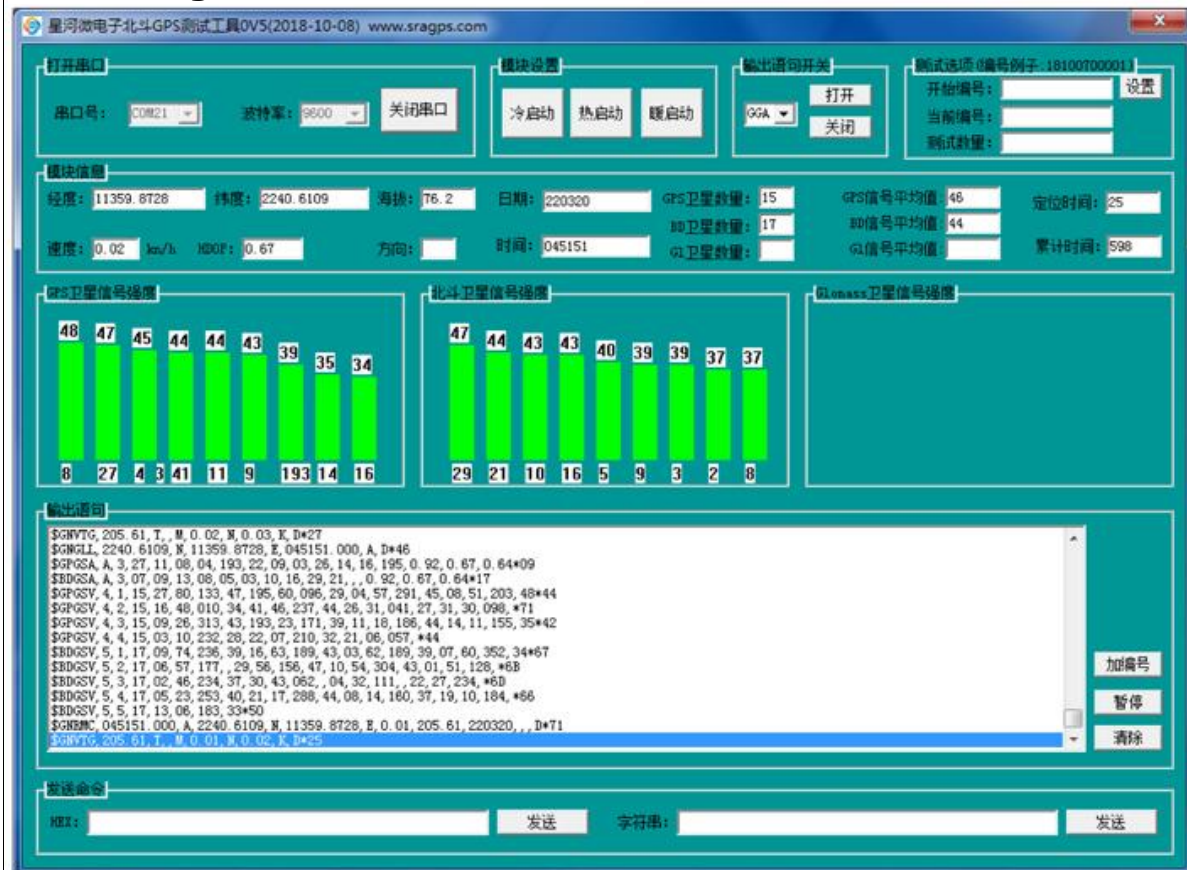
\$GNRMC,051325.00,A,2240.60831,N,11359.87030,E,0.009,,231018,,,A*65

\$GNVTG,,T,,M,0.009,N,0.018,K,A*3D

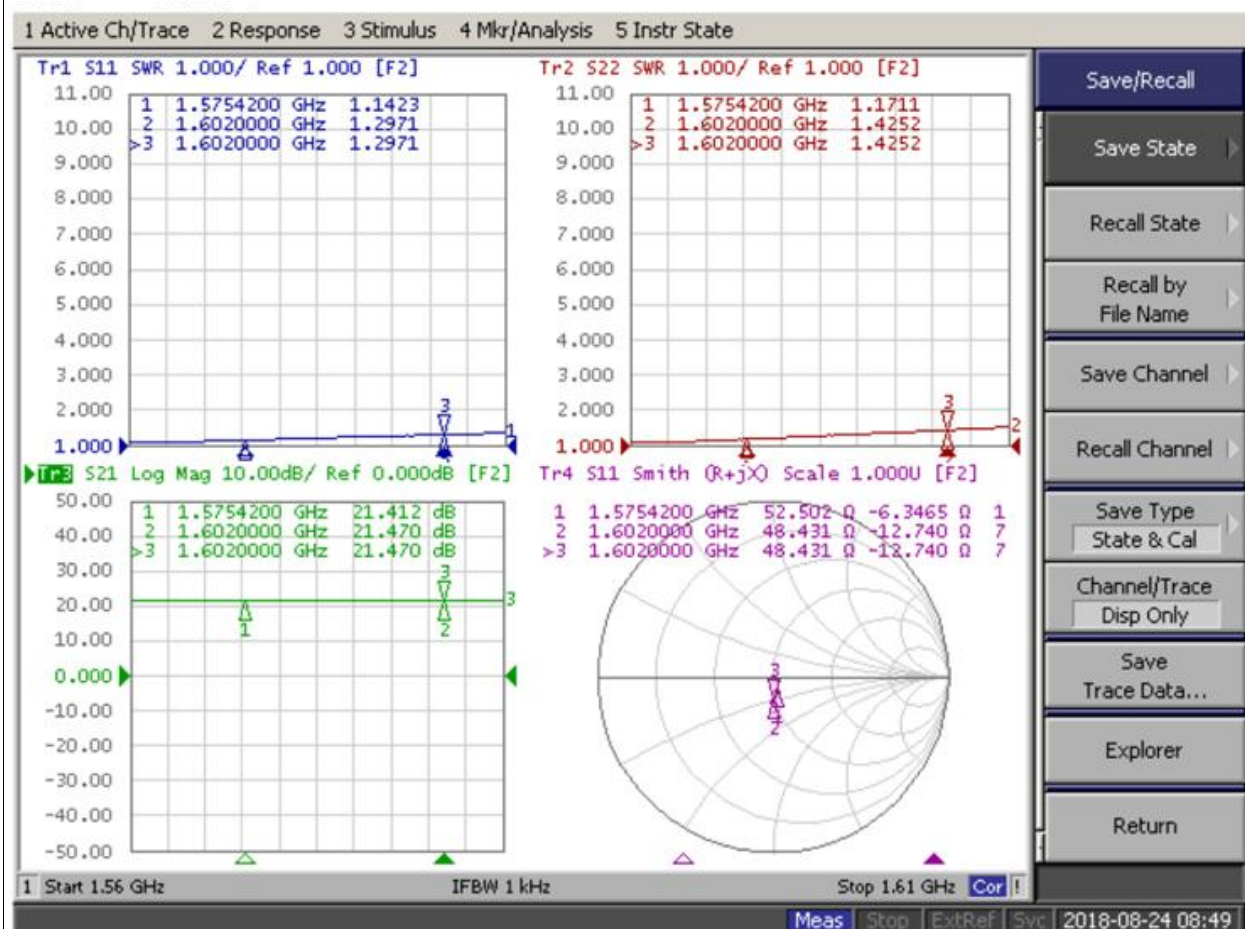


Module Signal Test and Module RF Plots

Module Signal Test:



Module RF Plots:





Product Packaging

- Tray size: 40cm (L) x 23cm (W) x 2cm (H)
- 50PCS per tray layer

