

**LIANSHI**

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# Specification

Document number: \_\_\_\_\_

Product model: \_\_\_\_\_ R61 \_\_\_\_\_

Product name: \_\_\_\_\_ GNSS receiver \_\_\_\_\_

Prepared / Date:

Review / Date:

Approval / Date:

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### ◆ **R61NET, Three-network dual-antenna Beidou / GNSS receiver**

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R61NET is a multi-functional and multi-communication Beidou / GNSS positioning directional receiver independently developed by AllyNav navigation, with built-in Beidou / GNSS high-precision board card, 4G global network module, Bluetooth module, etc., to realize the seamless switching of wired Internet and 4G wireless network, greatly increasing the reliability and stability of network communication.

R61NET The Beidou / GNSS receiver can be used as a base station for various network base stations, CORS base stations, Beidou ground-based enhancement network, monitoring system, etc.;

### ◆ **Technical feature**

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- Built-in Beidou / GNSS multi-system multi-frequency high-precision board card;
- Standard Ethernet communication interface, convenient for high-speed network transmission of data;
- Support wide voltage 9~36V DC power supply, with positive and negative polarity reverse connection protection function;
- Standard IP67 waterproof and dust-proof design;
- Built-in Bluetooth module, compatible with 2.0 and 4.0;
- Receiver integration, blue-tooth module, can realize the mobile phone app to send the command configuration and control the receiver;
- Wired Internet (broadband) and 4G wireless network realize intelligent switching, greatly increasing the stability of network transmission, and realize the function of never dropping the network.

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**◆ technical parameter**

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**Signal tracing**

BDS: B1I/B2I/B3I/B1C/B2a/B2b\*

GPS : L1C/A/L2P(Y)/L2C/L5

GLONASS : L1、L2

Galileo : E1/E5a/E5b/E6\*

QZSS : L1/L2/L5

Cold start time: <25s

Initialization time: <5s (typical value)

RTK initialization reliability: > 99.9%

Recapture: <1s

**Precision index**

point positioning:

Plane: 1.5m

Elevation: 2.5m

RTK accuracy:

Flat surface:  $\pm (8 + 1.010^{-6} \times D)$  mm

Note 1

Level:  $\pm (15 + 1.010^{-6} \times D)$  mm

Speed accuracy: 0.03 m/s

Course accuracy:  $(0.2 / R)^\circ$ , R is the baseline distance in m

Roll or pitch accuracy:  $(0.4 / R)^\circ$ , R is the baseline distance in m

**Electrical parameters**

Power consumption: 5.4W

Power supply voltage: 9~36V DC

**physical property**

Operating temperature: -45°C ~ + 75°C

Storage temperature: -55°C ~ + 85°C

Physical size: 249.5mm 176mm 51mm

Weight: <1.18 Kg

Protection level: IP67

Impact and vibration: 2m drop resistance

Indicator: 6 LEDs, indicator

## Data interface

Data output: NMEA-0183, binary code

Data refresh rate: 1 to 20 Hz is optional

Differential format: RTCM3.0/3.2

Network protocol: TCP, NTRIP

Communication: 4G global communication module

Bluetooth: BT4.0, downward compatible with BT2.x, the protocol supports Windows / Android / IOS system

Interface mode: 29-core aviation ports (1 power supply and 2 serial ports; 1 RJ 45 internet access)

Baud rate: 9600~460800

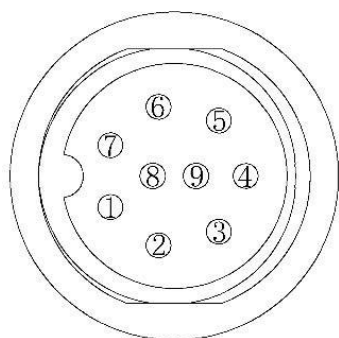
Data link antenna: 4G 1

GNSS antenna interface: 1 out

Note 1: D is the baseline distance in mm

Note 2: Mark\*Partially supported for specific firmware versions

## ◆ Interface definition



### PORT1 Interface definition

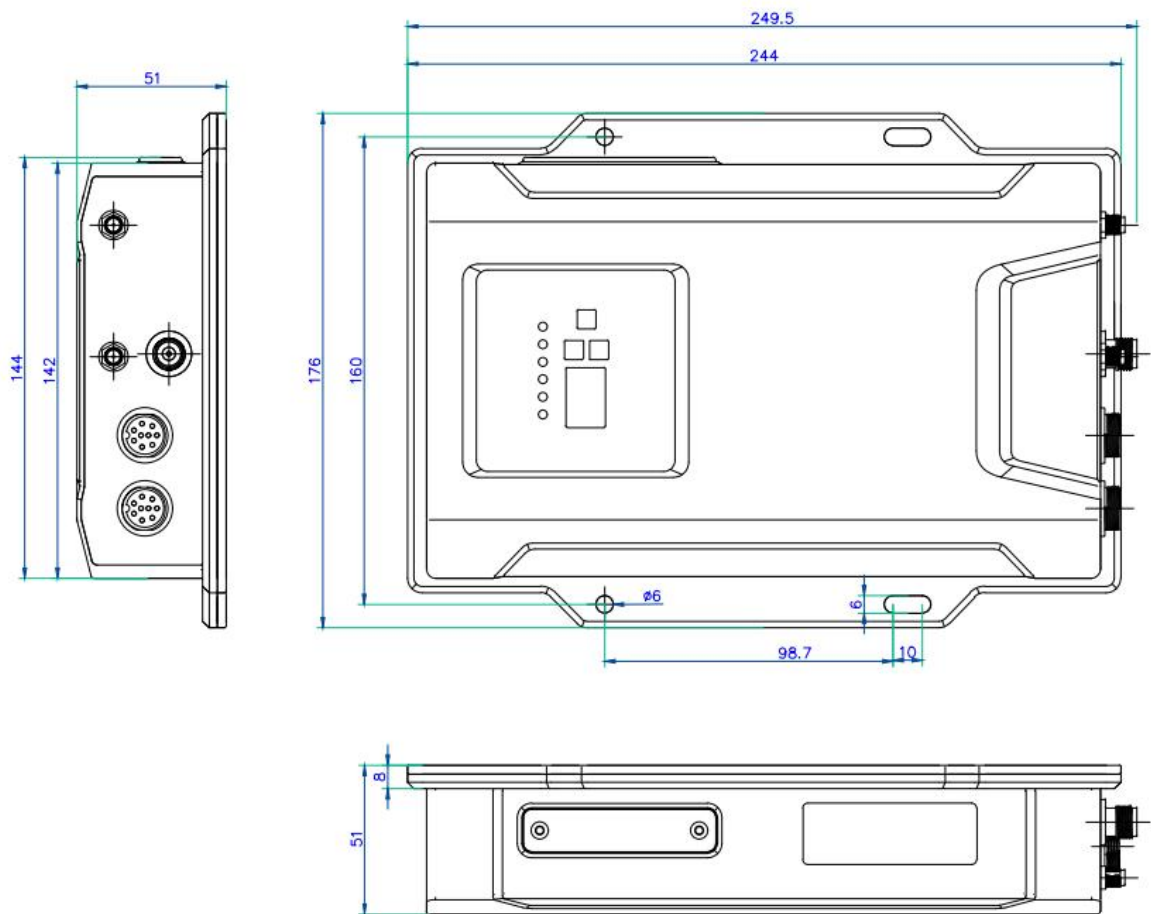
Aerial PIN sequence	definition	DB9 PIN Order	port
1	VCC		9-36V
2	GND	5	
3	TXD	2	COM RS232
7	RXD	3	
5	RXD	3	CONFIG RS232
6	TXD	2	

4	NC		
8	NC		
9	NC		

#### PORT 2 Interface definition

Aerial PIN sequence	definition	port
6	T+	SYSTEM RJ45
7	T-	
8	R+	
9	R-	

◆ outline dimension



## 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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Note:** 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 or more 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.

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

## INDUSTEY CANADA STATEMENT:

This device complies with Industry Canada licence-exempt RSS standard(s). 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 of the device. In addition, this device complies with ICES-003 of the Industry Canada (IC) Rules.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Industry Canada licence-exempt RSS standard(s). 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 or more 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.

This equipment complies with RSS-102 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.

## INDUSTEY CANADA STATEMENT(French):

Cet appareil est conforme aux normes RSS exemptes de licence d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes : (1) Cet appareil ne doit pas causer d'interférences nuisibles et (2) cet appareil doit accepter toute interférence reçue, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil. De plus, cet appareil est conforme à la norme ICES-003 des règles d'Industrie Canada (IC).

Tout changement ou modification non expressément approuvé par la partie responsable de la conformité pourrait annuler l'autorité de l'utilisateur à faire fonctionner l'équipement. Remarque : cet équipement a été testé et déclaré conforme aux limites d'un appareil numérique de classe B, conformément aux normes RSS exemptes de licence d'Industrie Canada. Ces limites sont conçues pour fournir une protection raisonnable contre les interférences nuisibles dans une installation résidentielle. Cet équipement génère des utilisations et peut émettre de l'énergie de radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions, peut causer des interférences nuisibles aux communications radio. Cependant, il n'y a aucune garantie que des interférences ne se produiront pas dans une installation particulière. Si cet équipement cause des interférences nuisibles à la réception radio ou télévision, ce qui peut être déterminé en éteignant et en rallumant l'équipement, l'utilisateur est encouragé à essayer de corriger l'interférence par une ou plusieurs des mesures suivantes :

- Réorientez ou déplacez l'antenne de réception.
- Augmenter la distance entre l'équipement et le récepteur.
- Connectez l'équipement à une prise sur un circuit différent de celui auquel le récepteur est connecté.
- Consultez le revendeur ou un technicien radio/TV expérimenté pour obtenir de l'aide.

Cet équipement est conforme aux limites d'exposition aux rayonnements RSS-102 établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps.