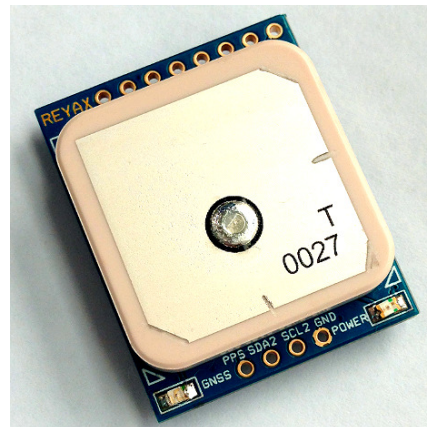


## RY725AI high performance GPS/Glonass antenna module

### Product description

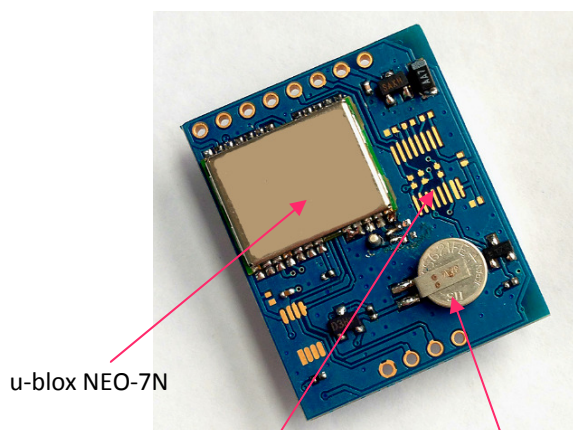
The REYAX RY725AI GNSS receiver module with embedded GPS/Glonass antenna enables high performance navigation in the most stringent applications and solid fix even in harsh GPS/Glonass visibility environments.



### Features

- u-blox NEO-7N GNSS(GPS, GLONASS, QZSS and SBAS) engine.
- Embedded GPS/Glonass Antenna.
- 7 days battery backup time.
- RY725AI UART and RY725DI RS-232 interface option
- USB 2.0 interface
- 10Hz Navigation update rate
- Position accuracy 2.5 m CEP
- GNSS & POWER LED Indicator
- Dimension 32mm\*26mm\*8mm

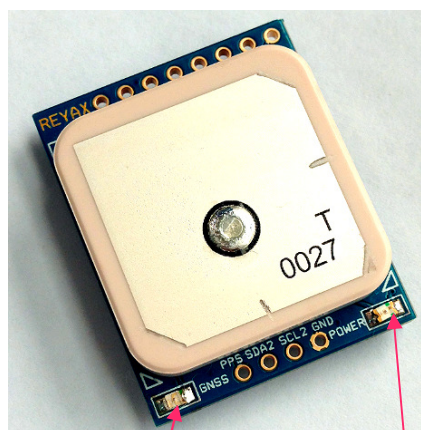
### Part



u-blox NEO-7N

RS-232 (RY725DI)

Recharge battery



RED GNSS LED

GREEN POWER LED

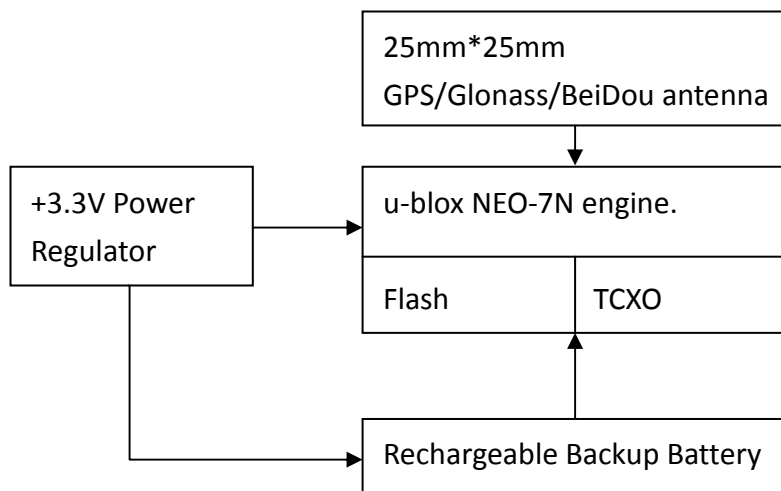
## Pin out



## Pin Description

Name	I/O	Condition
INT0	I	External Interrupt Pin Leave open if not used.
VDD	I	Supply voltage
TXD	O	Serial Port
RXD	I	Serial Port
GND	-	Ground
USB_DP	I/O	USB Data
USB_DM	I/O	USB Data
VDDUSB	I	USB Supply
PPS	O	Time pulse
SCA2	I/O	DDC Data please refer to u-blox NEO-7N
SCL2	I/O	DDC Clock please refer to u-blox NEO-7N

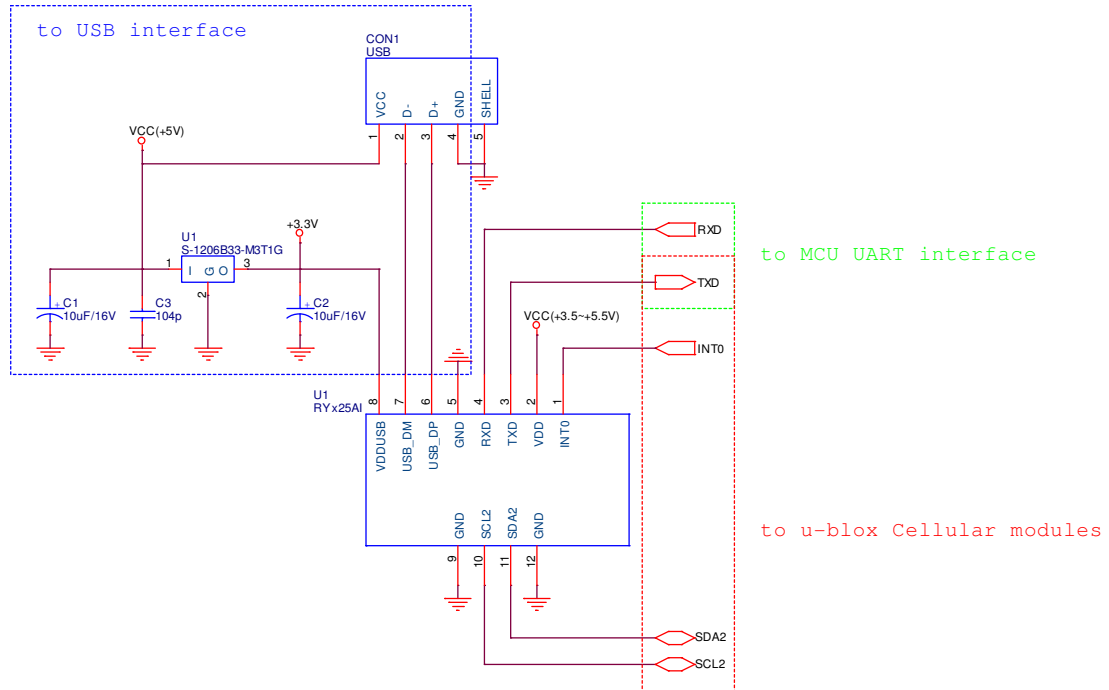
## Block Diagram



## Specification

Item	Min.	Typical	Max.	Unit	Condition
Operation Voltage	3.5		5.5	V	VDD
Tracking Current		26		mA	Continuous mode
Tracking Current		11		mA	Power Save mode/1Hz
Battery backup time		7		Day	
TXD/RXD DIO voltage		3.3		V	RY725AI UART version
TXD/RXD RS-232 voltage		12		V	RY725DI RS-232 version
Baud Rate		9600		bps	NMEA, Configurable
USB Interface					V2.0
VDDUSB	3	3.3	3.6	V	
Center Frequency		1575.42 1602.5625		MHz	GPS Glonass
Navigation update rate		1	10	Hz	Configurable
Accuracy		2.5		M	CEP
Cold starts		29		Sec.	
Aided starts		6		Sec.	
Hot starts		1		Sec.	
Tracking Sensitivity		-162		dBm	
Cold starts Sensitivity		-148		dBm	
Warm starts Sensitivity		-148		dBm	
Operating Temperature	-40	25	+85	°C	
Antenna					25mm*25mm Embedded

# Application Schematic





## Set to receive Glonass

The screenshot shows the 'GNSS (GNSS config)' window in the COM1 - u-center 8.11 software. The 'Channels' table is as follows:

GNSS ID	configure	GNSS name	enable	min	max	Signal
0	<input checked="" type="checkbox"/>	GPS	<input type="checkbox"/>	4	255	
1	<input checked="" type="checkbox"/>	SBAS	<input type="checkbox"/>	1	3	
2	<input type="checkbox"/>	Galileo	<input type="checkbox"/>	0	0	
3	<input type="checkbox"/>	BeiDou	<input type="checkbox"/>	0	0	
4	<input type="checkbox"/>	IMES	<input type="checkbox"/>	0	0	
5	<input checked="" type="checkbox"/>	QZSS	<input type="checkbox"/>	0	3	
6	<input checked="" type="checkbox"/>	GLONASS	<input checked="" type="checkbox"/>	8	255	

Below the table, the 'Number of channels available' is 22, and 'Number of channels to use' is 22. The 'Channels' window shows a signal strength graph for various GNSS systems, with GLONASS channels (R5-R10) showing significant signal strength. The status bar at the bottom indicates 'COM1 9600 u-blox 7'.

## Set Baud rate (9600 default)

The screenshot shows the 'PRT (Ports)' window in the COM1 - u-center 8.11 software. The configuration is as follows:

- Target: 1 - UART1
- Protocol in: 0+1+2 - UBX+NMEA+RT
- Protocol out: 0+1 - UBX+NMEA
- Baudrate: 115200

The 'Channels' window shows a signal strength graph for various GNSS systems, with GLONASS channels (R5-R10) showing significant signal strength. The status bar at the bottom indicates 'COM1 9600 u-blox 7'.

## Set Navigation update rate (1Hz default)

COM1 - u-center 8.11 - [Messages - UBX - CFG (Config) - RATE (Rates)]

File Edit View Player Receiver Tools Window Help

UBX - CFG (Config) - RATE (Rates)

Time Source: 1 - GPS time

Measurement Period: 100 [ms]

Measurement Frequency: 10.00 [Hz]

Navigation Rate: 1 [sync]

Navigation Frequency: 10.00 [Hz]

0000 B5 62 06 08 06 00 64 00 環 d

0008 01 00 01 00 7A 12 z

Longitude: 121.584430  
Latitude: 25.077466  
Altitude: 78.000 m  
TFF: 0  
Fix Mode: 3D/DGPS  
3D Acc: 3.0  
2D Acc: 2.0  
PDOP: 0.121 10  
HDOP: 0.154 10  
Satellites: 11

COM1 9600 u-blox 7 No file open NMEA 00:23:45 02:42:47  
上午 10:42  
2014/10/18

## Save Configuration in flash.

COM1 - u-center 8.11 - [Messages - UBX - CFG (Config) - CFG (Configuration)]

File Edit View Player Receiver Tools Window Help

CFG (Configuration)

Revert to last saved configuration

Revert all but ANT default configuration

Revert to default configuration

Save current configuration

User defined operation

Devices:

- 0 - EBR
- 1 - FLASH
- 2 - I2C-EEPROM
- 4 - SPI-FLASH

Clear Save Load

0 - PRT

1 - MSG

2 - INF

3 - NAV

4 - RDM

5 - Unused

6 - Unused

7 - Unused

8 - Unused

9 - RINV

0000 B5 62 06 08 00 00 00 00 環

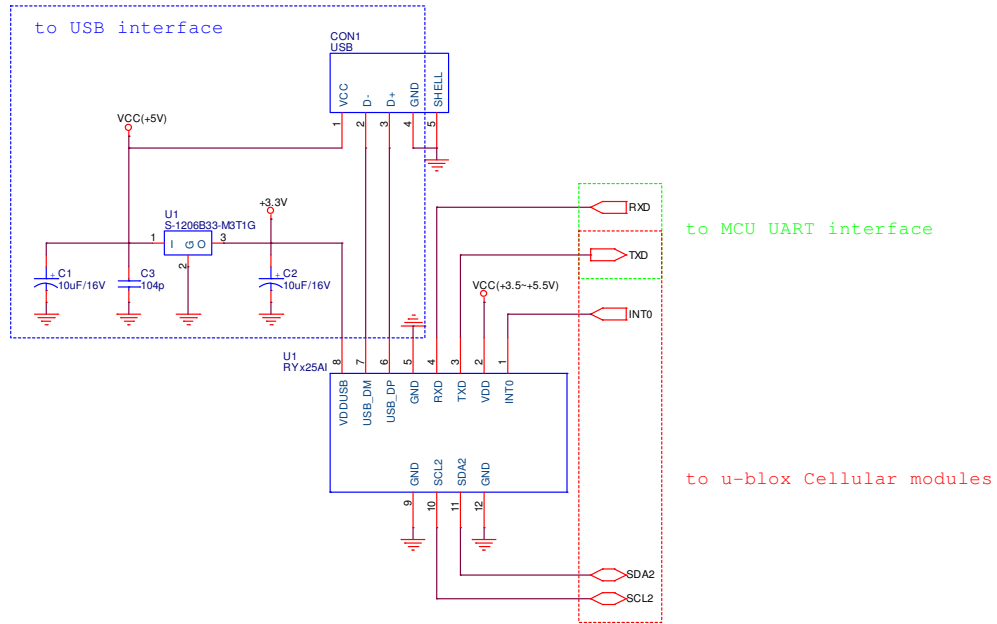
0008 00 00 FF FF 00 00 00 00

0010 00 00 02 1C AA

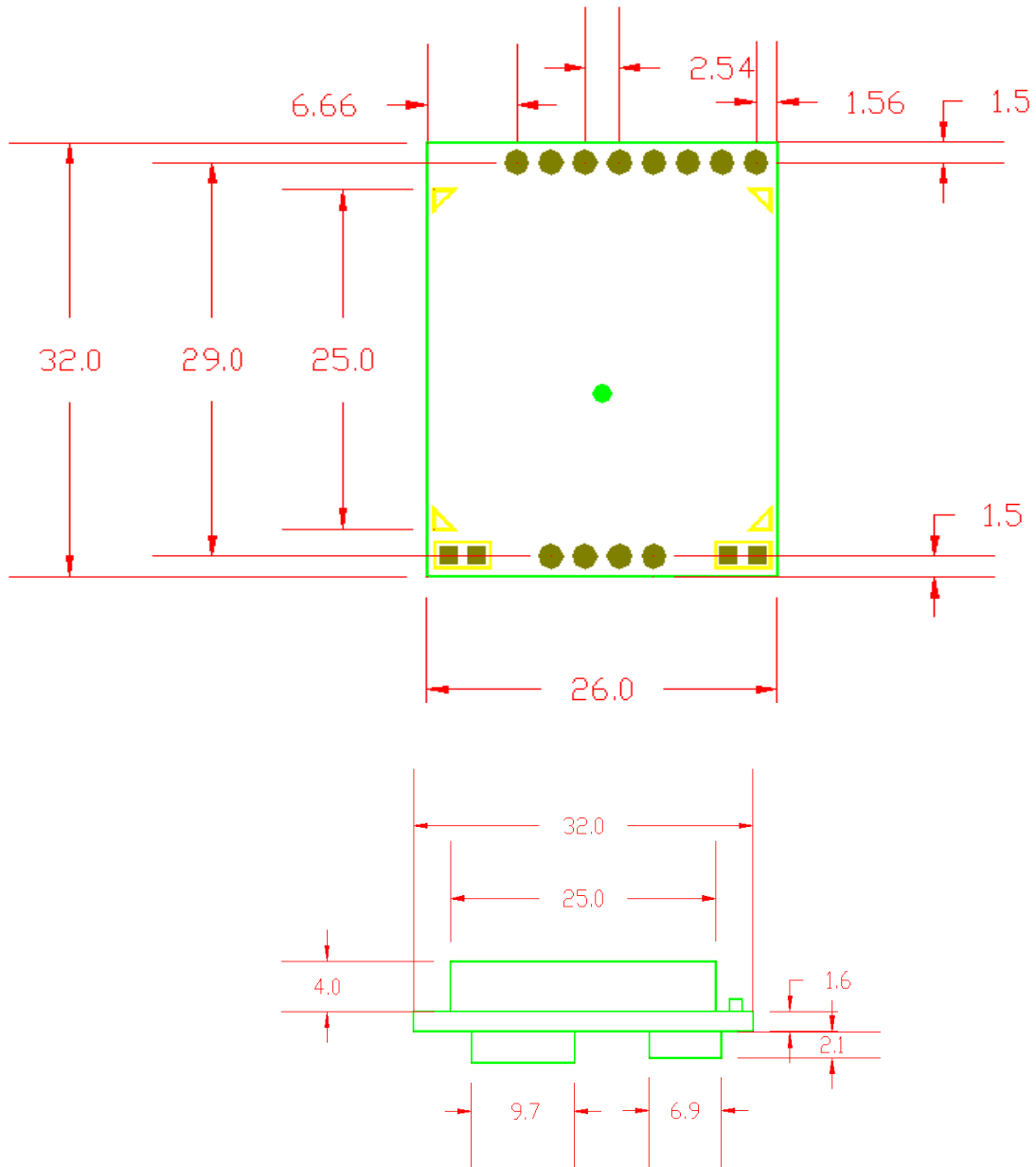
Longitude: 121.584444  
Latitude: 25.077471  
Altitude: 81.200 m  
TFF: 0  
Fix Mode: 3D  
3D Acc: 3.0  
2D Acc: 2.0  
PDOP: 0.122 10  
HDOP: 0.155 10  
Satellites: 11

COM1 9600 u-blox 7 No file open NMEA 00:00:35 02:44:45  
上午 10:44  
2014/10/18

# Application Schematic



## Dimensions



unit: mm

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