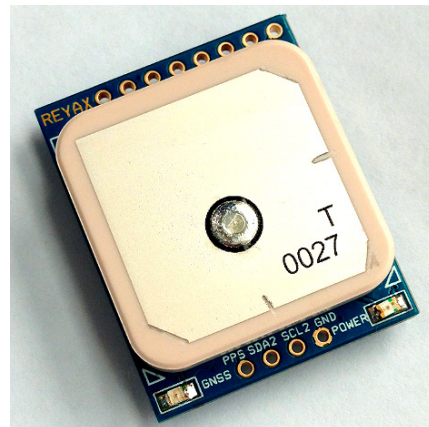


RY725AI high performance GPS/Glonass antenna module

Product description

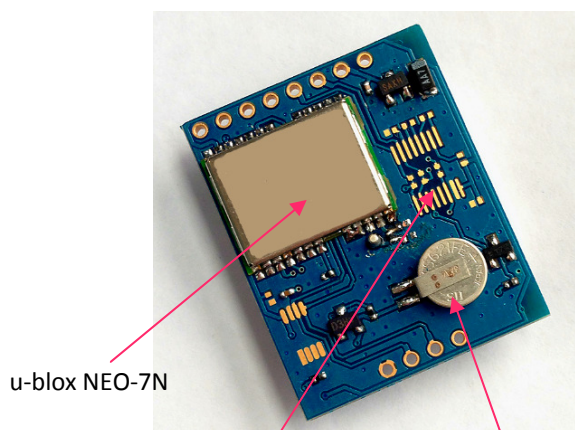
The REYAX RY725AI GNSS receiver module with embedded GPS/Glonass antenna enables high performance navigation in the most stringent applications and solid fix even in harsh GPS/Glonass visibility environments.



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

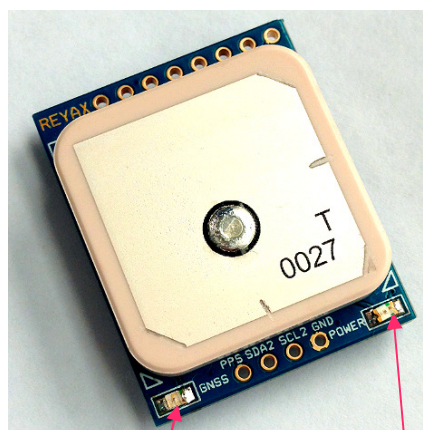
Part



u-blox NEO-7N

RS-232 (RY725DI)

Recharge battery



RED GNSS LED

GREEN POWER LED

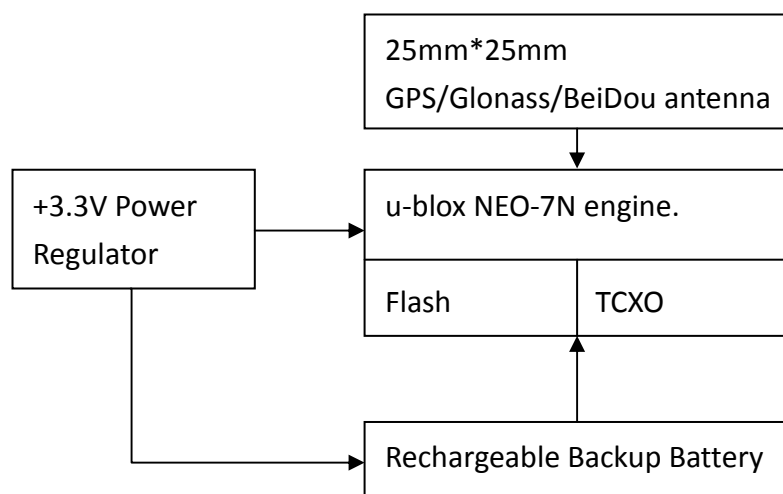
Pin out



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

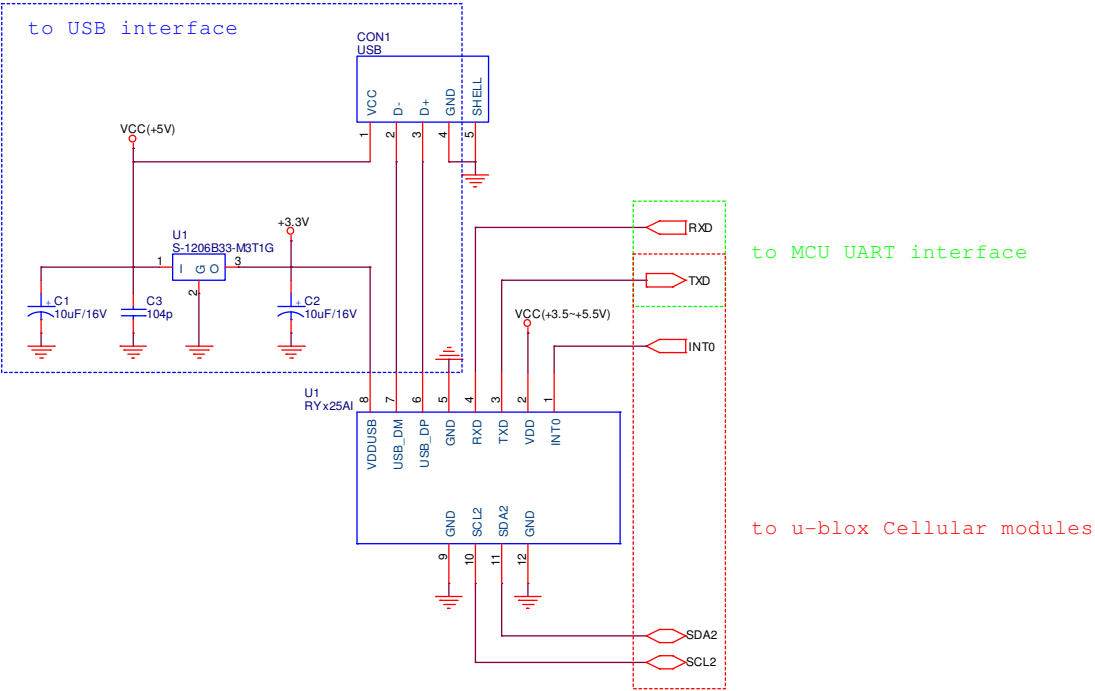
Block Diagram



Specification

Item	Min.	Typical	Max.	Unit	Condition
Operation Voltage	3.5		5.5	V	VDD
Current		26		mA	
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



Configuration Hardware tool

Please plug a “USB to TTL UART Adapter Converter” to module.

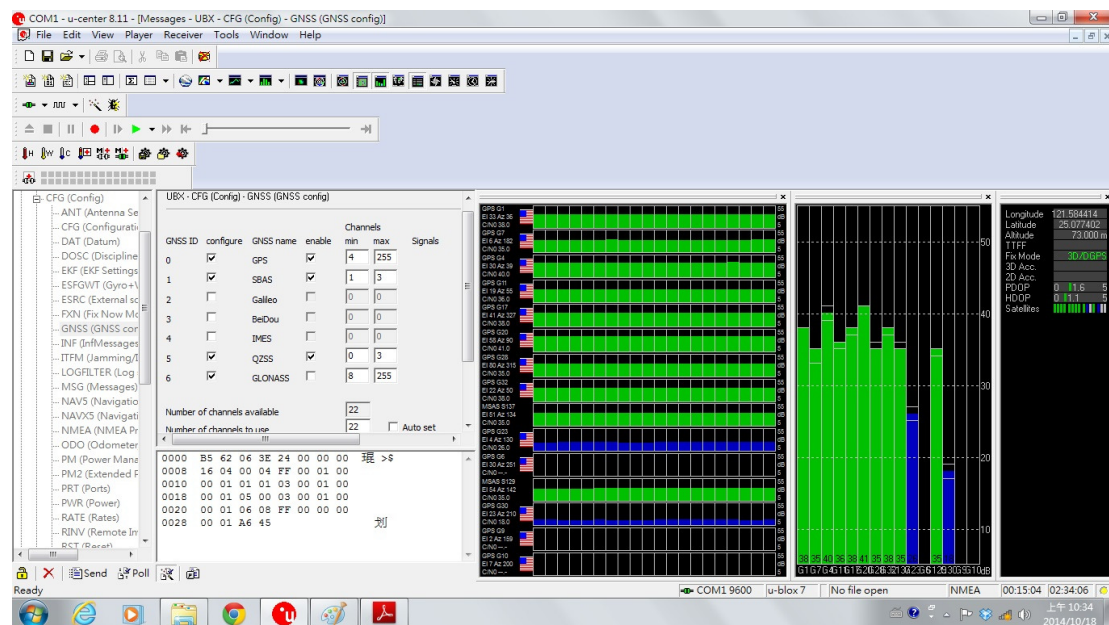


Configuration software tool

Please download the u-blox u-center <http://www.u-blox.com> and Access Port <http://www.sudt.com/>

Please execute the u-center and run the messages-UBX-CFG.

Set to receive GPS (default)



Set to receive Glonass

The screenshot shows the 'UBX-CFG (Config) - GNSS (GNSS config)' window. The 'GNSS ID' table is configured as follows:

GNSS ID	configure	GNSS name	enable	min	max	Signal
0	☒	GPS	☐	4	255	
1	☒	SBAS	☐	1	3	
2	☐	Galileo	☐	0	0	
3	☐	BeiDou	☐	0	0	
4	☐	IMES	☐	0	0	
5	☒	QZSS	☐	0	3	
6	☒	GLONASS	☒	8	255	

The 'Number of channels available' is set to 22, and 'Number of channels to use' is also 22. The 'Auto set' checkbox is unchecked. The 'Ready' status bar shows 'COM1 9600 u-blox 7 [No file open] NMEA 00:20:35 02:39:36 2014/10/18'.

Set Baud rate (9600 default)

The screenshot shows the 'UBX-CFG (Config) - PRT (Ports)' window. 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 'Ready' status bar shows 'COM1 9600 u-blox 7 [No file open] NMEA 00:22:33 02:41:35 2014/10/18'.

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 [Hz]

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: 73.500 m
TFF: 11FF
Fix Mode: 3D/0GPS
3D Acc: 0.121 10
PDOP: 0.14 10
HDOP: 0.14 10
Satellites: 11 11 11 11

Ready 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

Clear Save Load

0 - PRT

1 - MSG

2 - INF

3 - NAV

4 - ROOM

5 - Unused

6 - Unused

7 - Unused

8 - Unused

9 - RINV

0000 B5 62 06 08 00 00 00 00 環

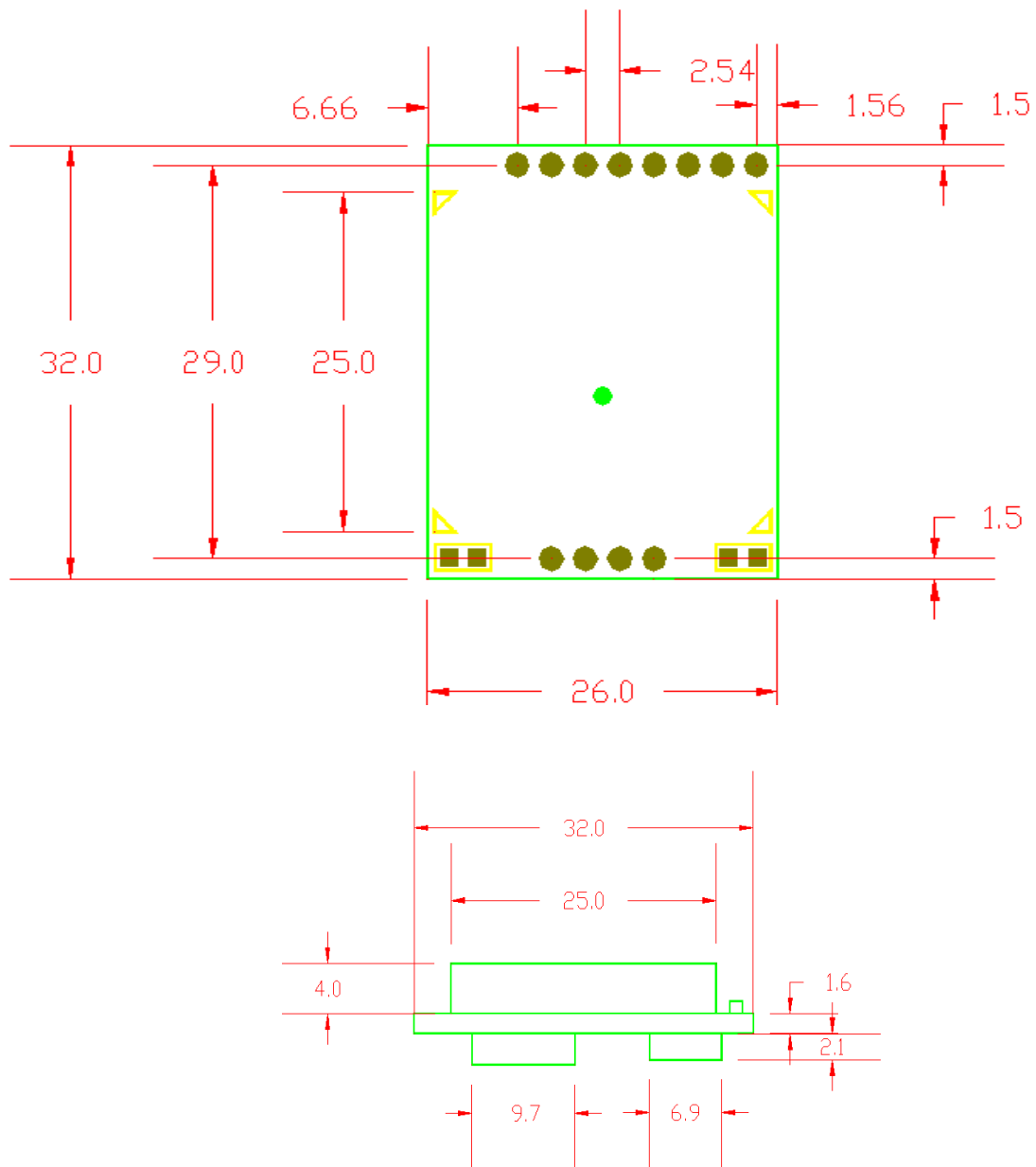
0008 00 00 FF FF 00 00 00 00

0010 00 00 02 1C AA

Longitude: 121.584444
Latitude: 25.077471
Altitude: 81.200 m
TFF: 11FF
Fix Mode: 3D
3D Acc: 0.122 10
PDOP: 0.15 10
HDOP: 0.15 10
Satellites: 11 11 11 11

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

Dimensions



unit: mm

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