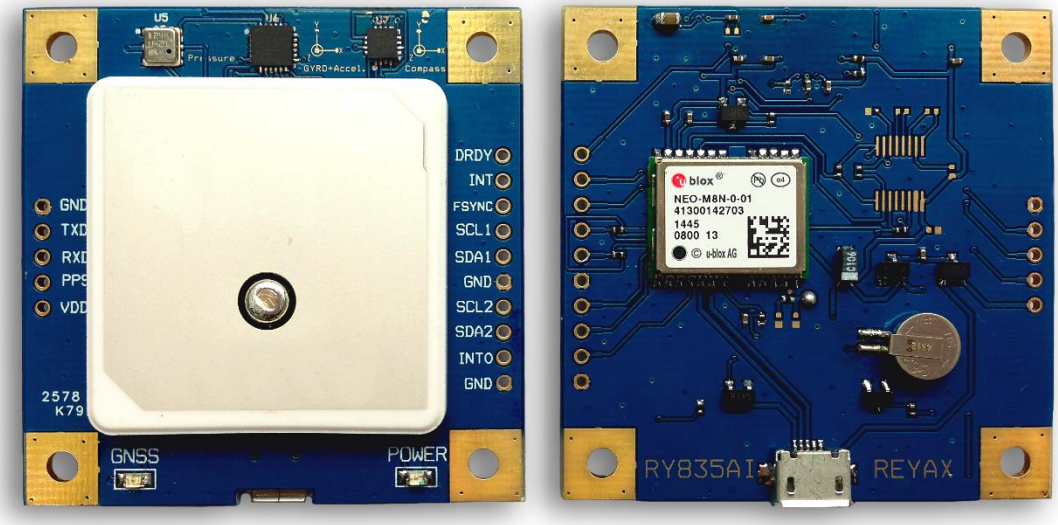
REYAX
TECHNOLOGY CORPORATION, LTD

27-OCT-2017 56312E31

RY835AI

High Performance GPS & Glonass / GPS & BeiDou Parallel mode antenna module with Compass, Gyroscope, Accelerometer, Pressure Sensor

Datasheet



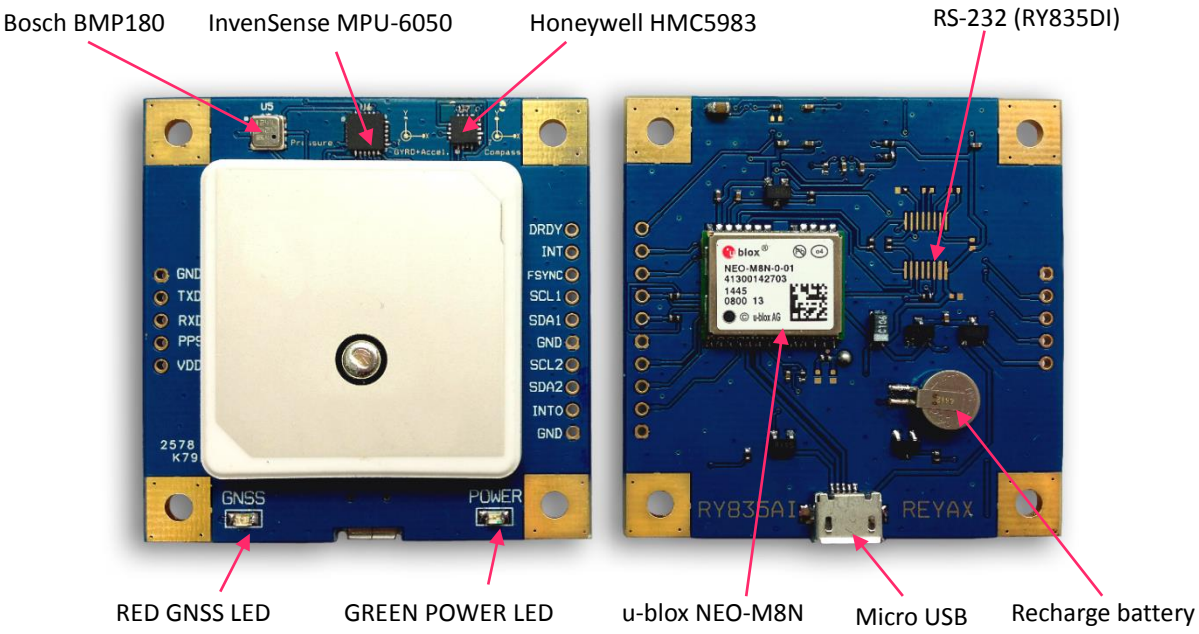
PRODUCT DESCRIPTION

The REYAX RY835AI GNSS receiver module with embedded GPS/Glonass/BeiDou antenna enables high performance navigation in the most stringent applications and solid fix even in harsh GPS/Glonass/BeiDou visibility environments.

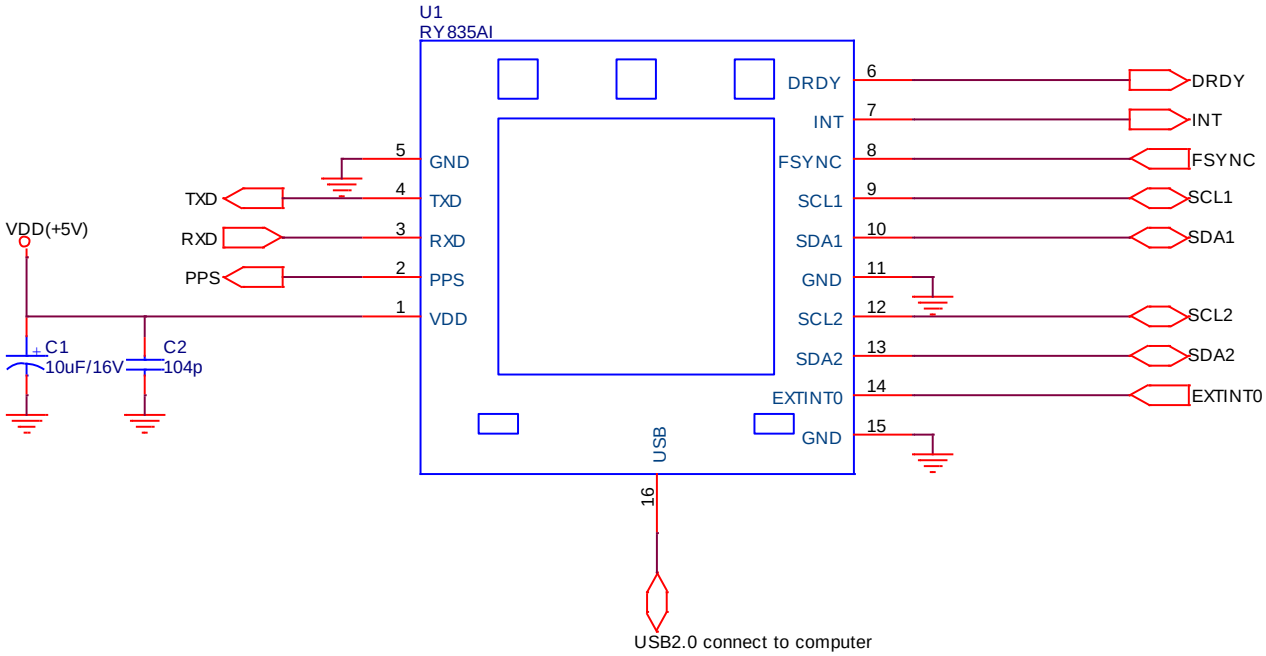
FEATURES

- u-blox NEO-M8N GNSS(GPS, GLONASS, Galileo, BeiDou, QZSS and SBAS) engine..
- Bosch BMP180 Pressure Sensor.
- Honeywell HMC5983 Compass IC.
- InvenSense MPU-6050 Gyroscope & Accelerometer Motion Tracking device.
- Embedded GPS/Glonass/BeiDou Antenna.
- RTC battery backup.
- **RY835AI** UART and **RY835DI** RS-232 interface option
- USB 2.0 interface connect to computer easily.
- Max. 10Hz Navigation update rate
- Position accuracy 2.0 m CEP
- GNSS & POWER LED Indicator
- Dimension: 50mm*50mm*7mm

PART



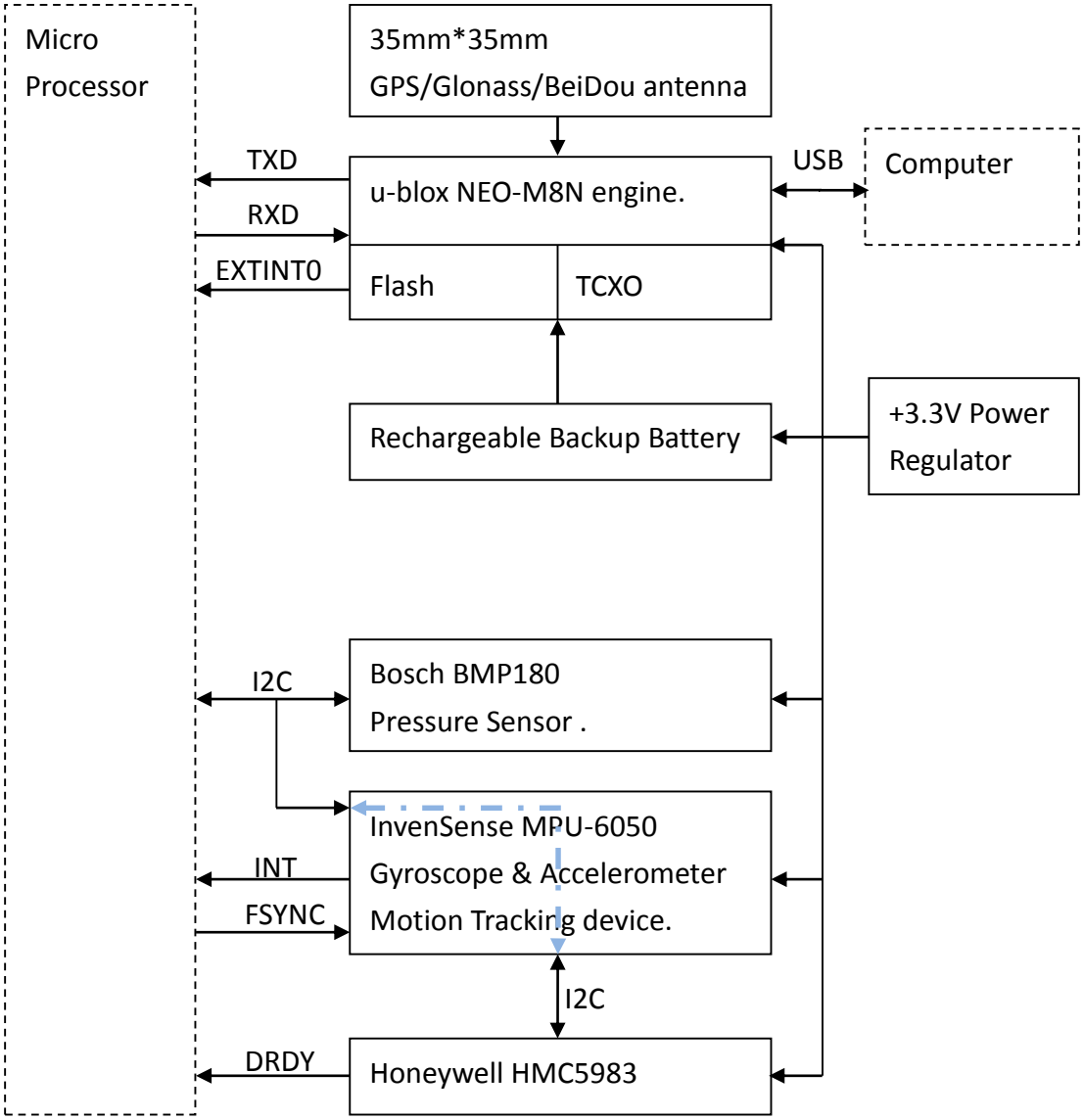
APPLICATION SCHEMATIC



PIN DESCRIPTION

Pin	Name	I/O	Condition
1	VDD	I	Supply voltage
2	PPS	O	u-blox NEO-M8N
			Time pulse
3	RXD	I	u-blox NEO-M8N
			Serial Port
4	TXD	O	u-blox NEO-M8N
			Serial Port
5	GND	-	Ground
6	DRDY	O	Honeywell HMC5983
			Data Ready, Interrupt Pin. Internally pulled high. Optional connection. Low for >200 µsec when data are placed in the data output registers.
7	INT	O	InvenSense MPU-6050
			Interrupt digital output (totem pole or open-drain)
8	FSYNC	I	InvenSense MPU-6050
			Regulator filter capacitor connection Frame synchronization digital input. Connect to GND if unused.
9	SCL1	I/O	Bosch BMP180, Honeywell HMC5983, InvenSense MPU-6050 I2C interface, +3.3V 2.2KΩ pull up.
10	SDA1	I/O	Bosch BMP180, Honeywell HMC5983, InvenSense MPU-6050 I2C interface, +3.3V 2.2KΩ pull up.
11	GND	-	Ground
12	SCA2	I/O	u-blox NEO-M8N
			DDC Data
13	SCL2	I/O	u-blox NEO-M8N
			DDC Clock
14	EXTINT0	I	u-blox NEO-M8N
			External Interrupt Pin Leave open if not used.
15	GND	-	Ground

BLOCK DIAGRAM



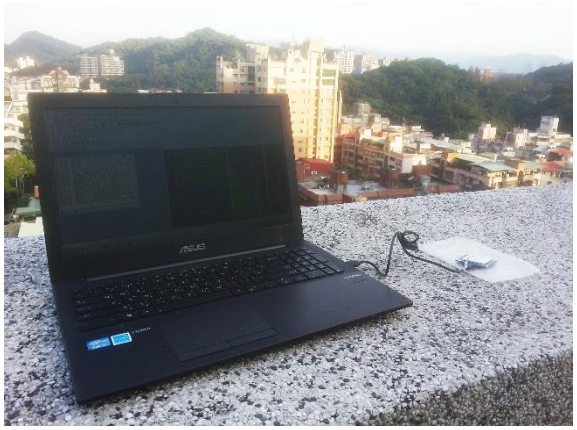
SPECIFICATION

Item	Min.	Typical	Max.	Unit	Condition
Operation Voltage	3.9		5.5	V	VDD
Current		38.65		mA	u-blox NEO-M8N 34mA Bosch BMP180 0.65mA Honeywell HMC5983 0.1mA InvenSense MPU-6050 3.9mA
TXD/RXD DIO voltage		3.3		V	RY835AI UART version
TXD/RXD RS-232 voltage		12		V	RY835DI RS-232 version
Baud Rate		9600		bps	NMEA, Configurable
USB Interface					V2.0
Logic I/O Voltage		3.3		V	
GNSS Center Frequency		1561.098 1575.42 1602.5625		MHz	BeiDou GPS Glonass
Navigation update rate		1	10	Hz	Configurable
Accuracy		2		M	CEP
Cold starts		26		Sec.	
Aided starts		2		Sec.	
Hot starts		1.5		Sec.	
Tracking Sensitivity		-167		dBm	
Cold starts Sensitivity		-148		dBm	
Hot starts Sensitivity		-156		dBm	
Operating Temperature	-40	25	+85	˚C	
Antenna					35mm*35mm Embedded
Weight		24		g	

*Other sensors specification, please refer to the original datasheet.

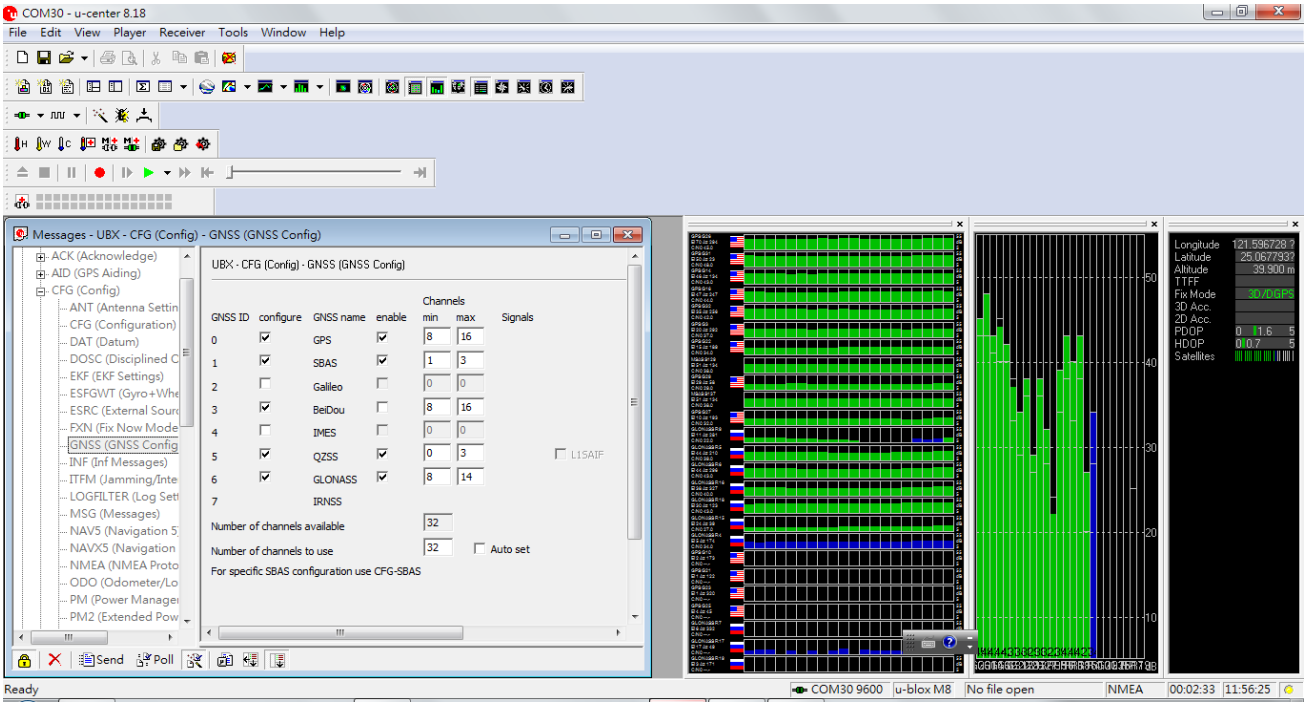
CONFIGURATION HARDWARE TOOLS

Please plug a micro USB cable to the RY835AI.

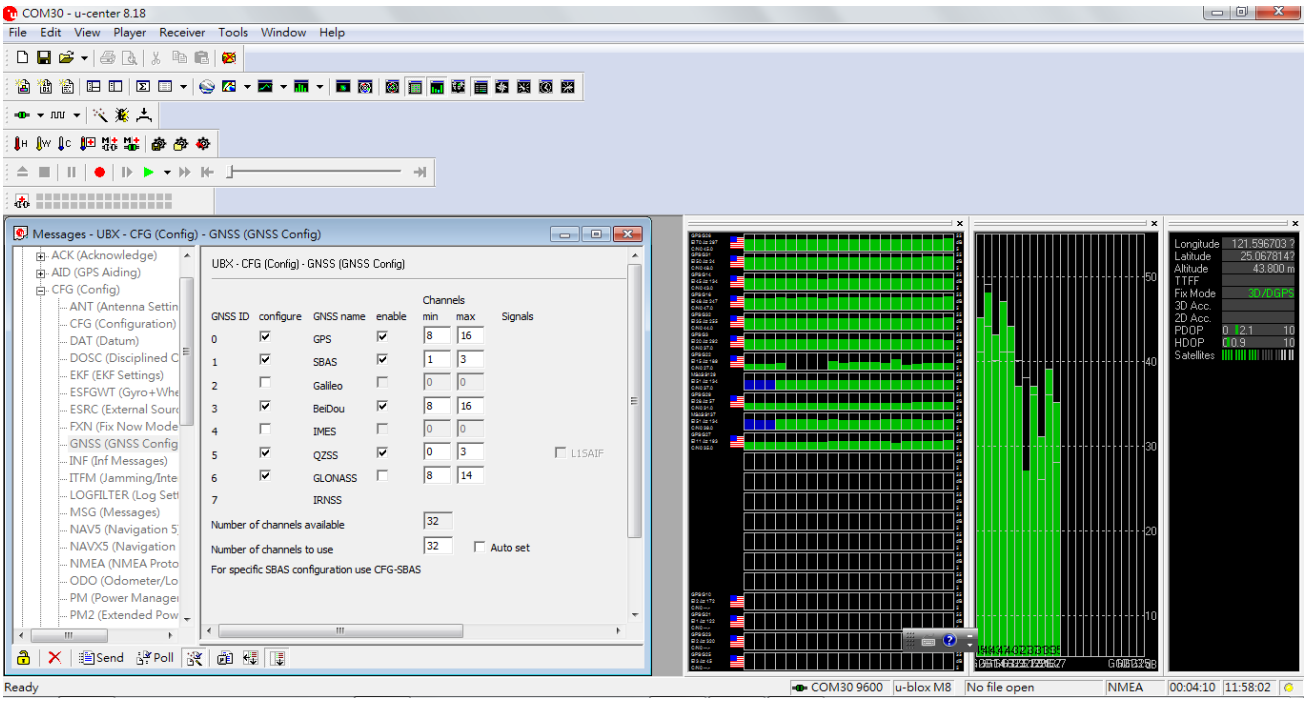


CONFIGURATION SOFTWARE TOOLS

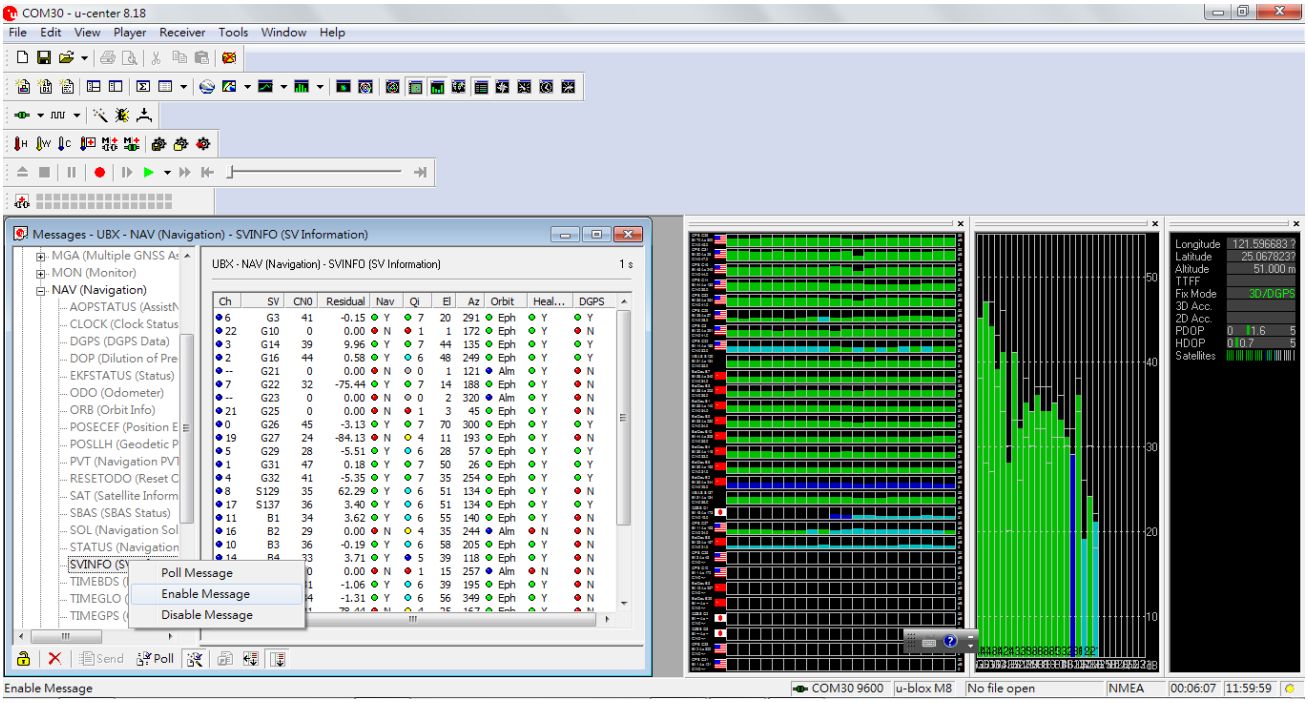
- Please download the u-blox u-center https://www.u-blox.com/en/product/u-center-windows and Access Port http://www.sudt.com
- **Please execute the u-center and run the messages-UBX-CFG.**
  Set to receive GPS&Glonass (default)



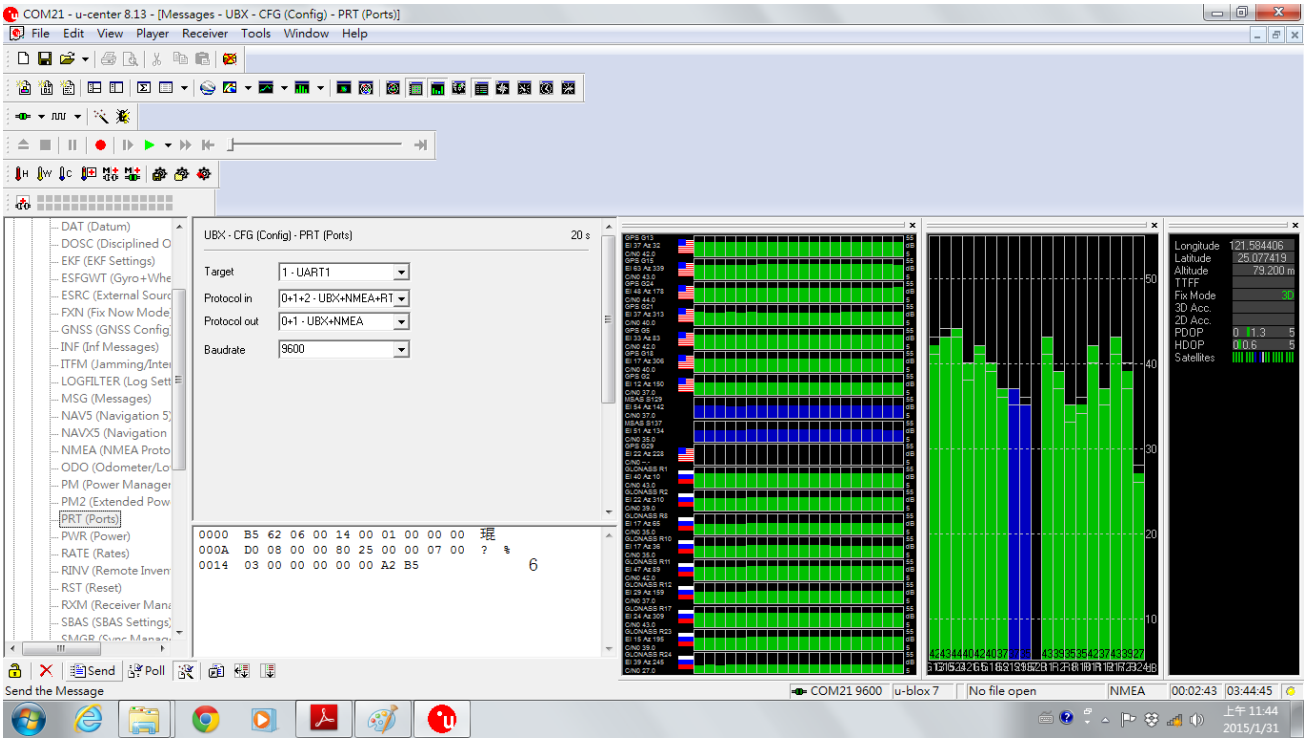
- Set to receive GPS & BeiDou



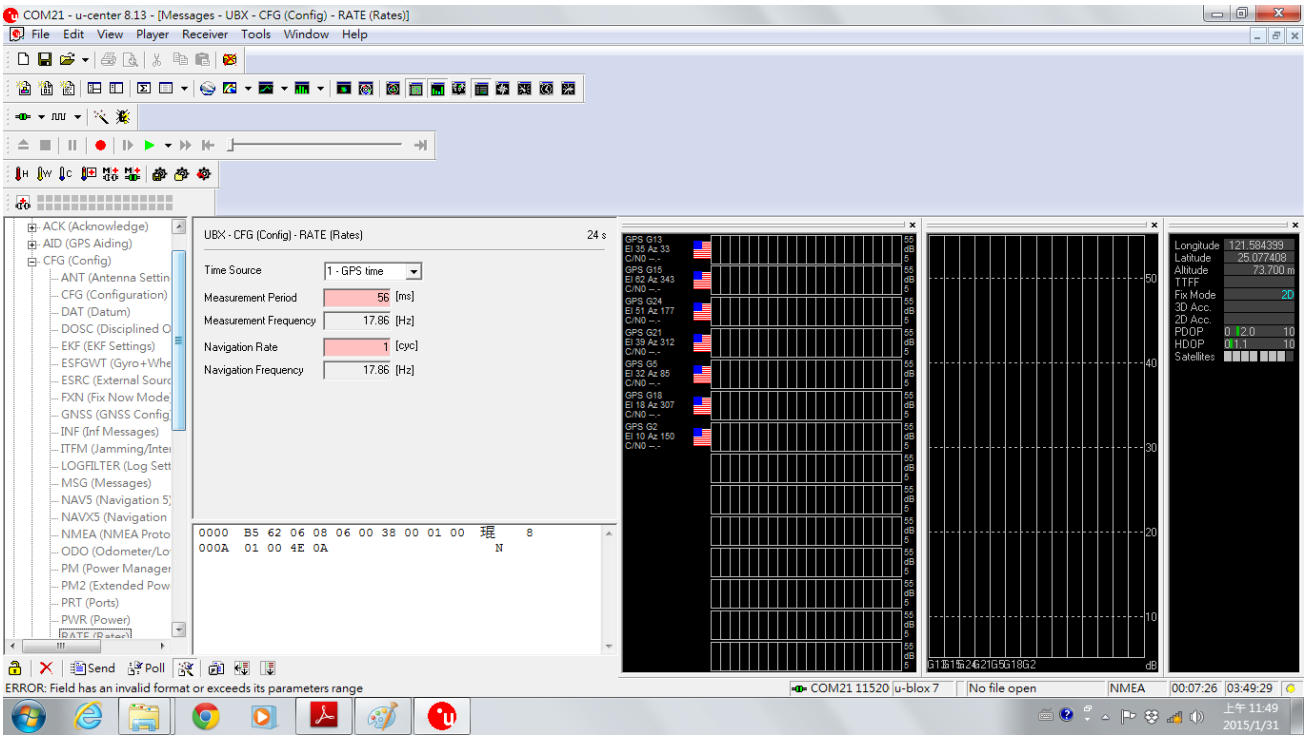
- Enable Message



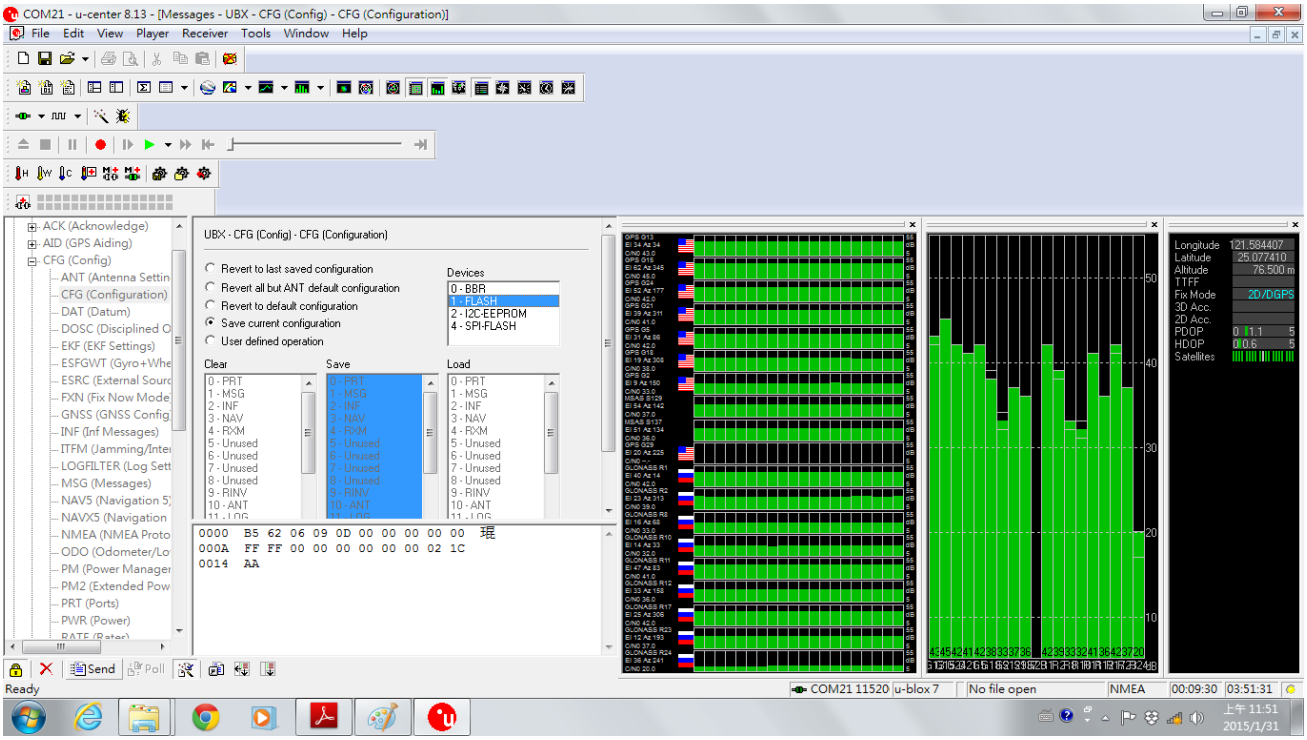
- Set Baud rate (9600 default)



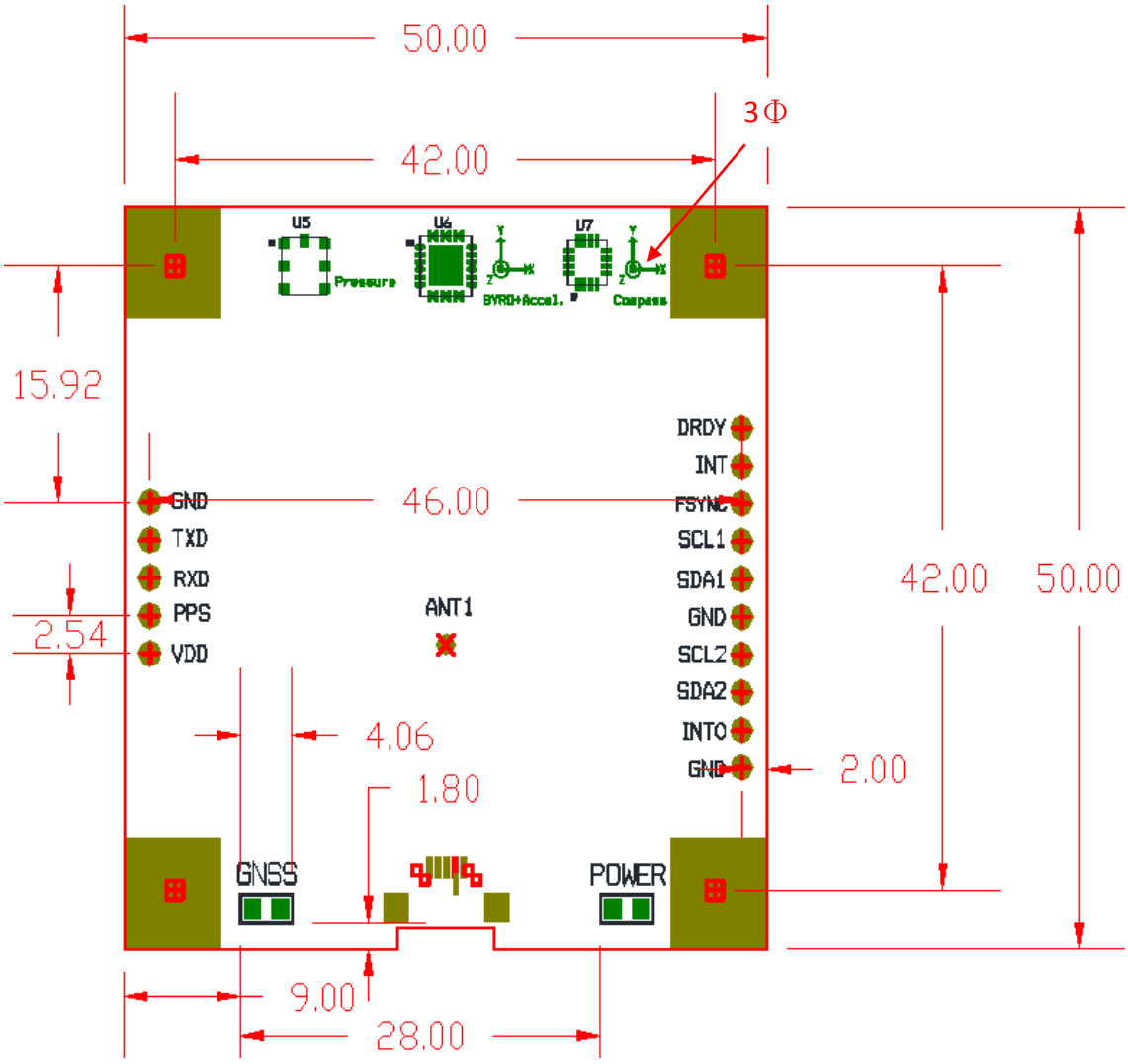
- Set Navigation update rate (1Hz default)



- Save Configuration in flash



DIMENSIONS

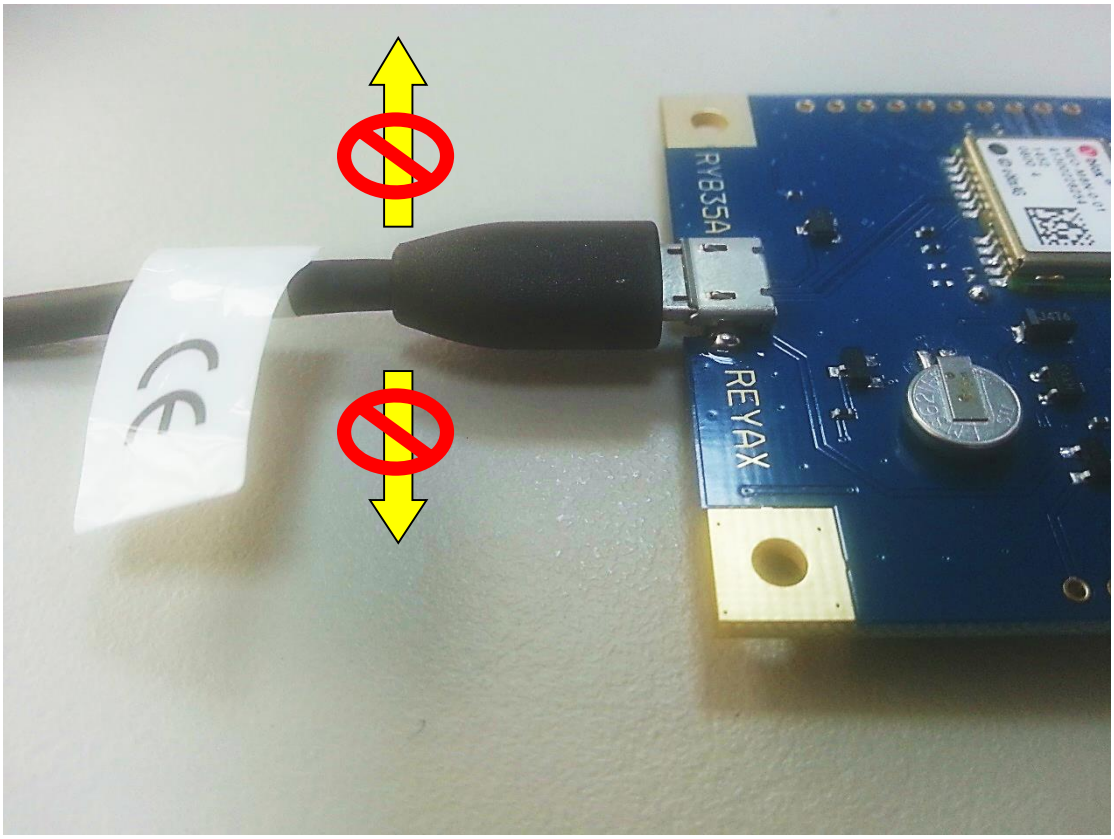


unit: mm

USAGE CONSIDERATIONS

Please fix the USB cable.

If the force direction is unsuitable, it will damage the micro USB connector easily.



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