

## Dr. William J. Schmidt

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**From:** radioartisan@groups.io on behalf of Mike K7MDL via groups.io  
<k7mdl@hotmail.com@groups.io>  
**Sent:** Thursday, November 6, 2025 5:31 PM  
**To:** radioartisan@groups.io  
**Subject:** Re: [radioartisan] GPS module for K3NG controller.  
**Attachments:** TinyGPSwithGNSS.zip

Been a few years since I made the changes but this is what I think the relevant changes are

```
#define _GPRMC_TERM "GPRMC"
#define _GPGGA_TERM "GPGGA"
#define _GNRMC_TERM "GNRMC"
#define _GNGGA_TERM "GNGGA"
```

Then when it evaluates the “first term” it will now accept either term.

```
// the first term determines the sentence type
if (_term_number == 0)
{
    if (!gpsstrcmp(_term, _GPRMC_TERM) || !gpsstrcmp(_term, _GNRMC_TERM))
        _sentence_type = _GPS_SENTENCE_GPRMC;
    else if (!gpsstrcmp(_term, _GPGGA_TERM) || !gpsstrcmp(_term, _GNRMC_TERM))
        _sentence_type = _GPS_SENTENCE_GPGGA;
    else
        _sentence_type = _GPS_SENTENCE_OTHER;
    return false;
}
```

I attached my library version files.

- Mike K7MDL

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**From:** radioartisan@groups.io <radioartisan@groups.io> **On Behalf Of** Dmitry, 4Z5CP via groups.io  
**Sent:** Thursday, November 6, 2025 3:25 PM  
**To:** radioartisan@groups.io  
**Subject:** Re: [radioartisan] GPS module for K3NG controller.

Do U mean to change :

```
#define _GPRMC_TERM "GPRMC"
#define _GPGGA_TERM "GPGGA"
```

to :

```
#define _GPRMC_TERM "GNRMC"
#define _GPGGA_TERM "GNGGA"
```

?????

----- Original Message -----

From "Dimitry, 4Z5CP via groups.io" <[4z5cp=bezeqint.net@groups.io](mailto:4z5cp=bezeqint.net@groups.io)>

To [radioartisan@groups.io](mailto:radioartisan@groups.io)

Date 07/11/2025 1:19:45

Subject Re: [radioartisan] GPS module for K3NG controller.

Hi Mike.

Maybe this is easy, I do not know.

GPS used - GPGGA, others - GAGGA, GBGGA, GLGGA, GNGGA.....

So if U know, please do modification, I have abt 12 GPR sats and plus many others.

----- Original Message -----

From "Mike K7MDL via groups.io" <[k7mdl@hotmail.com@groups.io](mailto:k7mdl@hotmail.com@groups.io)>

To [radioartisan@groups.io](mailto:radioartisan@groups.io) <[radioartisan@groups.io](mailto:radioartisan@groups.io)>

Date 07/11/2025 0:45:16

Subject Re: [radioartisan] GPS module for K3NG controller.

It is an easy to modify Tiny GPS lib to process GNSS messages. Then you get the benefit of all GPS services in range.

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**From:** [radioartisan@groups.io](mailto:radioartisan@groups.io) <[radioartisan@groups.io](mailto:radioartisan@groups.io)> **On Behalf Of** Dimitry, 4Z5CP via groups.io

**Sent:** Thursday, November 6, 2025 2:42 PM

**To:** [radioartisan@groups.io](mailto:radioartisan@groups.io)

**Subject:** [radioartisan] GPS module for K3NG controller.

Hello group.

For everyone who going to use Ublox-M8N , maybe also M8 purchased from Aliexpress, small instruction.

After connecting new M8N module to controller - nothing works 😞

Controller used TINY\_GPS\_LIBRARY, so only GPGGA and GPRMS messages are acceptable.

U should to config module for using GPS only.

Use u-Center software for configuration.

Connect to module with speed 9600.

Press F9 key on the keyboard.

U will get:

**Messages - NMEA**

- + NMEA
- + NMEA-NAV2
- + RTCM3
- + UBX
- UNKNOWN
- CUSTOM

**NMEA**



**NMEA 0183**  
National Marine Electronics Association Standard for interfacing Marine Electronic Equipment

Each NMEA message starts with a '\$' character followed by a carriage-return line-feed sequence (<cr><lf>). The payload of the message is limited to 82 characters including the start character.

The start character is followed by an address, talker ID and a message identifier. The talker ID identifies the receiver. The payload of the message contains the data being transmitted.

Go to UBX -> CFG -> NMEA (NMEA Protocol) and do changes:

**Messages - UBX - CFG (Config) - NMEA (NMEA Protocol)**

- DAT (Datum)
- DGNSS (Differential GNSS configuration)
- DOSC (Disciplined Oscillator)
- EKF (EKF Settings)
- ESFA (Accelerometer Config)
- ESFALG (IMU-mount Alignment)
- ESPG (Gyroscope Config)
- ESPGWT (Gyro+Wheeltick)
- ESFLA (Lever Arm)
- ESPWT (Wheel-Tick Config)
- ESRC (External Source Config)
- FXN (Fix Now Mode)
- GEOFENCE (Geofence Config)
- GNSS (GNSS Config)
- HNR (High Nav Rate)
- INF (Info Messages)
- ITFM (Jamming/Interference Monitor)
- LOGFILTER (Log Settings)
- MSG (Messages)

**UBX - CFG (Config) - NMEA (NMEA Protocol)**

**CFG-NMEA-DATA2**

**Filters**

Permit position output for failed and invalid fixes  
 Permit position output for invalid fixes  
 Permit time output for invalid times  
 Permit date output for invalid dates  
 Restrict output to GPS SVs only  
 Permit COG output even if COG frozen

**NMEA Version**: 4.11

**Max SVs per Talker Id**: 0 : Standard

**Mode Flags**

Compatibility mode    High precision mode

**GNSS to filter out**

**Numbering used for SVs not supported by NMEA**

**Main Talker**

**GSV Talker**

**RedPower Talker**

After changes press button "Send"

SBAS (SBAS Settings)  
SENIF (Sensor Interface)



**Send**

Now go to NMEA messages settings:

## P Messages - UBX

- NMEA 
- + GxDTM (Datum Reference)
- + GxGBS (Satellite fault Detection)
- + GxGGA (Global Positioning System Fix Data)
- + GxGLL (Geographic Position - Latitude/Longitude)
- + GxGNS (GNSS Fix Data)
- + GxGRS (GNSS Range Residuals)
- + GxGSA (GNSS DOP and Active Satellites)
- + GxGST (GNSS Pseudorange Error Statistics)
- + GxGSV (GNSS Satellites in View)
- + GxRLM (Return Link Message)
- + GxRMC (Recommended Minimum Specific GNSS Data)
- + GxTHS (Heading of Vehicle)
- + GxTXT (Text Transmission)
- + GxUTC (UTC TAI information)
- + GxVLW (Dual Ground/Water Distance)
- + GxVTG (Course Over Ground and Ground Speed)

UBX

The UBX prob

Each UBX me  
0x62). This is I  
indicates the c  
this class.

Enable GPRMS: Right click on it -> Enable

	— GPGLL (Geographic Position - Latitude/Longitude)
	— GQGLL (Geographic Position - Latitude/Longitude)
	— _GLL (Geographic Position - Latitude/Longitude)
+.	GxGNS (GNSS Fix Data)
+.	GxGRS (GNSS Range Residuals)
+.	GxGSA (GNSS DOP and Active Satellites)
+.	GxGST (GNSS Pseudorange Error Statistics)
-.	GxGSV (GNSS Satellites in View)
	— GAGSV (GNSS Satellites in View)
	— GBGSV (GNSS Satellites in View)
	— GIGSV (GNSS Satellites in View)
	— GLGSV (GNSS Satellites in View)
	— GNGSV (GNSS Satellites in View)
-.	GPGSV (GNSS Satellites in View)
	— page 1
	— page 2
	— page 3
	— GQGSV (GNSS Satellites in View)
	— _GSV (GNSS Satellites in View)
+.	GxRLM (Return Link Message)
-.	GxRMC (Recommended Minimum Specific GNSS Data)
	— GARMC (Recommended Minimum Specific GNSS Data)

Check if GPGGA message is Enabled|:

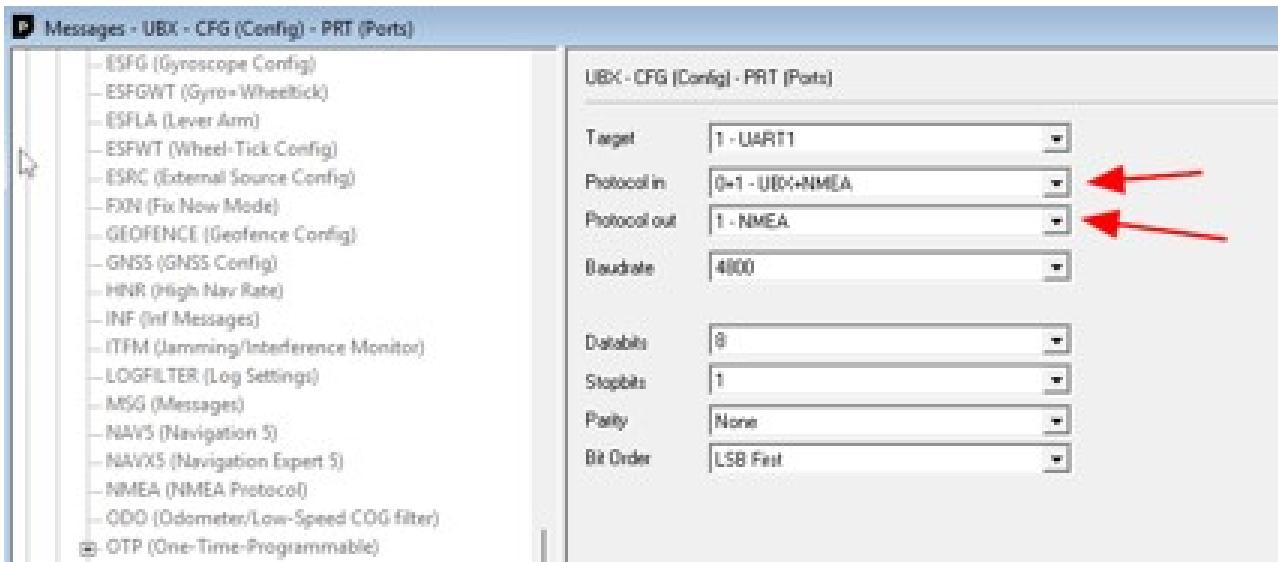
NMEA		
	— GxDTM (Datum Reference)	
	— GxGBS (Satellite fault Detection)	
+.	GxGGA (Global Positioning System Fix Data)	
	— GAGGA (Global Positioning System Fix Data)	
	— GBGGA (Global Positioning System Fix Data)	
	— GIGGA (Global Positioning System Fix Data)	
	— GLGGA (Global Positioning System Fix Data)	
	— GNNGA (Global Positioning System Fix Data)	
	— GPGGA (Global Positioning System Fix Data)	Check if Enabled
	— GQGGA (Global Positioning System Fix Data)	
	— _GGA (Global Positioning System Fix Data)	
-.	GxGLL (Geographic Position - Latitude/Longitude)	
	— GAGLL (Geographic Position - Latitude/Longitude)	
	— GBGLL (Geographic Position - Latitude/Longitude)	
	— _GLLL (Geographic Position - Latitude/Longitude)	
	— GLGLL (Geographic Position - Latitude/Longitude)	

NMEA - GxGGA (Global Positioning System Fix Data) -		
Parameter	Value	Unit
UTC	212359.000	Hhmmss.ss
Lat	3248.3498	ddmm.mmmm
Nothing Indicator	N	
Lon	00500.2007	ddmm.mmmm
Easting Indicator	E	
Status	1	
SVs Used	07	
HDOP	0.0	
Alt [MSL]	75.9	
Unit	H	
Geoid Sep.	18.9	
Unit	H	
Age of DGPS Cor.		
DGPS Ref Station	0000	

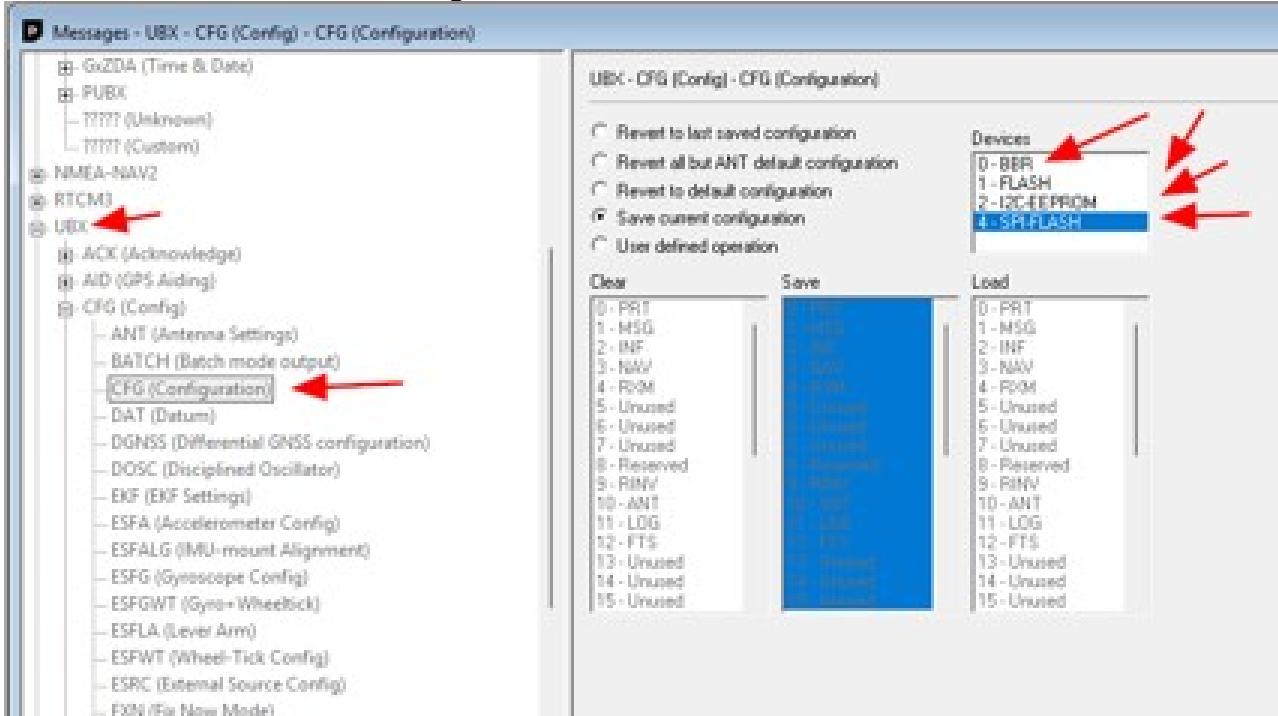
Other messages possible to disable, they do nothing.

I have set only NMEA protocol to output in UBX -> CFG -> PRT :



After changing - click on Send button.

So, now needs to save all new configurations to Flash, I2C:



I do not know which type of memory is used, I have save in the 4 devices, choose 4-SPI-FLASH and press Send, than 2-I2C-EEPROM and press Send, etc.

So after those steps my module starts working with controller 😊

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