

Configuration of GPS RX LEA5



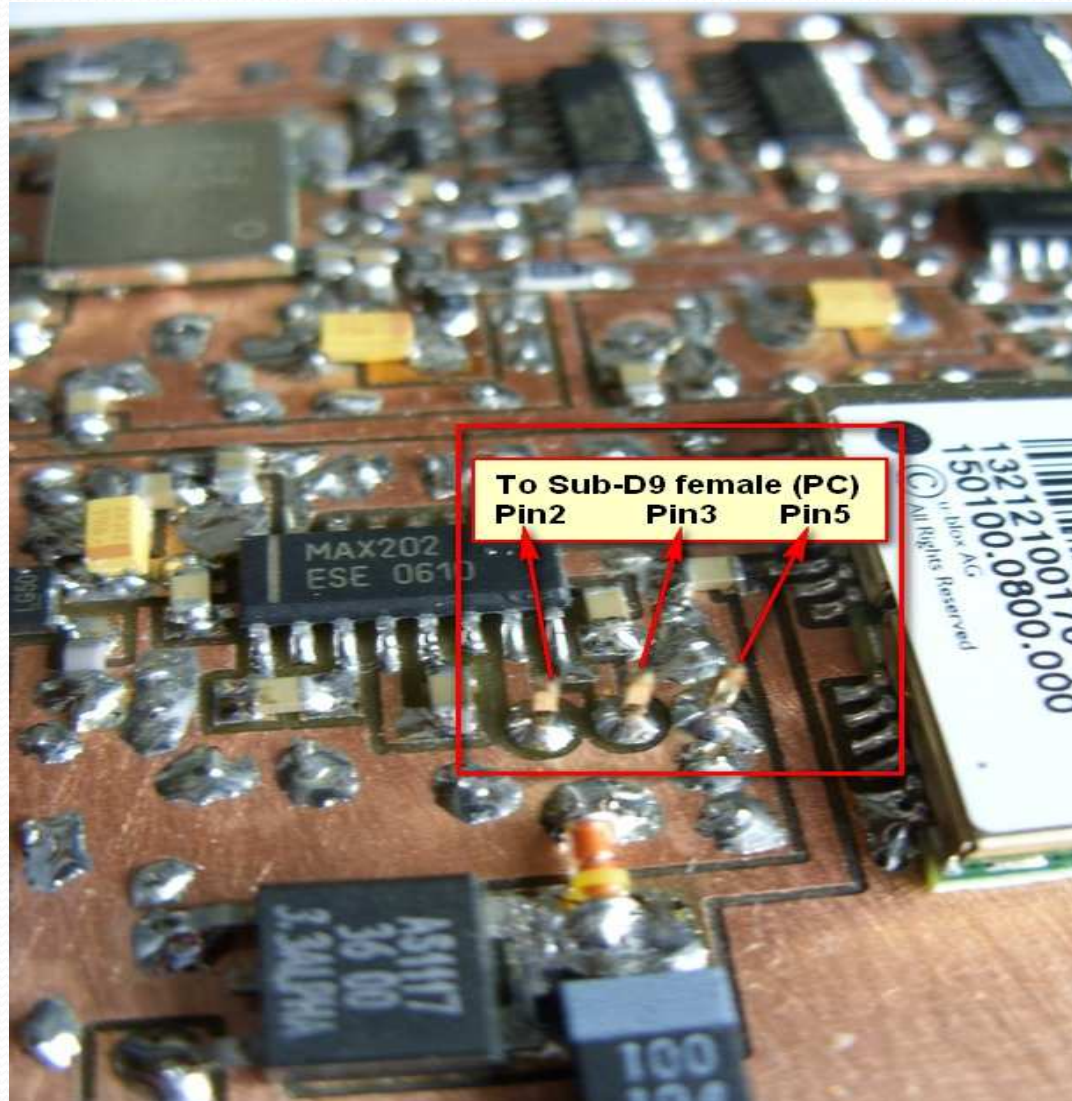
Introduction

- The GPS RX needs some Configuration settings.
- To keep these settings a backup battery CR2032 is used.
- In case the battery has to be changed a Reconfiguration is necessary.

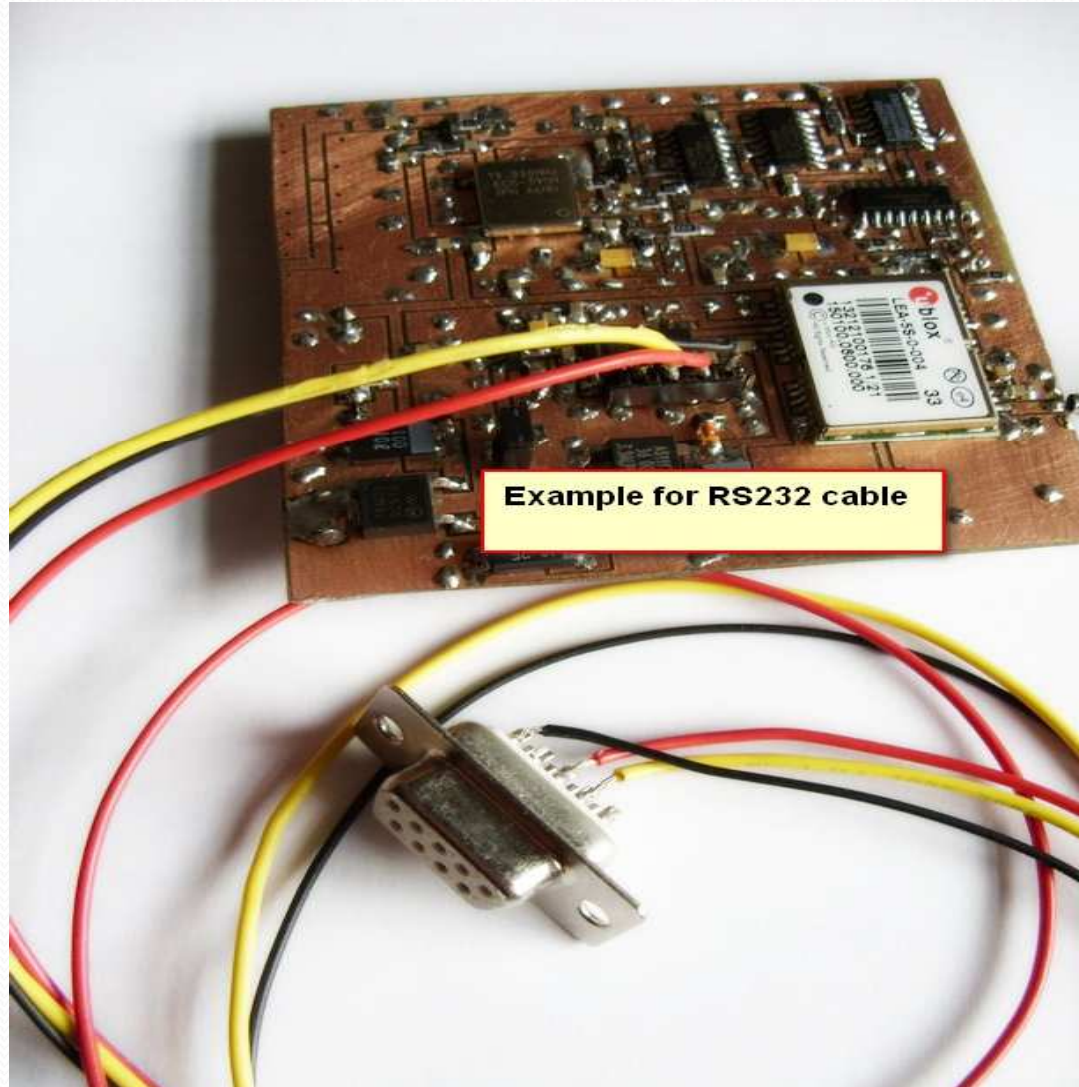
Seriell Connection RS232

- At the board there are 3 Pins for the RS232 Connection.
- You need a standard Sub-D9 female connector and 3 wires.
- And the U-Center Software, you can download from the Ublox homepage.
- Download it to that PC you will use for the configuration and install it
- During installation the PC must be online, because it downloads some files (for any reason) which are not in zip file

Onboard Serial Connection



Example



Connect Sub-D to PC and start U-Center

The screenshot displays the u-center 7.02 software interface. The main window is titled "u-center 7.02" and contains several panels:

- Top Panel:** A menu bar with "File", "Edit", "View", "Player", "Receiver", "Tools", "Window", and "Help". Below it is a toolbar with various icons.
- Left Panel:** A large, mostly empty grey area.
- Center Panel:** A circular diagram representing satellite constellations. Satellites are labeled with IDs: G13 (red), G5 (blue), G16 (green), G27 (green), G21 (blue), G31 (green), G18 (blue), G25 (red), and G29 (red). The diagram is oriented with North (N) at the top and South (S) at the bottom.
- Right Panel (Top):** A table of coordinates and status:

Longitude	10.976860'
Latitude	48.825230'
Altitude	434.90 m
TTFF	
Fix Mode	2D
3D Acc.	
2D Acc.	
PDOP	0 13.7 10
HDOP	0 13.6 10
Satellites	
- Right Panel (Middle):** A grid showing signal strength for various satellites. The grid has columns for satellite IDs (G13, G16, G21, G25, G27, G29, G31, G5, G18) and rows for different metrics (C/N0, S/N0, etc.).
- Right Panel (Bottom):** A clock showing the time 15:12:37.000 UTC on Saturday, 07/12/2014.
- Bottom Panel:** A Windows taskbar showing the Start button, taskbar with "Windows Co...", "u-center 7.02", and system tray with "COM1 9600 u-blox 5", "No file open", "NMEA", "00:05:24", "15:12:37", and "17:12".

Two yellow callout boxes provide additional information:

- Top Callout:** "If Antenna is connected, after a while you will see the received satellites. Green: Used Blue: Not good enough Red: Not available"
- Bottom Callout:** "Bottom line shows connection status If connection is OK the green light blinks"

If no connection, check Com port settings

The screenshot shows the u-center 7.02 software interface. The 'Receiver' menu is open, displaying options: Port, Baudrate, Location API, Sensor API, UDP Client..., TCP Client..., Recent Connections, Autobauding, Debug Messages, Generation, and Action. The 'Port' sub-menu is expanded, showing 'COM1' and 'COM3'. A yellow callout box with a red border and arrows pointing to the 'Port' menu and the 'Autobauding' option contains the text: "In Menu Receiver you can choose the correct COM Port, normally COM1. Autobauding should be selected".

The interface also displays a constellation diagram with satellites G13, G5, G29, G21, G16, G27, G31, G1, and G25. A world map shows the satellite footprint. A data panel on the right shows coordinates (Longitude: 10.976681, Latitude: 48.828225, Altitude: 434.90m) and other metrics like TTFF, Fix Mode, 3D Acc., 2D Acc., PDOP (13.7), HDOP (13.6), and Satellites. A status bar at the bottom indicates 'COM1 9600 u-blox 5' and the time '00:08:22 15:15:34' on Saturday, 07/12/2014.

If no connection, check Com port settings

The screenshot shows the u-center 7.02 software interface. The 'Port' menu is open, and the 'Baudrate' option is selected, showing a list of available baud rates: 1'200, 2'400, 4'800, 9'600, 19'200, 38'400, 57'600, 115'200, 230'400, 460'800, and 921'600. A red arrow points to the 9600 option, and a yellow callout box with the text 'Baudrate must be 9600' is positioned next to it. The main interface displays a circular constellation diagram with satellites G13, G5, G16, G27, G21, G29, G31, G18, and G25. To the right, there are several data panels: a status panel with fields for Longitude (10.8759547), Latitude (48.8250807), Altitude (553.20 m), TTFF, Fix Mode (3D), 3D Acc., 2D Acc., PDOP (0), HDOP (11.8), and Satellites (13.7); a signal strength panel with bars for various satellites; a map panel showing the location of the satellites; and a clock panel showing the time 15:26:59.000 UTC on Saturday, 07/12/2014. The Windows taskbar at the bottom shows the Start button, active windows for 'Windows Co...', 'u-center 7.02', and 'COM1 9600 u-blox 5', and the system tray with the time 17:26.

Receiver must be marked u-blox5

The screenshot displays the u-center 7.02 software interface. The 'Receiver' menu is open, showing options for 'Antaris', 'u-blox 5', 'u-blox 6', and 'u-blox 7'. A yellow callout box with a red border and arrow points to the 'u-blox 5' option, containing the text 'Receiver is u-blox 5'. The main interface shows a constellation diagram with satellites G13, G5, G27, G21, G31, G25, and G29. A status panel on the right displays coordinates (Longitude: 10.976681, Latitude: 48.825231, Altitude: 494.80 m) and other parameters like TTF, Fix Mode, 3D Acc, 2D Acc, POOP, HDOP, and Satellites. A satellite signal strength graph is visible below the status panel. At the bottom, a clock shows the time 15:17:11 UTC on Saturday, 07/12/2014. The taskbar at the very bottom shows the Start button, Windows Explorer, and the u-center 7.02 application.

Go to „View“ – „Configuration View“

The screenshot displays the u-center 7.02 software interface. The 'View' menu is open, showing options like Packet Console, Binary Console, Text Console, Messages View, Configuration View (highlighted), Statistic View, Table View, Recent Table Views, Google Earth, Map View, Recent Map Views, Chart View, Recent Chart Views, Histogram View, Recent Histogram View, Camera View, Deviation Map, Sky View, Docking Windows, and Toolbars. Red arrows point from the 'Configuration View' menu item to a yellow callout box that says 'In the Drop Down Menu choose "Configuration View"'. Another red arrow points from the 'Enlarge' button (a square icon) in the bottom right of the main window to a yellow callout box that says 'At the opening window press the Enlarge Button'. The main window shows a central circular diagram with nodes labeled G16, G27, G21, G29, G31, G18, and G25. To the right, there are several data panels: a table with columns for Longitude, Latitude, Altitude, TTFF, and Fix Mode; a bar chart; a list of data points; and a clock showing the time 15:27:41 on Saturday, 07/12/2014. The Windows taskbar at the bottom shows the Start button, Windows Explorer, u-center 7.02, and system tray icons including the clock and network status.

u-center 7.02

File Edit View Player Receiver Tools Window Help

Packet Console F6
Binary Console F7
Text Console F8
Messages View F9
Configuration View Ctrl+F9
Statistic View F10
Table View F11
Recent Table Views
Google Earth
Map View
Recent Map Views
Chart View
Recent Chart Views
Histogram View
Recent Histogram View
Camera View
Deviation Map F12
Sky View
Docking Windows
Toolbars

In the Drop Down Menu choose "Configuration View"

At the opening window press the Enlarge Button

Longitude 10.8759241
Latitude 48.8250921
Altitude 558.50 m
TTFF
Fix Mode 3D

11.8 13.7 10 10

G16 G27 G21 G29 G31 G18 G25

15:27:41.000 UTC

Saturday 07/12/2014

Creates a Configuration View window

COM1 9600 u-blox 5 No file open NMEA 00:20:29 15:27:41

Start Windows Co... u-center 7.02 EN 17:27

Go to „Nav5“ and change settings as shown

Select "NAV5" and make the following modifications

Choose 2-Stationary

Choose 2-3D only

Click In and change to 10

When made the changes click on "Send" button

u-center 7.02 - [Configure - Navigation 5]

File Edit View Player Receiver Tools Window Help

ANT (Antenna Settings)
CFG (Configuration)
DAT (Datum)
EKF (EKF Settings)
ESFGWT (Gyro+Wheel/Track)
FXN (Fix Now Mode)
GNSS (GNSS config)
INF (InfMessages)
ITFM (Jamming Interference M)
LIC (License)
LOGFILTER (Log settings)
MSG (Messages)
NAV (Navigation)
NAV2 (Navigation 2)
NAV5 (Navigation 5)
NAVX5 (Navigation Expert 5)
NMEA (NMEA Protocol)
PM (Power Management)
PM2 (Extended Power Managerr)
PRT (Ports)
RATE (Rates)
RINW (Remote Inventory)
RST (Reset)
RXM (Receiver Manager)
SBAS (SBAS Settings)
TM (Time Mark)
TM2 (Time Mark 2)
TMODE (Time Mode)
TMODE2 (Time Mode 2)
TP (Timepulse)
TP5 (Timepulse 5)
USB (Universal Serial Bus)

UBX - CFG (Config) - NAV5 (Navigation 5)

Navigation Modes

Dynamic Model: 2-Stationary

Fix Mode: 2-3D only

Fixed Altitude: 0.00 [m]

Fixed Altitude Var: 1.00 [m/m]

Navigation Input Filters

Min SV Elevation: 10 [deg]

C/N0 Threshold: 0 [#SVs]

0 [dbHz]

Navigation Output Filters

DR Timeout: 0 [s]

PDOP Mask: 25.0

TDOP Mask: 25.0

P Accuracy Mask: 100 [m]

T Accuracy Mask: 300 [m]

Static Hold Threshold: 0.00 [m/s]

DGPS

DGPS Timeout: 0 [s]

Longitude: 10.975561
Latitude: 48.825614
Altitude: 531.90 m
TTFF
Fix Mode: 2D
3D Acc: 50
2D Acc: 50
PDOP: 14.4
HDOP: 14.4
Satellites

15:30:09.000 UTC

Saturday 07/12/2014

COM1 9600 U-blox 5 No file open NMEA 00:22:57 15:30:10

Ready

Start Windows Co... u-center 7.02...

17:30

Go to „Timepuls“ and change settings as shown

The screenshot displays the 'u-center 7.02 - [Configure - Time Pulse]' window. The 'TP (Timepulse)' option is selected in the left-hand menu. The main configuration area is titled 'UBX-CFG (Config) - TP (Timepulse)'. The settings are as follows:

- Pulse Mode: +1 - rising edge
- Pulse Period: 1.250000 [ms]
- Pulse Frequency: 800.0000 [Hz]
- Pulse Length: 0.250000 [ms]
- Pulse Duty Cycle: 20.000 [%]
- Time Source: 1 - GPS time
- Cable Delay: 250 [ns]
- User Delay: 0 [ns]
- RF Group Delay: 0 [ns]
- allow async

Annotations with red arrows point to the following settings:

- Next select TP (Timepulse)**: Points to the 'TP (Timepulse)' option in the left menu.
- Click In and change to 1.250000 Check if Pulse Frequency shows 800Hz**: Points to the 'Pulse Period' field.
- Click In and change to 0.250000 Check if Duty Cycle shows 20%**: Points to the 'Pulse Length' field.
- Click In and change to 250**: Points to the 'Cable Delay' field.
- When made the changes press "Send" Button**: Points to the 'Send' button at the bottom left of the window.

The interface also includes a satellite constellation diagram with labels like G12, G5, G31, G18, G25, and G22, a satellite status table, a world map, and a clock showing 15:31:53.000 UTC on Saturday, 07/12/2014.

To finally save the settings go to „CFG“ and press the Send button

The screenshot displays the u-center 7.02 software interface. The main window is titled "UBX - CFG (Config) - CFG (Configuration)". On the left, a sidebar lists various configuration categories, with "CFG (Configuration)" selected and highlighted by a red arrow. A yellow box with the text "Next select CFG (Configuration)" points to this sidebar item. In the main configuration area, several radio buttons are visible, with "Save current configuration" selected and highlighted by a red arrow. A yellow box with the text "Check that Save current configuration is marked" points to this button. At the bottom of the window, a "Send" button is highlighted by a red arrow, with a yellow box containing the text "Finally press 'Send' Button". The interface also features a central circular diagram with satellite identifiers (G3, G27, G16, G21, G5, G29, G31, G18, G25, G22) and a map of Europe with corresponding satellite locations. Other panels show real-time data such as longitude, latitude, altitude, and a satellite signal strength graph.



Endcheck

- Disconnect the DC and start the GPSDO new.
- Go to the „Nav5“ or „Timepuls“ field and check that the made Changes are still there
- In case there are the default values, you probably forgot to press the send buttons or there is still a problem with the battery