

User Guide: M.2 u-blox ZED-X20P

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User Guide: M.2 u-blox ZED-X20P



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Product Overview

This product uses a standard footprint: M.2 2230 Key A+E.

What does this complex name mean? It means is compatible with M.2 connector both M.2 connector Key A, and M.2 connector Key E. These 2 connectors have been developed for USB peripherals. The 2230 just means the size of the board: 22mm x 30mm.

To integrate this product, you will have to add a standard connector to your board, together with a mounting hole in the correct location to fix the board with a screw or a clamp. A recommendation that we can give you is to not use cheap receptacles. Cheap receptacles (especially popular from unknown chinese suppliers) use very contaminated metals for the contacts, which leads to sporadic failures in the field and early death of the socket. We can recommend the top quality TE 2199230-8.

Get Started

Before start: We recommend that you do not change any configurations or update the firmware. The receiver comes pre-configured as a Rover.

Step A: Connect the antenna

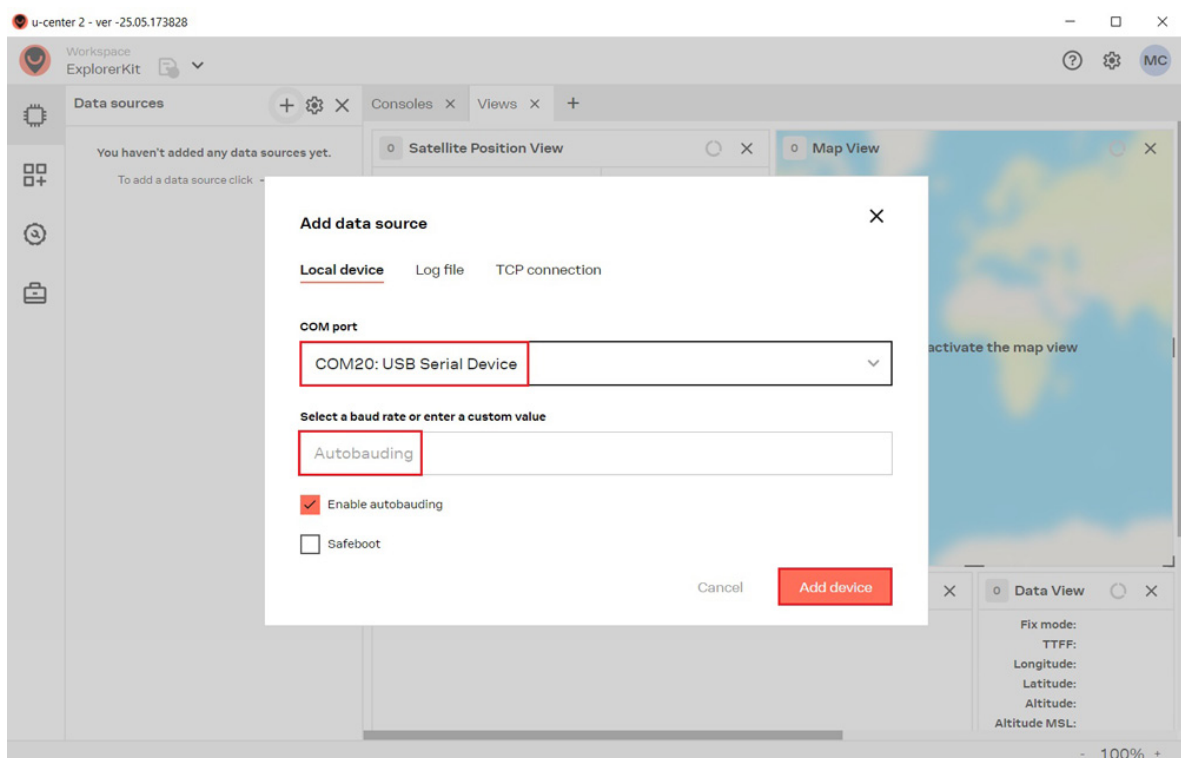
1. Connect the GNSS antenna(s) to your receiver.
2. Place the GNSS antenna(s) outdoors with a good view of the sky for testing functionality. Otherwise, you won't have any satellites in view nor receive signal data.

Step B: Connect to u-center 2

You can download u-center 2 [here](#).

It has been tested on Windows 10 and Windows 11 (64 bit) platform. Once the installation has completed successfully, you need to enter your u-blox support portal account credentials and log in with a browser. If you don't have a u-blox account click **Register**. Follow this quick guide to connect.

3. Connect the receiver to your PC via the USB port labelled as **POWER+GPS**.
4. Click the Devices icon on the left menu bar, click + icon. Select the COM port of the device. Select **Autobauding** for automatic detection of the baud rate. Click **Add device**.



Step C: Get RTK corrections

To achieve centimeter- or millimeter-level accuracy with our GNSS receivers, RTK corrections are required. NTRIP (Networked Transport of RTCM via Internet Protocol) is a protocol used for streaming GNSS data over the internet. It facilitates the transmission of real-time correction data from a reference station to a rover or user device.

If you don't have your own base station for corrections, you can find third party NTRIP corrections at [RTK Correction Services in your Country](#) to gain credential (server address, port, user and password) of NTRIP. You can connect to NTRIP using a PC, smartphone, or our Communication Plugins.

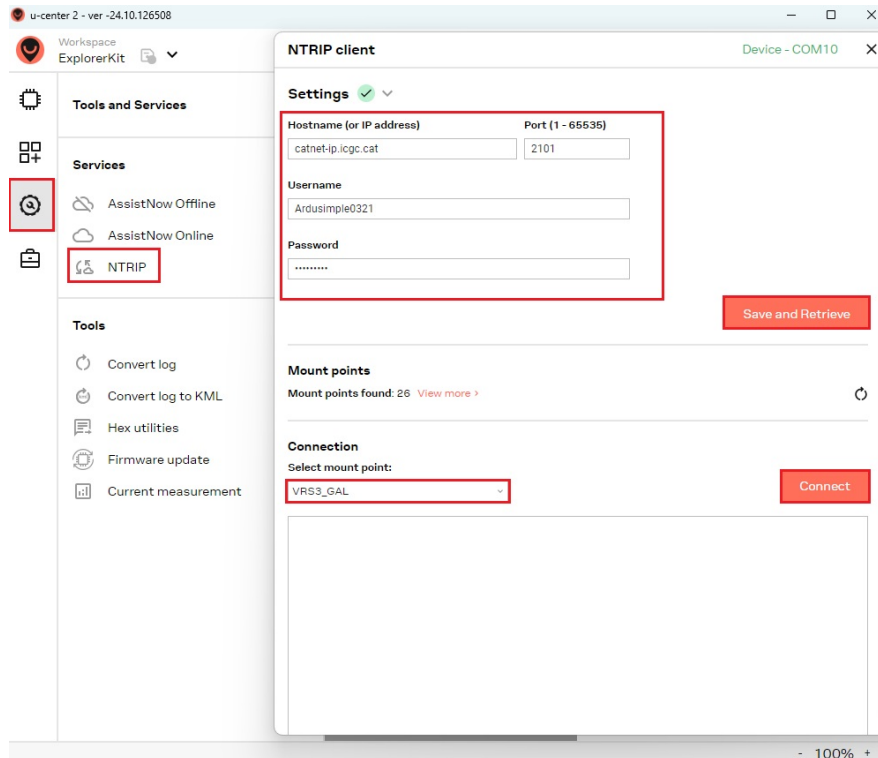
Before starting, make sure your receiver is configured as a Rover. Follow this hookup guide to receive corrections on your PC.

- To connect to the caster for correction data, **UBX-NAV-PVT** or NMEA standard **GGA** messages must be enabled. You can skip this step if you load our Rover configuration file.

The screenshot shows the 'Device configuration' window for 'Device - COM10'. The 'Configuration items' list on the left has 'NMEA_ID_GGA_UART1' selected and highlighted with a red box. The right panel shows the configuration for 'CFG-MSGOUT-NMEA_ID_GGA_UART1'. The 'Value (raw)' is set to '1' and 'Value (hex)' is '1'. Under 'Write to layer', the checkboxes for 'RAM', 'BBR', and 'Flash' are all checked. The 'Action' buttons 'Set' and 'Delete' are visible. At the bottom, there is a table of configuration changes and a 'Send' button.

Keyname (Key ID)	Layer	Value (raw)	Action
1 CFG-MSGOUT-NMEA_ID_GGA_UART1	RAM (0)	1	Set Edit Clear
2 CFG-MSGOUT-NMEA_ID_GGA_UART1	FLASH (2)	1	Set Edit Clear
3 CFG-MSGOUT-NMEA_ID_GGA_UART1	BBR (1)	1	Set Edit Clear

- Go to **Tools and Service** → **Services** → **NTRIP**. Enter the hostname or IP address, port, username and password of the NTRIP caster. Click **Save and Retrieve** to get an up-to-date list of all available mount points. Select mount point then click **Connect**.



If you are an advanced user seeking detailed information, please refer to the integration guide at [u-blox ZED-X20 configuration page](#).

Hardware

Pinout

The following diagram shows the different pins available including its functionality.

Description	Function	Pin	Function	Description
		1	GND	
	VIN_3V3	2 3	USB_DP	
	VIN_3V3	4 5	USB_DN	
		6 7	GND	
		8 9		
		10 11		
		12 13		
		14 15		
		16 17		
	GND	18 19		
		20 21		
		22 23		
		24 25		
		26 27		
		28 29		
		30 31		
		32 33	GND	
		34 35		
		36 37		
		38 39	GND	
		40 41		
		42 43		
		44 45	GND	
		46 47		
		48 49		
		50 51	GND	
Feature disabled	RESET	52 53		
		54 55		
Feature disabled	W_DISABLE	56 57	GND	
		58 59		
		60 61		
		62 63	GND	
		64 65		
		66 67		
		68 69	GND	
		70 71		
	VIN_3V3	72 73		
	VIN_3V3	74 75	GND	

PCB Footprint:

As there are so many softwares, we used an external company to develop footprint libraries for all possible software. The file is not ready yet. After we finish, you can download them from [this link](#). If you face any problem just [contact us](#).

Integration considerations

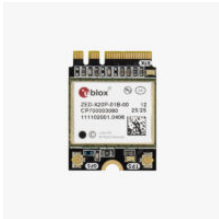
The one peculiarity of a GPS system is that the RF signals it works with, are extremely weak (down to -170dBm!). For this reason, GPS systems are especially delicate and not immune against noise.

Between the GPS receiver and the GPS antenna, the GPS antenna is by far the one with the most critical installation. We want to give you some tips to make sure you integrated your ArduSimple receiver and it works at the first attempt:

- GPS receiver. This part of the system doesn't like airflow, vibration and sudden temperature changes. Just try to avoid that: pick the location in your vehicle with the lowest vibration, try to use it inside a box and far away from any fan, and don't place the board next to an electric engine that can go from cold to very warm in a matter of seconds.
- GPS antenna. For this item we have a separate guide we recommend you to follow and it's our [GPS/GNSS Antenna Installation Guide](#).

Configuration and Software Integration

With this product you have direct access to ZED-X20P functionalities, it will help you to read the extensive u-blox documentation. Nevertheless you can use our [configuration page](#) as a starting point for your project. And if you need help at any point just [contact us](#), we always answer.



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