

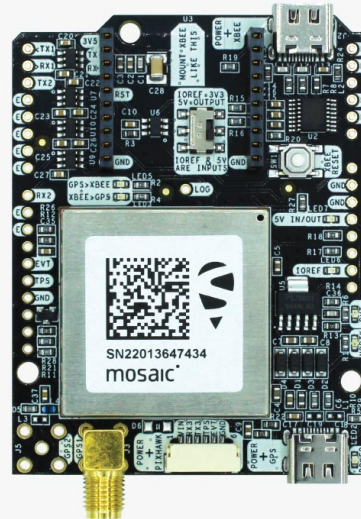
# simpleRTK3B Pro

Includes:

- 1 simpleRTK3B Pro board (Mosaic-X5)



More info about the product!



simpleRTK3B Pro has several different configurations to provide you with flexibility:

| SKU                     | Variation Name          |
|-------------------------|-------------------------|
| AS-RTK3B-MX5-L125-NH-00 | Without headers         |
| AS-RTK3B-MX5-L125-HS-00 | Headers soldered (+26€) |

Get a discounted bulk price on this product for orders of 50 units or more. Contact us at [info@ardusimple.com](mailto:info@ardusimple.com) to get a quote.

## Description

simpleRTK3B Pro is a standalone board that allows to evaluate triple band millimeter RTK GNSS positioning technology including microSD datalogging and with [an accessory native Ethernet functionality](#). It's based on **Septentrio mosaic-X5** module and can be used standalone. Or connected with Arduino, Ardupilot / Pixhawk (JST connector), Raspberry Pi, Nvidia Jetson and STM32 Nucleo platforms, as a shield. It can provide up to 100 RTK positions every second.

This board is ideal for advanced projects that require high update rate, best in class accuracy or CORS base station installations.

More details available in the Specification and Documentation tabs.

Good to know:

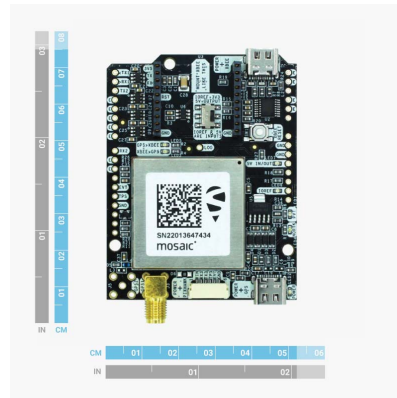
- This product includes a microSD card native datalogger (microSD card not included)
- This product is compatible but doesn't include a multiband GNSS antenna, which is necessary to use the product.
- The module will not give good performance with a standard GNSS antenna, requires a multiband one. Best performance is achieved with a triple band antenna.
- This product is compatible but doesn't include radio, which is necessary to connect to another base.
- This board is recommended if you want to test **Septentrio mosaic-X5** performance.
- The onboard XBee socket can be used to expand functionality with Plugin accessories (MR/LR/XLR radios, Bluetooth, WiFi, RS232, Canbus, L-Band, 4G/3G/2G).
- You can use the Shield for Second Plugin socket to connect 2 plugins at the same time.
- This product already includes a native microSD datalogger (microSD card not included).
- This product already has embedded Ethernet functionality (special Ethernet adapter not included, see related product below).
- Compatible with ArduSimple plastic case
- Ardupilot compatible via JST-GH standard connector
- Timepulse output and Event input
- This product is a low cost alternative to Trimble BD970

## Specifications

### Mosaic-X5 features

- Millimeter level precision
  - <1cm with a base station up to 35km
  - <1cm with NTRIP up to 35km
  - <1.2m in standalone mode
  - <0.6m standalone with SBAS coverage
- Update rate
  - Default: 1Hz
  - With maximum performance: up to 100Hz
- Multi band: L1, L2 and L5 support, 448 hardware channels
- Multifrequency and Multiconstellation:
  - GPS: L1C/A L1PY L2C L2P L5
  - GLONASS: L1CA L2CA L2P L3 CDMA
  - Galileo: E1 E5a E5b E5 AltBloc E6
  - BeiDou: B1I B1C B2a B2I B3
  - QZSS: L1C/A L2C L5
  - Navic: L5
  - SBAS: WAAS, EGNOS, MSAS, GAGAN, SDCM (L1 L5)
- Start-up times:
  - Cold start: <45s
  - Warm start: <20s
  - Re-acquisition: 1s
- Protocols:
  - Septentrio Binary Format (SBF)
  - NMEA 0183, v2.3, v3.03, v4.0
  - RINEX v2.x, v3.x
  - RTCM v2.x, v3.x (MSM included)
  - CMR v2.0 (out/in), CMR+ (input only)
- Interfaces (**check user guide to verify which are available**):
  - USB
  - UART
  - XBee
  - Timepulse
  - Event
- Base and Rover functionality
- Operating temperature Range: -40 to +85degC
- Certification: CE, WEEE, ISO 9001-2015
- Documentation: RED, RoHS

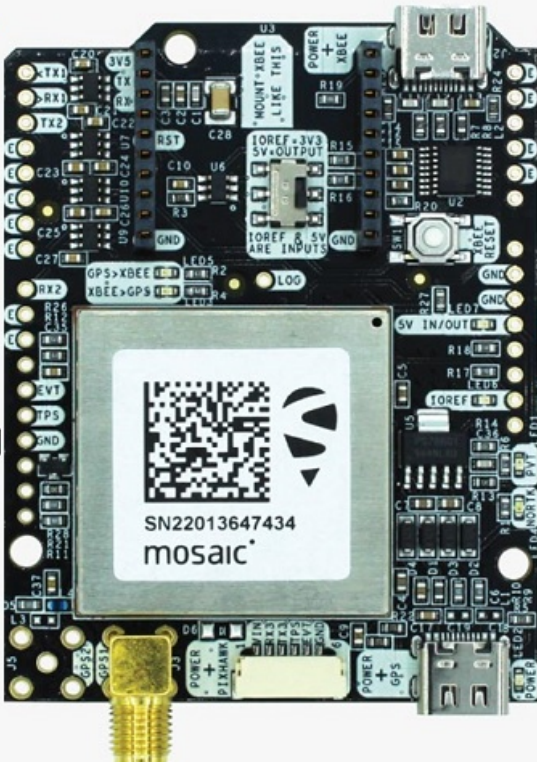
## Image Gallery



## Pinout

TOP VIEW

| Description                          | Name       | Name         | Description                                                            |
|--------------------------------------|------------|--------------|------------------------------------------------------------------------|
| GPS TX1 IOREF level                  | TX1        | E            | Don't connect                                                          |
| GPS RX1 IOREF level                  | RX1        | E            | Don't connect                                                          |
| XBee TX/GPS RX2 IOREF level          | TX2        | E            | Don't connect                                                          |
| Don't connect                        | E          | E            | Don't connect                                                          |
| Don't connect                        | E          | E            | Don't connect                                                          |
| Don't connect                        | E          |              |                                                                        |
| Don't connect                        | E          |              |                                                                        |
| XBee RX/GPS TX2 IOREF level          | RX2        |              |                                                                        |
| Don't connect                        | E          |              |                                                                        |
| Don't connect                        | E          |              |                                                                        |
| Event input for timestamp 3.3V level | EVT        |              |                                                                        |
| Inverted timepulse out 3.3V level    | TPS        |              |                                                                        |
| Ground                               | <b>GND</b> |              |                                                                        |
|                                      |            | <b>GND</b>   | Must connect to GND                                                    |
|                                      |            | <b>GND</b>   | Must connect to GND                                                    |
|                                      |            | <b>5V_IN</b> | 4.5-5.5V optional input voltage<br>Can also be output via switch       |
|                                      |            | <b>IOREF</b> | 1.8-5V, defines voltage of TX/RX<br>Can also be 3.3V output via switch |



## Documentation

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| User Guide                                      | <a href="https://www.ardusimple.com/user-guide-simplertk3b-pro/">https://www.ardusimple.com/user-guide-simplertk3b-pro/</a>                                                                                                                                                                                                                                                    |
| how to configure<br>Septentrio Mosaic<br>boards | <a href="https://www.ardusimple.com/how-to-configure-septentrio-mosaic-x5-and-mosaic-h/">https://www.ardusimple.com/how-to-configure-septentrio-mosaic-x5-and-mosaic-h/</a>                                                                                                                                                                                                    |
| Download CAD models                             | <a href="https://www.ardusimple.com/wp-content/uploads/2023/04/AS-RTK3B-MX5-L125-HS-00.step">https://www.ardusimple.com/wp-content/uploads/2023/04/AS-RTK3B-MX5-L125-HS-00.step</a><br><br><a href="https://www.ardusimple.com/wp-content/uploads/2023/04/AS-RTK3B-MX5-L125-NH-00.step">https://www.ardusimple.com/wp-content/uploads/2023/04/AS-RTK3B-MX5-L125-NH-00.step</a> |

simpleRTK3B Pro includes free basic technical support. Contact [info@ardusimple.com](mailto:info@ardusimple.com) for more information.

Data and descriptions in this document are subject to change without notice. Product photos and pictures are for illustration purposes only and may differ from the real product appearance.