

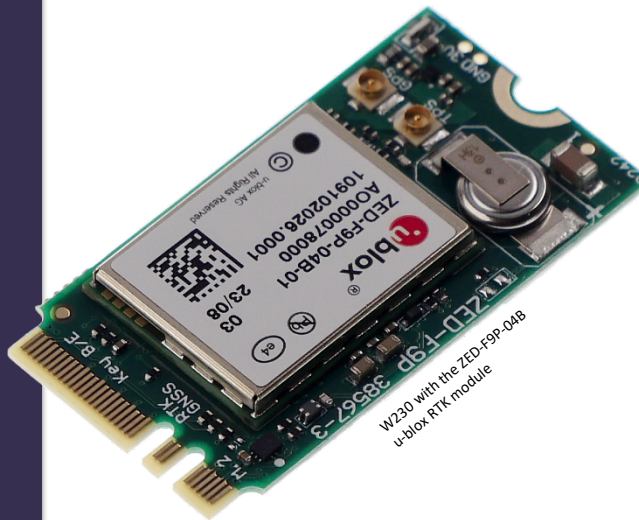
# RTK GPS (GNSS)

## Key B and E M.2 Card

### Overview

The W230 is a tiny M.2 add-on module to provide very precise GNSS (GPS) localisation. It is based on the u-blox ZED-F9x modules.

The W230 is the industry first M.2 card with access to all interfaces: USB und 2x UART.



### Technical Specifications

Feature	W230-P	W230-R
<b>GNSS features</b>		
u-blox module	ZED-F9P	ZED-F9R
GNSS	BeiDou, Galileo, GLONASS, GPS / QZSS	BeiDou, Galileo, GLONASS, GPS / QZSS
Number of concurrent GNSS	4	4
GNSS bands	GPS L1C/A L2C, GLO L1OF L2OF, GAL E1B/C, E5b, BDS B1I B2I, QZSS L1C/A L1S L2C L5, SBAS L1C/A	GPS L1C/A L2C, GLO L1OF L2OF, GAL E1B/C E5b, BDS B1I B2I, QZSS L1C/A L1S L2C
Multi-Band	L1/L2/L5	✓
<b>Interfaces</b>		
UART	2	2
USB	1	1
DDC (I2C compliant)	1	1
SPI	1	1
<b>Features</b>		
Connector	M.2 key B & E	M.2 key B & E
Size [mm]	22x42	22x42
Operating temperature [°C]	-40 to 85	-40 to 85
Supply voltage [V]	2.7 to 3.6	2.7 to 3.6
Power consumption	68 mA at 3.0 V	85 mA at 3.0 V
Super cap	✓	✓
Cold start	24 s	24 s
Hot start	2 s	2 s
Navigation update rate	Up to 20 Hz	Up to 30 Hz
Position accuracy RTK	0.01 m	<0.01 m
TCXO Oscillator	✓	✓
Active antenna / LNA control	✓	✓
Active antenna / LNA supply	✓	✓
Antenna open circuit detection pin	✓	✓
Antenna short circuit detect / protect pin	✓	✓
Base station with survey-in	✓	
Carrier phase output	✓	✓
Data logging	✓	
Jamming detection	✓	✓
Programmable flash memory	✓	✓
RTK rover	✓	✓
Secure boot	✓	
Wheel tick		✓
Time pulse output	U.FL	U.FL
Antennas	U.FL for active GPS antenna	U.FL for active GPS antenna

### Benefits of RTK

- Precise Positioning:**  
Achieve centimeter-level positioning accuracy with fast convergence times (<10s) and reliable performance enabling precise navigation and tracking applications.
- Faster Time-to-First-Fix:**  
Rapid initialization and convergence times ensure quicker availability of accurate positioning data, minimizing startup delays.
- Increased Data Quality:**  
RTK enables high-quality data collection in a small and energy-efficient module, for applications such as surveying, mapping, precision agriculture, and autonomous vehicles.

### M.2 form factor

The M.2 card based RTK module brings simplicity and compactness. It simplifies integration, saves time, and reduces system complexity. The small size of the M.2 card allows for easy integration into space-constrained devices, making it versatile for various applications. Overall, it offers an efficient solution for precise positioning in compact systems.

### Components

SKU	Part
70901-P	W230 with ZED-F9P
70901-R	W230 with ZED-F9R

### Resources

Description	Link
Data sheet ZED-F9P	<a href="https://content.u-blox.com/sites/default/files/ZED-F9P-04B_DataSheet_UBX-21044850.pdf">https://content.u-blox.com/sites/default/files/ZED-F9P-04B_DataSheet_UBX-21044850.pdf</a>
Data sheet ZED-F9R	<a href="https://content.u-blox.com/sites/default/files/documents/ZED-F9R-03B_DataSheet_UBX-22024085.pdf">https://content.u-blox.com/sites/default/files/documents/ZED-F9R-03B_DataSheet_UBX-22024085.pdf</a>

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