locate, communicate, accelerate

# u-blox positioning receiver modules

**AMY**
GPS module
6.5 x 8.0 x 1.2 mm

**MAX**
GPS/GNSS modules
9.7 x 10.1 x 2.5 mm

**NEO**
GPS/GNSS, special function modules
12.2 x 16.0 x 2.4 mm

**LEA**
GPS/GNSS, special function modules
17.0 x 22.4 x 2.4 mm

| Model | Type | | | | | | Supply | | | | Interfaces | | | | Features | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | GPS | QZSS | GLONASS | Timing | Dead Reckoning | Precise Point Positioning | 2.7 V – 3.6 V | 1.65 V – 3.6 V | 1.75 V – 2.0 V | Lowest power (DC/DC) | UART | USB | SPI | DDC (I²C compliant) | Programmable (Flash) | Data logger | Extra front-end LNA | Front-end SAW filter | Oscillator | RTC crystal | Antenna supply | Antenna short circuit detection / protection | Antenna open circuit detection pin | Timepulse | External interrupt / Wakeup |
| **MAX-7Q** | • | • | • | | | | • | | | • | • | | | • | | | | | T | • | o | o | o | • | • |
| **MAX-7C** | • | • | • | | | | | • | | • | • | | | • | | | | | C | ■ | o | o | o | • | • |
| **MAX-7W** | • | • | • | | | | • | | | | • | | | • | | | | | T | • | • | • | o | • | • |
| **NEO-7N** | • | • | • | | | | • | | | • | • | • | Sel | • | • | • | • | • | T | • | o | o | o | • | • |
| **NEO-7M** | • | • | • | | | | | • | | • | • | • | Sel | • | | | | | C | • | o | o | o | • | • |
| **LEA-7N** | • | • | • | | | | • | | | • | • | • | | • | • | • | | • | T | • | • | • | • | • | • |
| **AMY-6M** | • | | | | | | • | | • | | • | • | • | • | | | | | C | o | o | o | o | • | • |
| **NEO-6P** | • | | | | | • | • | | | | • | • | • | • | | | | | C | • | o | o | o | • | • |
| **NEO-6T** | • | | | • | | | • | | | | • | • | • | • | | | | | T | • | o | o | o | • | • |
| **NEO-6V[1]** | • | | | | • | | • | | | | • | • | • | • | | | | | C | • | o | o | o | • | • |
| **LEA-6T-0** | • | | | • | | | • | | | | • | • | | • | | | | | T | • | • | • | • | • | • |
| **LEA-6T-1** | • | | | • | | | • | | | | • | • | | • | • | | | | T | • | • | • | • | • | • |
| **LEA-6R[2]** | • | | | | • | | • | | | | • | • | X | | • | | | | C | • | • | • | • | • | • |

o = Optional, not activated per default or requires external components
Sel = Select for either SPI or UART/DDC by HW configuration pin (D_SEL)
X = SPI available for communication with external sensors only

C = Crystal / T = TCXO
1) Software interface for sensor data

■ = Derived from main oscillator
2) Hardware interface for sensor data

# u-blox GPS/GNSS receiver performance

| Parameter | Specification | UBX-7 | |
|---|---|---|---|
| Receiver type | Channels<br>Signals | 56<br>GPS L1 C/A,<br>SBAS L1 C/A (WAAS, EGNOS, MSAS), QZSS L1 C/A,<br>GLONASS L1OF, Galileo E1 B/C | |
| Configuration | Time pulse<br>Navigation update rate | 0.25 ... 10 MHz<br>up to 10 Hz | |
| Time-To-First-Fix | | **TCXO** | **Crystal** |
| | Cold start (autonomous)<br>Warm start (autonomous)<br>Hot start (autonomous) | 29 s<br>28 s<br>1 s | 30 s<br>28 s<br>1 s |
| GPS sensitivity | | **TCXO** | **Crystal** |
| | Tracking & navigation<br>Reacquisition<br>Cold start (autonomous) | –162 dBm<br>–160 dBm<br>–148 dBm | –161 dBm<br>–160 dBm<br>–147 dBm |
| GLONASS sensitivity | Tracking & navigation<br>Reacquisition<br>Cold start (autonomous) | –158 dBm<br>–156 dBm<br>–140 dBm | –158 dBm<br>–156 dBm<br>–139 dBm |
| Accuracy | Horizontal position<br>Timepulse signal<br>Velocity<br>Heading | 2.5 m (GPS) / 4.0 m (GLONASS)<br>2.0 m SBAS (GPS only)<br>30 ns RMS (GPS) / 50 ns RMS (GLONASS)<br>0.1 m/s<br>0.5 degrees | |
| Limits | Acceleration<br>Velocity | ≤ 4 g<br>500 m/s (1000 knots) | |

[1] 0.25 Hz to 10 MHz for NEO-6T and LEA-6T