

UP501

Fastrax GPS antenna module

Highlights

- Embedded GPS Antenna
- Low power consumption
- Ultra high sensitivity of -165dBm
- Configurable fix update rate up to 10Hz



UP501:
22 x 22 x 8 mm

Product description

The UP501 GPS receiver module with embedded GPS antenna enables high performance navigation in the most stringent applications and solid fix even in harsh GPS visibility environments.

It is ideally suited for navigation systems, asset tracking devices and battery operated consumer products, such as personal navigation devices, handheld computers, cameras, and sports accessories. The UP501 is also an ideal receiver for GPS mouse applications, due to its compact design and easy interfacing.

Extremely high acquisition sensitivity enables fast position fix in harsh urban canyons or blocking environments, eliminating

the need for an external antenna. An internal backup battery (optional) allows very fast TTFF even when the module has been completely powered off by the host system. This enables extremely efficient customizable power save modes without compromising TTFF performance.

The UP501 fix rate is configurable up to 10Hz by user commands. This makes the UP501 ideal for extremely high dynamics applications.

Space and costs are reduced due to the cutting-edge technology in the UP501 receiver. The embedded GPS antenna and optional on-board backup battery allow easy integration to host systems.

Product selector

Model	Type	Supply	Interfaces	Features										
	GPS QZSS GLONASS Timing Dead Reckoning Precise Point Positioning	3.0 V – 4.3 V 1.65 V – 3.6 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										
UP501	•	• •	•	• • • T • •										

C = Crystal / T = TCXO / o = optional

Features

Receiver type	MT3329 engine GPS L1 C/A, SBAS: WAAS, EGNOS, MSAS	
Navigation update rate	up to 10 Hz	
Accuracy	Position	2.5 m CEP
	SBAS	2.0 m CEP
Acquisition	Cold starts:	34 s
	Warm starts:	34 s
	Hot starts:	1 s
Sensitivity	Tracking:	-165 dBm
	Cold starts:	-148 dBm
Oscillator	TCXO	
RTC crystal	Built-In	
Anti jamming	Active CW detection and removal	
Memory	Flash	
Supported antennas	Embedded 18mm patch antenna	

Electrical data

Supply voltage	3.0 V to 4.2 ¹ V
Power Consumption	75 mW @ 3.0 V (Continuous)
Backup Supply	2.0 V to 4.2 ¹ V

¹ For future-proof designs, u-blox recommends a 3.6 V maximum.

Interfaces

Serial interfaces	1 UART (CMOS level, optional RS232)
Timepulse	1 Hz
Protocol	NMEA 0183, 9600 baud

Legal Notice

u-blox reserves all rights to this document and the information contained herein. Products, names, logos and designs described herein may in whole or in part be subject to intellectual property rights. Reproduction, use, modification or disclosure to third parties of this document or any part thereof without the express permission of u-blox is strictly prohibited.

The information contained herein is provided "as is". No warranty of any kind, either express or implied, is made in relation to the accuracy, reliability, fitness for a particular purpose or content of this document. This document may be revised by u-blox at any time. For most recent documents, please visit www.u-blox.com.

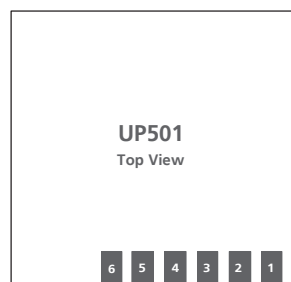
Copyright © 2013, u-blox AG

Objective Specification

Package

6 pin contact header: 22 x 22 x 8 mm, 9 g

Pinout



Environmental data, quality & reliability

Operating temp. -40° C to 85° C

Storage temp. -40° C to 85° C

RoHS compliant (lead-free)

Support product

EVK-UP501 UP501 GPS evaluation kit with TCXO
Easy-to-use kit to get familiar with Fastrax UP501 GPS receiver modules, evaluate functionality and visualize GPS performance.

Ordering information

UP501-0	GPS Antenna Module, Flash, TCXO, SAW, 100 pcs/tray
UP501B:	GPS Antenna Module, Flash, TCXO, SAW, 100 pcs/tray, Backup battery
UP501D:	GPS Antenna Module, Flash, TCXO, SAW, 100 pcs/tray, Dual SAW filter
UP501R:	GPS Antenna Module, Flash, TCXO, SAW, 100 pcs/tray, RS232 interface with backup battery

Available as samples and tray

Contact us

HQ Switzerland / EMEA
+41 44 722 7444
info@u-blox.com

Americas
+1 703 483 3180
info_us@u-blox.com

APAC – Singapore
+65 6734 3811
info_ap@u-blox.com

China
+86 10 68 133 545
info_cn@u-blox.com

India
+91 959 1302 450
info_in@u-blox.com

Japan
+81 3 5775 3850
info_jp@u-blox.com

Korea
+82 2 542 0861
info_kr@u-blox.com

Taiwan
+886 2 2657 1090
info_tw@u-blox.com