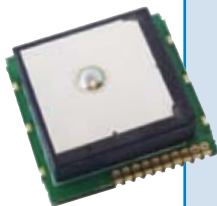




uPatch100-S

OEM GPS Receiver Module

- **Compact design**
- **High performance, Cost effective design**
- **Suitable for all NMEA only type of applications**



New family of receivers

uPatch100-S expands Fastrax' product offering in the family of GPS receivers based on SONY GPS LSI's.

The uPatch100-S is an ultra small OEM GPS receiver with a built-in antenna. It is a versatile OEM GPS receiver for applications that require only an 'NMEA-machine' type of receiver. It is suitable for integrated GPS applications where high performance and low cost are key issues.

High performance receiver architecture

It is based on the SONY single chip GPS receiver device with built in ROM firmware. In addition a two stage LNA, TCXO and RTC are included. Necessary on board regulators are also included for ease of use. Typical Cold Start TTFF is 45s. State-of-the-art signal acquisition and tracking circuitry enables weak signal capability in difficult environments.

Versatile interfaces

The uPatch100-S is very easy to use. The interface pins carries all necessary signals for making typical 'NMEA machine' type of applications possible.

The user needs only to connect the power supplies (main supply and battery backup supply) to make it functional. Low power mode is simply achieved by removing the main power supply at any time. The receiver will resume normal operation once the main power supply is reconnected.

uPatch100-S Key Features:

- Small form factor – 22 x 22 x 8 mm
- OEM module with built-in antenna
- 18 x 18 x 4 mm patch antenna
- Power supply 3.0...3.6V
- Battery backup supply 2.5V...3.6V
- Low power consumption:
 - 145mW @ 3.3V (normal mode)
 - 60µW @ 3.3V (battery backup)
- Very high sensitivity:
 - 139dBm (Unaided Acquisition)
 - 150dBm (Navigation)
 - 152dBm (Tracking)
- NMEA0183 and Sony ASCII protocols

CXD2951-GL4 Single Chip



NMEA0183 output can be customized using SONY ASCII protocol. (Port 0). Default Baud Rate is 4800 baud. It can be configured for 4800, 9600, 19200 or 38400 using Pins 9 and 10.

A highly accurate 1PPS timing pulse is also available. A valid fix output can be used for indicating the state of the receiver (acquisition, tracking and navigation modes).



Specifications

General: L1 frequency, C/A code (SPS)
 12 independent tracking channels
 Integrated 18x18x4 mm patch antenna
 Separate search and acquisition engine

Update rate: 1 fix/s

Accuracy: Position: 3 m (CEP50), 7 m (CEP95)
 Velocity: 0.1 m/s
 Time: 40 ns RMS

TTFF: Cold Start: 45 s
 Warm Start: 35 s
 Hot Start: 8 s

Sensitivity: Acquisition (unaided): -139 dBm
 Tracking: -152 dBm
 Navigation: -150 dBm

Power Drain: Acquisition: 210 mW
 Navigation: 145 mW
 Battery backup: 60 μ W

uPatch100-S

I/O Ports: One asynchronous data port
 10-pin pad-row w/1.27 mm pitch
 Two Baud Rate Select pins
 1PPS output
 Valid fix indicator output
 Main power supply
 Battery backup supply

Protocol: NMEA 0183 ver 3.0
 SONY ASCII

Dimensions: 22 mm x 22 mm x 8 mm

Weight: 12 g

Operating voltage: 3.0V..3.6V (main supply)
 2.5V..3.6V (battery backup supply)

Operating temperature: -40C..+85C

Antenna: 18x18x4 mm patch

GPS Receiver IC: CXD2951GL-4 Single Chip

Pin	Name	I/O	Description
1	VDD	PWR	Main Supply (3.0V..3.6V)
2	TX0	O	NMEA Output
3	RX0	I	SONY ASCII Input
4	GND	GND	Ground
5	XRESET	I	External Reset, Active Low
6	VBAT	PWR	Battery Backup Supply (2.5V..3.6V)
7	1PPS	O	1 Pulse Per Second Output
8	FIX	O	Valid Fix Indicator Output
9	BAUD0	I	Baud Rate Select 0 Input
10	BAUD1	I	Baud Rate Select 1 Input

Baud Rate	BAUD0	BAUD1	NMEA Messages
4800	HIGH	LOW	GPGGA, GPGSA GPGSV, GPRMC
9600	LOW	LOW	GPGGA, GPGSA GPGSV, GPRMC GPVTG, GPZDA PSGSA
19200	LOW	HIGH	GPGGA, GPGSA GPGSV, GPRMC GPVTG, GPZDA PSGSA
38400	HIGH	HIGH	GPGGA, GPGSA GPGSV, GPRMC GPVTG, GPZDA PSGSA

