Fastrax IT600

OEM GPS Receiver Module

- **Hybrid positioning with GPS and Glonass**
- **Increased accuracy and satellite visibility**
- **DR support**
- **Embedded programming with SDK**

IT600 Key Features:
- Multi GNSS support (GPS/Galileo and Glonass)
- DR support (Odometer/Gyro or CAN DWP)
- Small form factor – 16.2mm x 18.8mm x 2.3mm
- High Sensitivity
  - - 160 dBm (Tracking)
  - - 146 dBm (Cold start)
- I2C for MEMS sensors and other I2C peripherals
- Three serial ports
- 1PPS output
- SPI and GPIO available for custom purposes
- ST-AGPS & PGPS support
- Anti-Jamming detection and removal
- JTAG for SDK and debugging
- STM STA8088EX single chip

Multi GNSS Support

Fastrax IT600 GNSS module is an advanced multi-constellation receiver capable of either separately or by simple configurations simultaneously, use, acquire, track and navigate with GPS, Glonass, QZSS and SBAS satellites and with future software upgrades also with Galileo and Compass/Beidou satellites.

Enabling Glonass or other additional GNSS satellites in urban canyons with limited visibility of the sky increases the amount of visible satellites up to 2X compared to a GPS-only receiver or compared to a receiver using either one or another GNSS system separately. More satellite visibility means that fix availability and accuracy are significantly improved. Unused tracking channels or GNSS signals can be turned off for power saving.

OEM receiver with Dead Reckoning for Several Applications

IT600 offer Dead Reckoning by using traditional 1-axis analog Gyro or 3-axis digital gyro together with Odometer Pulse from car. Support for DWP (Differential Wheel Pulse) based DR through CAN interface will be available later.

The multi-GNSS functionality together with DR makes the IT600 extremely suitable for applications where fix availability and position accuracy are crucial factors like asset tracking and automotive industries. The increase accuracy and fix availability achieved by double amount of visible satellites and DR support is also the simplest and greatest way to differentiate any device in highly competitive markets.

Versatile Interfaces

IT600 offers a wide range of interfaces in a tiny form factor. Two UART's are available for NMEA and RTCM104. A third UART/USB is also available. I2C provides a convenient interface for adding for instance MEMS sensors, EEPROM or other I2C compatible peripherals. A easy configurable 1PPS output is also available. CAN bus is available for DR. The I/O voltages are 3.3V CMOS levels.

AGPS support

IT600 supports ST-AGPS™ Self Trained Assisted-GPS technology, able to provide both fully-autonomous Ephemeris prediction and server-based, predictive assistance using GPStream™ Server technology provided by Rx Networks. The autonomous predictions are providing accurate fix for 5 days on observed satellites with no server needs.

Using server-based GPStream™, the access of a very compact information (2KB payload) ensures full-constellation predicted ephemeris valid for 7 days.

SDK support

A JTAG interface is also available for custom firmware implementations and debugging. Currently ARM Realview 3.1 compiler and Lauterbach ICE are supported. Support for GNU compilers will be available in Q4/2011.
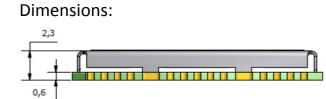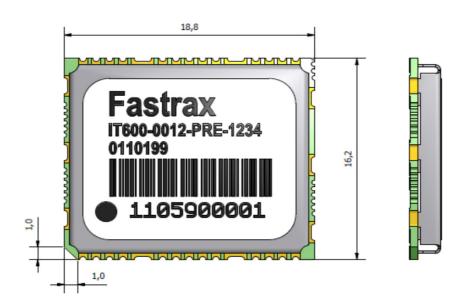
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Specifications

General:	L1 frequency (GPS,Galileo & Glonass)		I/O ports:	36 contact LGA
	32 independent tracking/search channels			Three asynchronous serial ports
	Separate search and acquisition engine			1PPS output
Update rate:	1 fix/s (user configurable)			I2C or CAN1
Accuracy:	Position:	3 m (RMS)		CAN0
	Velocity:	<0.1 m/s		ADC input
	Time:	+/-1 us typ.		Odometer input from car
TTFF:	Cold Start (out of the box):	34 s typ.		XRESET, XSTANDBY, WAKEUP inputs
	Hot start:	2 s typ.		SPI Interface
Sensitivity:	Acqusition (cold):	-146 dBm *(1)*		JTAG
	Tracking:	-160 dBm *(1)*	Protocol:	NMEA 0183 rev. 3.01
Power Drain (1.8V):	Navigating 1 fix/s:	235 mW typ. *(2)*		RTCM104 input
	Back up state current:	65 uA typ.	Dimensions:	16.2mm x 18.8mm x 2.3mm (2.5 max)
Operating voltage:	Digital Supply VDD1V8:	+1.8 V	Weight:	3g
	Back up Supply VBAT:	+1.62... +3.6 V	Antenna Input:	LGA pad, 50ohm *(1)*
	I/O Supply VDD3V3:	+3.0... +3.6 V	Antenna bias:	same as I/O Supply VDD3V3
Operating temperature:		-40... +85°C	Chip set:	STM STA8088EX
Storage temperature:		-40... +85°C	SW Features:	Self Trained ST-AGPS(TM)

Notes:

1) *For GPS simulator usage or with passive antenna an external LNA is suggested*
2) *In GPS + Glonass GNSS mode*

Dimensions:

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