



iTrax03

OEM GPS Receiver Module

- Very High Sensitivity
- Ultra Low Power Consumption
- Market Leading Programmability

Fastrax iTrax03 OEM GPS receiver modules enable the implementation of full-fledged positioning features into appliances faster and with less effort than ever before.

Offering industry-leading benefits in performance, size, power consumption, programmability and total cost of product, the iTrax03 receivers are ideally suited for both industrial tracking and navigation systems and battery-operated consumer products like sports accessories, handheld computers, asset tracking devices, vehicle navigation devices and mobile phones.

Market Leading System Performance

Ultra-low, user configurable power management makes iTrax03 one of the lowest power consuming, complete 12-channel OEM GPS receivers on the market. Nevertheless, there are no compromises in performance. The iTrax03 receivers have a navigation sensitivity as low as -152dBm making them applicable even for extremely demanding applications and environments. The iTrax03 includes a full-fledged MMC-card interface which enables integrated PDA applications i.e. maps for navigation. A-GPS can be used to further improve TTFF and acquisition sensitivity.

Cutting component costs

Space and costs are reduced due to the cutting-edge technology architecture in the iTrax03 receivers. The surface mount SMD design eliminates need for expensive and labour intensive system and RF connectors. Very few additional components are required. Utilizing the iTrax03 programmability cost of a host CPU can be saved. The

iTRAX03 Key Features:

- Tiny PCB form factor – 23mm x 23mm x 2.7mm
- Ultra-low power consumption – $<95\text{mW}$ @ 2.7V
- Very High Sensitivity – -152dBm (Tracking)
- Basic A-GPS support
- iTALK and NMEA0183 protocols
- Kalman Navigation
- Supports remote software updates
- Extensive support for external sensors
- Versatile interface ports
- Accurate 1PPS timing output
- iTRAX03/16 – 16MBit Flash Memory
iSUITE03 SDK Software Development Kits
Datalogger, up to 70.000 datapoints
- iTRAX03/8 – 8MBit Flash Memory
NMEA Engine

dedicated hardware search engine ensures fast TTFF thus no back-up battery is required. These benefits can easily be converted to smaller component costs and smaller design – crucial parameters for many projects.

iTRAX03/16 – Versatile Programmability

The iTrax03/16 features 16 MBit Flash memory which allows versatile programmability with iSuite03 SDK. It also allows permanent operation parameter changes via NMEA or iTalk and data logging as a standard feature. Application costs are reduced significantly when no external processor is required and the iTrax03 is used as a host controller. With fewer components, cost and application size are reduced.

iTRAX03/8 – cost efficient performance

In applications where the industry standard NMEA0183 protocol is sufficient and programmability is unnecessary, the iTrax03/8 with 8MBit Flash memory, is a cost efficient and high performance alternative.

Quick Start with Easy-To-Deploy Solution

The addition of an antenna and power supply is all that is required to make the iTRAX03 operational. The Fastrax Engineering Services team can provide antenna design application notes to aid in further refinement of the antenna design for specific applications.



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Specifications

General:	L1 frequency, C/A code (SPS) 12 independent tracking channels Separate search & acquisition engine	I/O Ports:	Dual Asynchronous data ports 22-pin GPIO (Shared Functionality) 2 x SPI-Interface Dual Pulse Measurement inputs
Update rate:	1 fix/s or user configurable	Protocol:	1PPS Output 2 x PulseMeasurement Timers 2 x Capture Timers 2 x Clock inputs MMC (Master) connection
Accuracy:	Position: 3m (CEP), 6m 2DRMS Velocity: 0.2 m/s (50%) Time: 20ns RMS (static mode)	Processor:	NMEA-0183 V3.0 Proprietary iTALK binary protocol
Reacquisition:	100ms typical (signal reacquisition)	Flash Memory:	Proprietary, 32MIPS integrated 16/32-bit DSP-core RISC-like programming under Pre-emptive Real Time Operating System Control (VSDSP RTOS)
TTFF:	Out of the box start: 40 s typical Cold Start: 35 s Hot Start: 8 s Quick Start: 3 s	Dimensions:	iTRAX03/16: 16MBits Flash iTRAX03/8: 8MBits Flash
Dynamics:	Acceleration: 4 G Jerk: 4 m/s ³	Weight:	23 mm x 23 mm x 2.7 mm (Including RF shield)
Sensitivity:	-152dBm (tracking)	Connection to:	37 SMD connection pods under the module
Operating Voltage:	2.7V...3.3V (linearly regulated)	Software Features:	Kalman Navigation Reprogramming on the fly DGPS Supporting RTCM Standard Advanced Multipath Mitigation Advanced Cross Correlation Mitigation A-GPS Support WAAS / EGNOS Support
Operating Temp:	-40C...+85C		
Antenna Supply:	Same as board supply		
Antenna:	External, passive or active		
Power Drain:	95mW @ 2.7V (Continuous Mode) 20mW @ 2.7V (Idle Mode) 60µW @ 2.7V (Sleep Mode) (Active antenna power not included)		



Other Fastrax GPS products

The iTrax03 Family includes *iFix03 OEM GPS Measurement Front End*, *iSuite03 Standard SDK*, *iSuite03 Professional SDK*, *iTrax03 Evaluation Kit* and *iTrax03 Development Board*. The iTrax03 Evaluation kit includes an universal power supply, two serial cables, an active antenna, a user's manual and a CD with documentation and the GPS WorkBench PC software. The iTrax03 Development Board allows customers to develop custom demanding applications utilizing the versatile programmability and extensive connections available on the iTrax03 products.

iTrax02 family of products includes *iTrax02/4*, *iTrax04/8*, *uTracker02*, *uPatch02* and *iTrax02 Evaluation Kit*.

For programming the iTrax03/16 Fastrax offers iSuite03 Standard SDK (software development kit). In addition to the software the iSuite03 Standard SDK includes three days of hands on training and e-mail support during development. The iSuite03 Professional SDK gives programmers access to extensive source code libraries enabling development of application using A-GPS, WAAS / EGNOS, RTK, external sensors, MMC interface, LCD drivers and other communication drivers in addition to Production Support Toolkit.

Separate product descriptions can be found at www.fastrax.fi