DioHelix™-F

Sarantel's DioHelix-F is a complete 12 channel GPS receiver, based on the Fastrax iTrax02 GPS receiver module and a Sarantel GeoHelix™ antenna, providing a small, low power GPS module.

Key features:

- Low Power Consumption: 130mW @ 2.7V in continuous operation
- Small Form Factor
- Market Leading Performance
- High intercept RF front end
- Very Fast TTFF
- Sensitivity –150dBm (Tracking)
- iTALK and NMEA0183 protocols
- Accurate 1PPS timing output
- iTRAX02/4 – 4MBit Flash Memory
- Wide beamwidth (>130 degrees)
- Negligible effect of nearby objects, including human tissue
- Not orientation-specific

The DioHelix-F from Sarantel enables the implementation of fully-fledged positioning features into any appliance faster and with less effort than ever before. Designed as 'plug and play', it offers significant benefits in performance, size, power consumption and versatility. It is ideally suited for both industrial tracking systems and battery-operated consumer products like mobile phones, asset tracking devices, handheld computers and sports accessories.

Market Leading System Performance

Ultra-low, user configurable power management makes DioHelix-F one of the lowest power, complete 12-channel GPS receivers on the market. However, there are no compromises in performance. The DioHelix-F has a navigation sensitivity down to –150 dBm making it applicable for extremely demanding applications and environments.
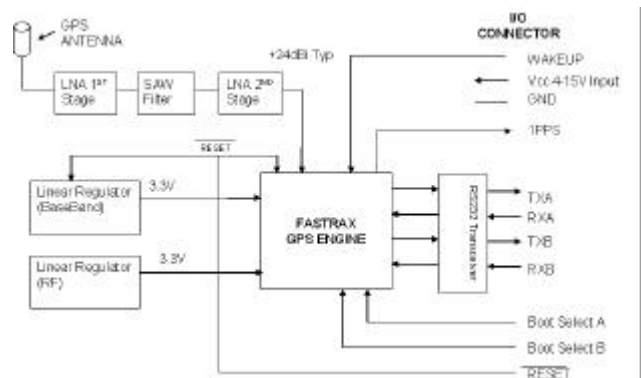
Cutting component costs

Cutting-edge technology architecture in the iTrax02 module reduces space and costs. All navigational data is stored in Flash memory with simple commands. There is no need for a back-up battery, resulting in lower component costs and a smaller design – crucial parameters for many projects.

Cost efficient performance

In applications where industry standard NMEA0183 protocol is sufficient and programmability is unnecessary, the iTrax02/4 module with 4MBit Flash memory is a cost efficient solution.

Block Diagram

More information

More information on Fastrax products can be found at **www.fastrax.fi**, and on Sarantel products at **www.sarantel.com**.

Performance Specifications

General: L1 frequency, C/A code (SPS)

12 independent tracking channels

Separate search & acquisition engines

Based on two-chip GPS solution

- RF chip, uN8021
- Base band chip, uN8031

Update rate: 1 fix/s or user configurable

Accuracy: Position:

3m (CEP), 6m 2DRMS

Velocity: 0.2 m/s (50%)

Time: 20ns rms (static mode)

Acquisition: Reacquisition: 100ms typical (signal reacquisition)

TTFF: Cold Start: 44 s typical

Warm Start: 35 s

Hot Start: 8 s

Quick Start: 3 s

Dynamics: Acceleration: 4g

Jerk: 4 m/s^3

Sensitivity: Acquisition: -137 dBm

Reacquisition: -139 dBm

Frame Sync: -136 dBm

Bit Sync: -141 dBm

Navigation: -150 dBm

Tracking: -150dBm

Operating Voltage: 4 to 12 V

Operating Temp: -40ºC to +85ºC

Power Drain: 130mW @ 2.7V (acquisition)

100 mW @ 2.7V (tracking, search engine asleep)

Interface: Two RS232 ports, SDI, 1 PPS

Protocol: NMEA-0183 V3.0

Fastrax proprietary iTALK binary

Flash Memory: 4MBits Flash

Dimensions: Body: 35.5 mm x 30.5 mm x 10.25 mm

Antenna: 31 mm x f 13 mm

Weight: 30 g

System Connector: 12 way header

Ordering Information

DioHelix-F can be ordered as part number 101620.

For software development, please contact Fastrax about their iTrax02 Evaluation Kit.
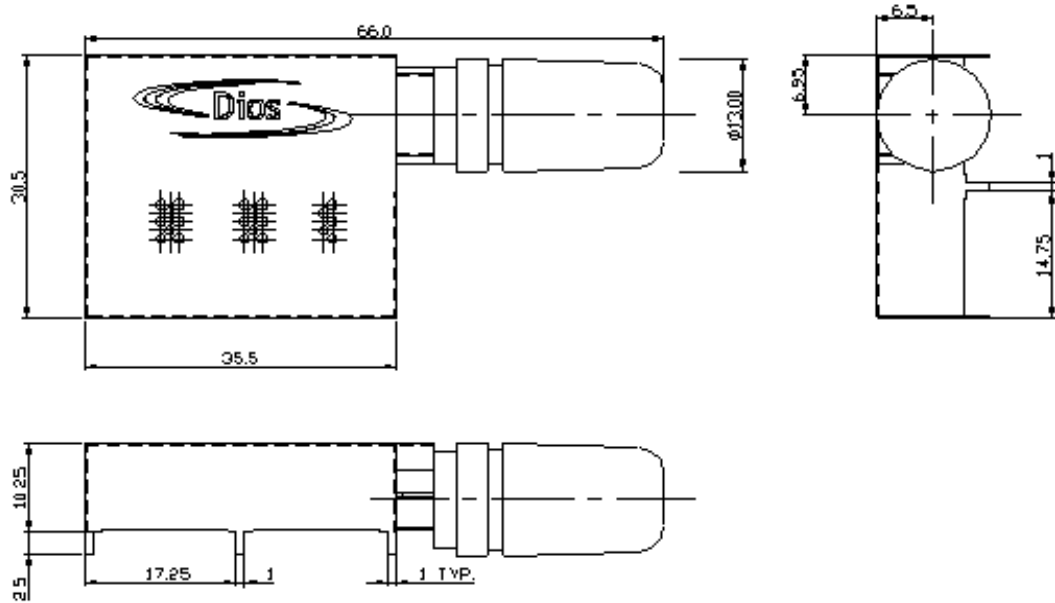
Pin Out

The pins are shown below as seen from the top of the unit.

Pin No.	Name	Pin No.	Name
11	BSEL1	12	BSEL2
9	RST	10	Vant
7	RXB	8	TXB
5	WAKEUP	6	GND
3	1PPS	4	+5V
1	RXA	2	TXA

Connector

The mating connector is a 12 way socket with 1.27 mm pitch.

Mechanical Details *(need new diagram)*

Sarantel Limited reserves the right to change these specifications at any time without prior notice. The information note is believed to be accurate; however, Sarantel Limited assumes no responsibility for its use, and no license or rights are granted by implication or otherwise in connection there with.

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