

The Orcam GPS35 is a compact, low cost, low power OEM GPS receiver based on the much acclaimed SiRF Star III architecture.

With a tracking sensitivity of -159 dBm, the GPS35 will continue tracking in the most demanding environments making indoor navigation possible and meeting the challenges of urban canyons and multi path environments.

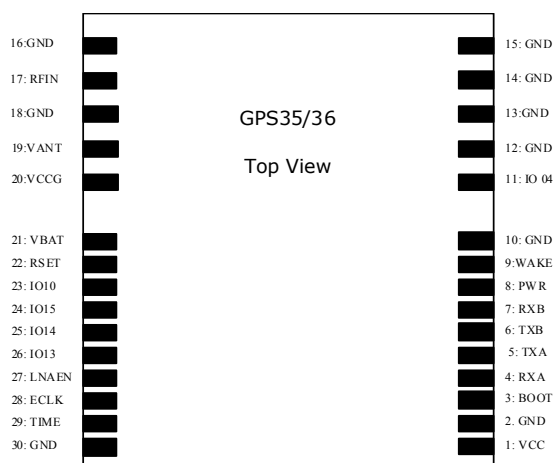
SiRF SnapLock™, FoliageLock™ and SingleSat™ further improves performance and provides additional fixes in difficult environments.

### Power Supply

Designed to operate from 3.3 - 5.5 V DC supply, GPS35 has all necessary power regulation and -management functions on board providing unparalleled SiRF Star 3 acquisition and navigation performance with a power consumption of ~100 mW during tracking, making it ideal for a variety of embedded applications.

### Separate input for Back-up battery

To prevent loss of time, GPS data and user settings when Vcc is removed, a separate back-up battery can be connected to VBAT to ensure the Real-time clock and the user RAM remains powered when Vcc is removed. Current consumption from the battery when Vcc is removed is a mere 10 µA.



### I/O Signals

There are 4 General Purpose I/O lines available to the user in addition to the dedicated I/O lines. These four GPIO lines are controlled by software and are not assigned any default functions. For a detailed description of the I/O functions, please see the *GPS3x Data Sheet & Integration guide*.

### Converting from GPS25

Having the same footprint as our GPS25 receiver, the GPS35 is a drop in replacement for GPS25 in applications not using the GPS25 PWR line (pin 8) for hardware control of the hibernate mode.

Pin 11, which on GPS25 is a ground connection, on GPS35 is a GPIO line not used by the default firmware, and therefore can be left connected to ground.

For applications using the GPS25 PWR line to control the Hibernate mode, the logic driving the PWR line will have to be redesigned to provide a pulse instead of a level shift. For details, please see the *GPS3x Data Sheet & Integration guide*.



- 20 channel L1 receiver at 1575.42 Mhz
- On-board SAW-filter supports the use of active antennas
- SiRF GSW3 GPS software stored in embedded Flash
- NMEA 0183 and SiRF Binary Protocol
- Supports SBAS (WAAS, EGNOS)
- Supports FCC E911 Mandate
- Supports SiRFLoc™ Client A-GPS
- Supports SiRF InstantFix™
  - Main power: 3,3 - 5,5 V DC
  - < 45 mA (acquisition mode)
  - < 35 mA (tracking mode)
  - < 60 µA (hibernate mode)
- Battery backup: 2,5 - 5,5 V DC
- ~ 10 µA when VCC is shut off
- 1 pps output

### Acquisition performance

- ♦ Hot Start (open sky): < 1 s typ.
- ♦ Hot Start (indoor): < 15 s typ.
- ♦ Cold Start (open sky): < 35 s typ.
- ♦ Sensitivity
  - Tracking: -159 dBm
  - Cold Start: -142 dBm
  - Warm Start: -155 dBm

### Ordering information

Part no	Port 1 protocol	Port 2 protocol
GPS35FAx	NMEA 4800 Baud	SiRF Binary 57600 Baud
GPS35FBx	NMEA 9600 Baud	SiRF Binary 57600 Baud

# Orcam GPS35

SiRF Star 3 based OEM GPS receiver



<b>General Characteristics</b>	Receiver Architecture	20 Channels, 1 satellite /channel simultaneous L1 1575.42 Mhz, C/A Code 1.023 MHz chip rate
	Antenna Processor	External active antenna ARM7 / TDMI
<b>Performance Characteristics</b>	Position Accuracy	approx. < 2.5 m CEP (50% 24 h static); appr. 5 m, 95% of the time
	Acquisition Rate	< 35 s Cold start, open sky < 1 s Hot start, open sky 0.1 s reacquisition, typical
<b>Communications</b>	Serial Port	Two Serial Ports, 3 V CMOS logic
	Electrical interface Supported Protocols	Digital I/O: 3 V CMOS logic except pin 9, WAKE which is a 3.6 V max Open-drain output. NMEA-0183, 4800 or 9600 Baud and SiRF Binary Protocol, 57600 Baud
<b>Power Supply</b>	NMEA default output messages	4800 Baud: GGA, GSA, RMC, VTG @ 1s, GSV @ 5 s 9600 Baud: GGA, GLL, GSA, RMC, VTG @ 1s, GSV @ 5 s
	Main power input Supply current	3,3 - 5,5 V DC Acquiring: < 45 mA @ VCC = 3.3 V, 25 °C Tracking: < 35 mA @ 25 °C Hibernate mode: < 60 µA (when enabled using the PWR line) Battery backup current: ~ 10 µA when VCC = 0 V
Please Note: Average power consumption will depend on Selected Power Mode and navigation environment. Please see description of Low Power Modes below.		
<b>Environmental</b>	Operating temp.	-40 to +85 °C
	Storage temp.	-55 to +100 °C
	Altitude	18 000 meters (60 000 feet) max.
	Velocity	545 meters /second (1000 knots) max.
<b>Physical</b>	Acceleration	4g max.
	Dimensions	25,4 x 22,86 x 3 mm - shielded module
	Connectors	30 pad land grid array

## Low Power Modes

The GPS35 supports three low-power modes; User Controlled On/Off, Adaptive TricklePower and Push-to-Fix.

**User Controlled On/Off:** - In this mode the user switches the receiver between Full Power and Hibernate mode, using the PWR input signal. User Controlled On/Off is best suited for applications where regular updates are required and stronger signal levels are expected.

**Adaptive Trickle Power** - In this mode the receiver automatically switches between TricklePower and Full Power mode depending on signal conditions. In normal conditions the receiver operates in TricklePower mode to save power, but as conditions deteriorate, the receiver will automatically switch to Full Power mode to improve navigation performance at the expense of power consumption.

**Push-to-Fix** - In this mode the receiver is normally off but turns on at regular intervals to obtain fixes, collect ephemeris and calibrate the real-time clock (RTC) if necessary. This way a quick GPS solution (Hot Start) will be obtained by pulsing the PWR line when a position is required.



## Powered by SiRF

The SiRF GSC3f/LP GPS receiver chip used in GPS35 is a low power version of the well known GSC3f, combining the navigation performance of the much acclaimed SiRF Star III architecture with low power consumption and on-board power regulation and -management.

For further information visit [www.orcam.eu](http://www.orcam.eu) for a list of our local representatives in:

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- Sweden - Ukraine - United Kingdom

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