

# GPS Mouse

## Ct-GM351 (TTL)



## Specifications Sheet V0.1

### *Features:*

- SiRFStar III single chipset
- ( L ) 42.34 x ( W ) 39.76 x ( H ) 14.1 mm
- *TTL with PS2 / Earphone connector*
- *RoHS compliance*

## 1. Introduction

The Ct-GM351 is a highly sensitive GPS mouse with low power consumption. It is built with SiRFStarIII™ architecture and TTL interface, and non-slip underneath with a magnetic mounting. It is easy to place on top of a vehicle to fix positioning.

### 1.1. Features

#### Hardware and Software

- Based on the high performance features of the SiRF Star III Low Power single chip
- Built-in high gain amplifier and bandpass filter
- RoHS compliant (lead-free)
- Dimension: 42.34x39.76x14.1 mm
- Hardware compatible with SiRF GSC3x software
- SBAS (WAAS and EGNOS) support
- Cable length: 5M

#### Performance

- Cold / Warm / Hot Start Time: 35 / 35 / 1 seconds
- Reacquisition Time: 0.1 second
- RF Metal Shield for best performance in noisy environments
- Multi-path Mitigation Hardware

#### Interface

- TTL with PS2 / Earphone connector
- Protocol: NMEA-0183 / SiRF Binary (default NMEA)
- Baud Rate: default 4800 bps

## 2. Specifications

### Technical Specifications

Feature	Content	Description
<b>Chipset</b>	GSC3f Series	SiRFStarIII Low Power single chip
<b>General</b>	Frequency	L1, 1575.42 MHz
	C/A code	1.023 MHz chip rate
	Channels	20
<b>Accuracy</b>	Horizontal Position	Autonomous : < 2.5 meters
		SBAS : < 2.0 meters
	Velocity	Speed: < 0.01 meters/second
		Heading: < 0.01°
<b>Datum</b>	Default	WGS-84
	Other	selectable for other Datum
<b>Time to First Fix (TTFF)<sup>1</sup></b>	Reacquisition	0.1 sec., average
	Hot start	1 sec., average typical TTFF
	Warm start	35 sec., average typical TTFF
	Cold start	35 sec., average typical TTFF
<b>Dynamic Conditions</b>	Altitude	18,000 meters (60,000 feet) max.
	Velocity	515 meters/second (1000 knots) max.
	Acceleration	4g, max.
<b>Power</b>	Main power	3.3~5 VDC
	Power consumption	370 mW (continuous operation)
	Supply Current	75 mA
<b>I/O Interface</b>	Data Interface	TTL with PS2 / Earphone connector
	Protocol messages	NMEA-0183@4800 bps (Default)

**Note 1: Open Sky and Stationary Environments.**

## Environmental Characteristics

Content	Description
Operating temperature range	-20 deg. C to +60 deg. C
Storage temperature range	-40 deg. C to +60 deg. C

\*please see the appendix for LI-Ion battery spec.

## Physical Characteristics

Parameter	Description
Length	42.34 mm
Width	39.76 mm
Height	14.1 mm
Weight	85 g
Cable length	5 Meters

## Receiver Sensitivity

Parameter	Description
Tracking Sensitivity	-159 dBm
Acquisition Sensitivity	-142 dBm

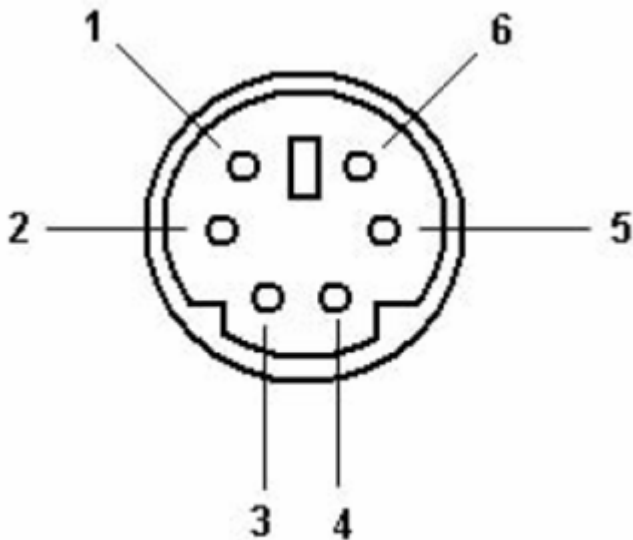
## 3. Software Interface

The Ct-GM351 receiver's serial data interface supports full duplex communication between the receiver and the user. The default serial supports different serial protocols modes are shown in below.

Protocol	Description
NMEA 0183, 4800 bps	GGA, GSA, GSV, GLL, RMC, VTG

## 4.Pin Assignment

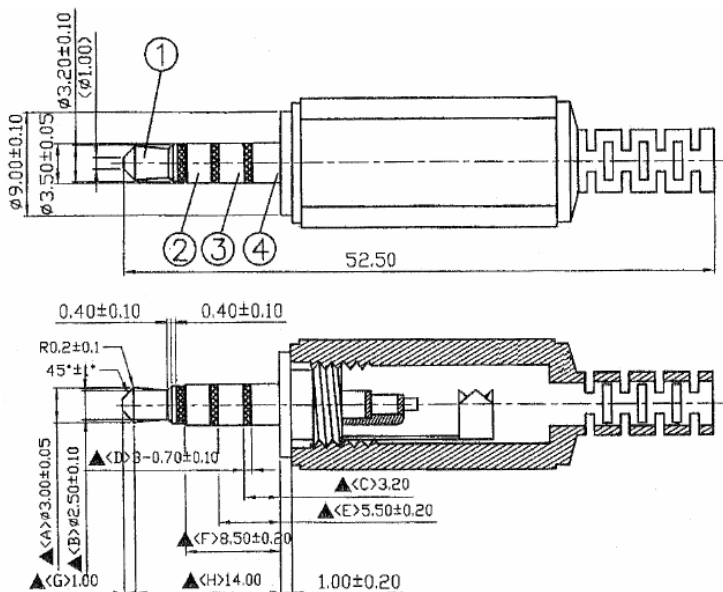
### 4.1 PS2 Connector



PIN	Signal
1	-
2	Tx (TTL)
3	GND
4	+5VDC
5	-
6	Rx (TTL)

**Mini DIN 6P ( Male )  
Front View**

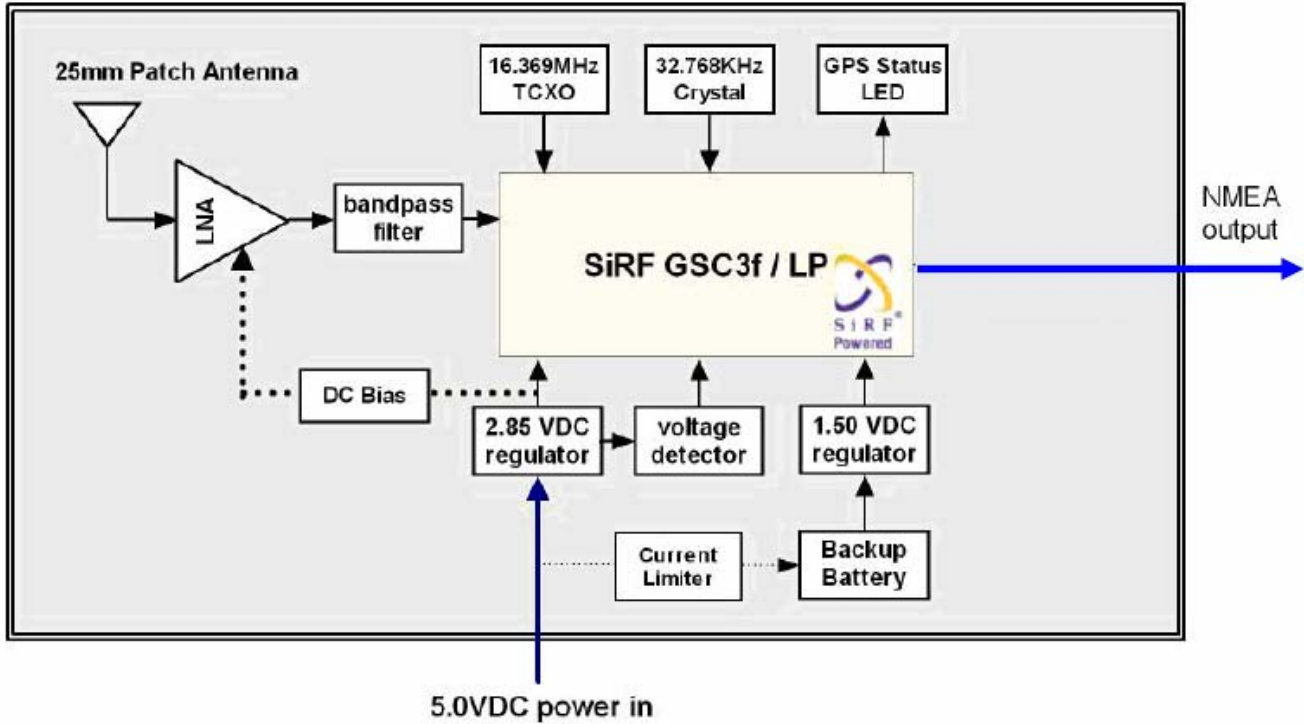
### 4.2 Earphone Connector



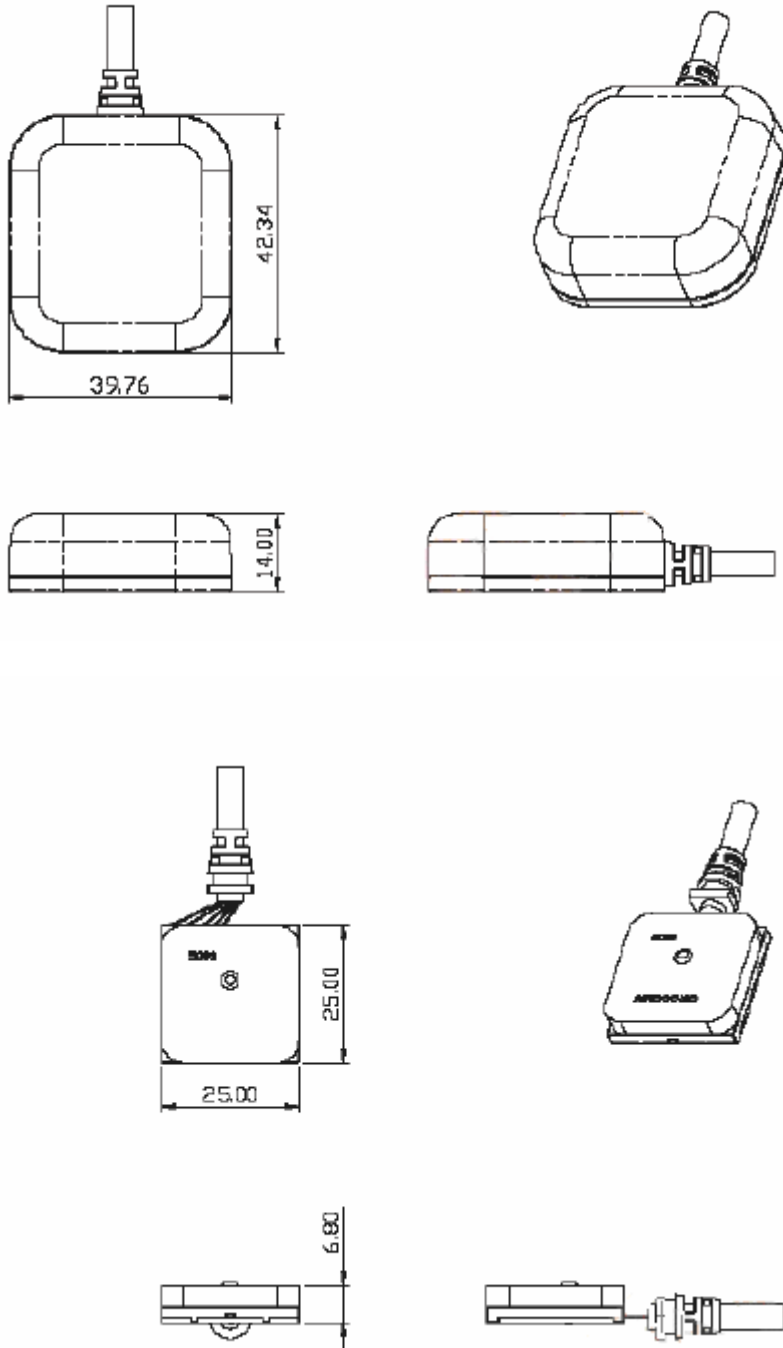
PIN	Signal
1	+5V
2	Tx
3	Rx
4	GND

## 5. Block Diagram

Ct-GM351 Block Diagram



## 6. Outline dimension



## 7. Appendix

### LI-Ion battery MS412F specification

No	Characteristics	MS412F
4-1	Range of temperature in which it can be operated	From -20°C to 60°C
4-2	Range of temperature which can be preserved	From -40°C to 60°C
4-3	Recommended range of preservation temperature and humidity	From 10°C to 30°C 60%RH or less
4-4	Nominal voltage	3V
4-5	Charging voltage	From 2.7V to 3.3V
4-6	Recommended Charging voltage	3.1V
4-7	Maximum Charging Current (mA) At 3V in the battery voltage At 0V in the battery voltage	0.15 2
4-8	Nominal capacity(mAh): after charging From 3.1V to 2.0V	1.0
4-9	Remaining Capacity(mAh): At delivery	0.8
4-10	Standard Discharge Current (mAh)	0.01
4-11	Maximum Discharge Current(mA) Continuous Discharge Plus Discharge	0.15 0.90
4-12	Nominal dimensions Diameter (mm) Height (mm)	4.8 1.2
4-13	Standard mass (g)	0.07
4-14	Applicable Safety Standard	UL 1642 (UL File No MH 15628)