Datasheet

AscenKorea Inc.

GPS631/GPS632/GPS641 Mini-Gmouse GPS Receiver Data Sheet

Revision: V0A

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Usage Notice

Please read before you start to use the mini-Gmouse GPS receiver

- GPS, Global Positioning System, is found and operated by US Department of defense. The Organization is fully responsible for accuracy and maintenance of the system.
- For your driving safety, we strongly suggest that you do not install this device while driving.
- If you are inside a building, tunnel or nearby huge obstructions, the GPS signal will not stable and may result in signal loss. During this period, the device will lose its positioning capability.
- If you have a radar speed camera detector in your car, the receiving signal of this device would probably be interfered.
- The receiver's working temperature is between -40℃ ~ +85℃.

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0. Quick Start

0.1 Check the Package

Once you've opened the package, you should see the following content:

- mini-Gmouse GPS receiver
- CD ROM (user manual, USB Driver, AGPS tool and manual)

0.2 Install the USB Driver for GPS641

If you have purchased mini-Gmouse GPS receiver GPS641 version, you should install the USB Driver first for your Notebook or system. Please see chapter 3 USB Driver for installation.

0.3 Use the mini-Gmouse GPS Receiver

- Connect the mini-Gmouse GPS receiver to your system
- Place the GPS receiver on the dashboard or on the roof of car under open sky
- Power on the system to receive GPS signal, you should see an orange power LED lit up from within.
- If you are using mini-Gmouse GPS receiver for the first time, you may experience several minutes of GPS reception difficulties as the device is obtaining its first fix.

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1. Introduction

1.1 Description

The Ascen mini-Gmouse series, GPS631/GPS632GPS641 , is a complete GPS receiver featuring the latest high sensitivity MediaTek GPS technology. With a choice between USB support, PS/2, or RJ11 interfaces, the receiver can meet the demands of a variety of applications such as navigation, tracking, measuring, surveying and much more.

As the very name implies, the mini-Gmouse possesses a very small dimension while maintaining esthetically pleasing shape with excellent performances. In addition, the housing is hermetically sealed for protection against dust and water.

Thanks to MediaTek GPS technology and their dedicated design team, the mini-Gmouse series consumes very low power during acquisition and tracking.

1.2 Features

- Latest MediaTek GPS chipset with 66 all-in-view channels
- Miniaturized design
- Embedded patch antenna with LNA and SAW filter
- Embedded Li-ion battery to keep RTC running after power-off
- Short TTFF
- AGPS support for fast fix
- Output sentence NMEA 0183 standard
- Orange LED display for power and fix status
- Embedded magnet for easy mounting
- Anti-UV capability for the housing
- Hermetically sealed for IP67 dust and water protection approval

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1.3 Application

- **Personal**
  - Navigation
  - Asset Tracking
  - Sport
- **Transportation**
  - Aviation
  - Marine
  - Fleet Managment
- **Industry**
  - Surveying
  - Mapping & GIS Data Collection
  - Precision Farming
- **Military**
  - Target Location
  - Aiming & Guidance
- **Science**
  - Environmental Mesurement
  - Oceanography
  - Wildlife Tracking

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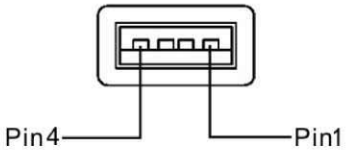
2. Interface

2.1 Outline

Size: 46*33*17.3mm (1.8*1.3*0.7inch)

2.2 Pin Definition

GPS641



A-type

Pin	Name	I/O	Description
1	VDD	P	Power supply of 5V input
2	DM	I/O	Signal minus of USB logic level
3	DP	I/O	Signal plus of USB logic level
4	GND	P	Ground

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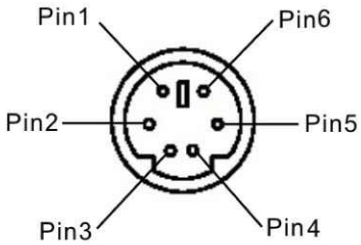
GPS631



Male

Pin	Name	I/O	Description
1	TX(RS232)	O	Transmitter of RS232 logic level
2	NC	-	No connection
3	VDD	P	Power supply of 5V input
4	GND	P	Ground
5	RX(RS232)	I	Receiver of RS232 logic level
6	NC	-	No connection

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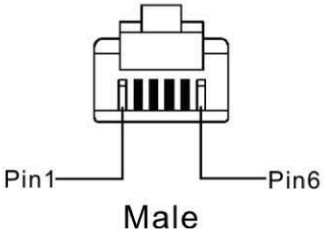
GPS632



Male

Pin	Name	I/O	Description
1	NC	-	No connection
2	GND	P	Ground
3	RX(TTL)	I	Receiver of TTL logic level
4	TX(TTL)	O	Transmitter of TTL logic level
5	VDD	P	Power supply of 5V input
6	NC	-	No connection

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3. USB Driver for GPS641

3.1 System Requirement

CPU: IBM, Pentium, or other compatible PC

Memory: 16MB or above

Operation system: Windows 98/Me/2000/XP

Display card: VGA compatible

3.2 Installation

3.2.1 Please follow figure 1 shown below and double click **[InstallDriver.exe]** to begin driver installation

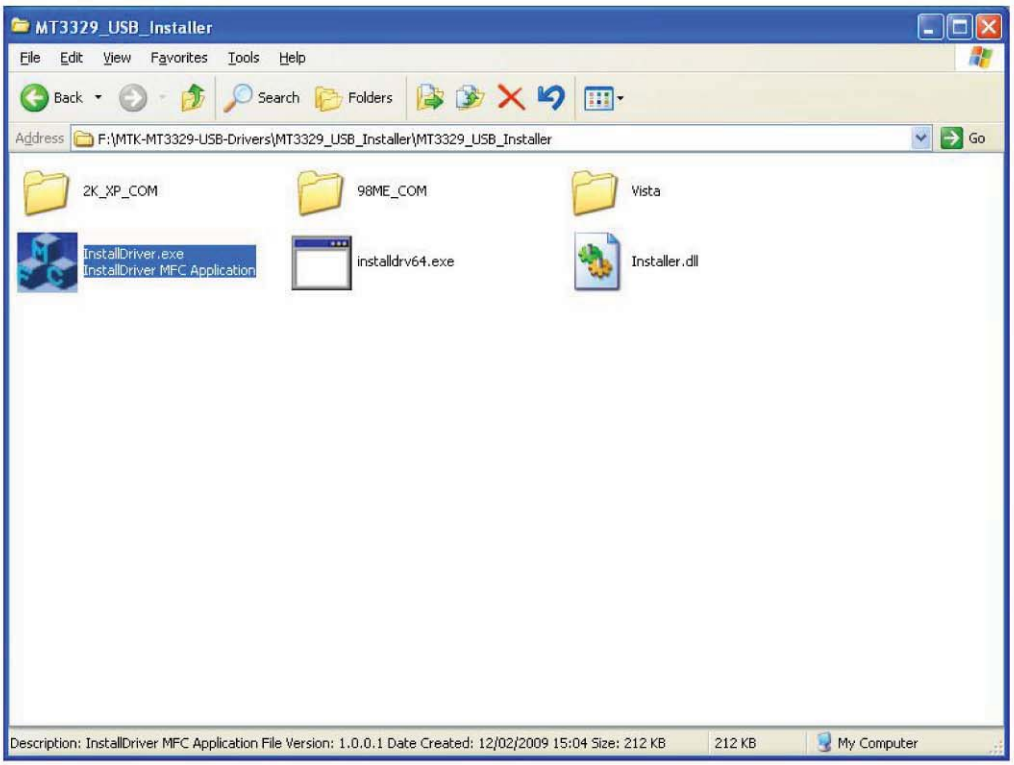

Figure 1 Select the InstallDriver.exe

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3.2.2 After the installation is complete, please click **[Exit]**

Figure 2 USB Driver Installation is Successful

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4. Specification

General	
Chipset	MTK MT3329
Frequency	L1, 1575.42MHz
Channels	66 channels
DGPS(SBAS)	WAAS, EGNOS, MSAS support
Datum	WGS84(Default), Tokyo-M, Tokyo-A, User Define
Dimensions	
Length/Width/Height	46*33*17.3mm, without cable
Cable Length	60cm for MGU-80 2m for MGP-81 2m for MGJ-82 customized is also available
Performance Characteristics	
Position Accuracy	Without aid：3.0m 2D-RMS
	< 3m CEP (50%) without SA (horizontal)
	DGPS (RTCM, SBAS (WAAS, EGNOS, MSAS))：2.5m
Velocity Accuracy	Without aid：0.1 m/s
	DGPS (RTCM, SBAS (WAAS, EGNOS, MSAS))：0.05m/s
Acceleration Accuracy	Without aid：0.1 m/s²
	DGPS (RTCM, SBAS (WAAS, EGNOS, MSAS))：0.05m/s²
Timing Accuracy	100ns rms
Sensitivity	Acquisition：-148dBm (Cold Start)
	Reacquisition：-157dBm
	Tracking：-163dBm
Update Rate	1Hz default (maximum is 5Hz)
Acquisition (Open sky, stationary)	
Reacquisition Time	Less than 1 second
Hot start	1.0s typical
Warm start	34s typical
Cold start	35s typical

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Dynamic	
Altitude	Maximum 18,000m
Velocity	Maximum 515m/s
Acceleration	Maximum 4G
Power	
Input Voltage	DC 5.0V ±5%
Power Consumption @ 5.0V	Acquisition：48mA Typical
	Tracking：38mA Typical
I/O	
Signal Output	8 data bits, no parity, 1 stop bit
Baud Rates	9600bps (4800/38400/57600/115200 bps by option)
Protocols	NMEA 0183 v3.01 (Default GGA, GSA, GSV, RMC, VTG) MTK NMEA command
Environment	
Operating Temperature	-40℃ to 85 ℃ (without coin battery) -20℃ to 60 ℃ (with coin battery)
Storage Temperature	-50℃ to 90 ℃(without coin battery) -20℃ to 60 ℃ (with coin battery)
Operating Humidity	5% to 95% (no condensing)

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5. Warranty

The mini-Gmouse is warranted for defects in materials and functions for one year from the date of purchase. Any faulty unit that failed within the period while under normal operation will be replaced at no charge.

This warranty does not cover failures due to abuse, misuse, accident, unauthorized alteration, repairs, or disassemble.

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6. Trouble-shooting

Problem	Possible Causes	Solution
Can not see the orange light after power-on	Cable connection may be not true	Unplug the cable and plug again
Can not detect receiver	Do not install the USB Driver for GPS641, or incomplete installation	Please follow the instruction of chapter3 USB Driver
No NMEA output or scramble	The baud rate may not be correct	Re-setting the baud rate
GPS un-fix occasionally	GPS signal low by block occasionally	Move to an open sky for good GPS signal strength
	Interference by RF signal from surroundings	Move the receiver about for low interference
Can not get fix for minutes	GPS signal low by block	Move to an open sky for good GPS signal strength
	Almanac fail due to long time no use	Need more time to update the almanac data

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Appendix

A.1 Version History

Date	Version	Description	Author	Note
2009/2/12	V0A	First release	frank	

A.2 Manufacturer Information

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