

Embedded Wireless Modules



Selection Guide

Model Name	WLAN			GPS		
	WiFi-105E	WiFi-109E	WiFi-110E	WiFi-302E	GPS-102E	GPS-106E
Function	802.11 b/g/n	802.11 a/b/g/n	802.11 b/g/n	802.11 b/g	GPS	GPS
Interface	USB	Mini-PCIe	Mini-PCI	USB	Serial	Serial
Product Type	Module	Module	Module	Dongle	Board	Module
Operating Temp.	0 ~ 80° C	-10 ~ 65° C	0 ~ 55° C	0 ~ 55° C	-40 ~ 85° C	-40 ~ 85° C
Antenna Connector	Hirose U.FL	Hirose U.FL	Hirose U.FL	PCB antenna	SMA	-
OS/Drivers	Windows XP/Vista	Windows XP/Vista	Windows XP/Vista/ Linux	Windows XP/ME/ 2000/98SE	-	-
Utility	-	-	-	-	GPS Viewer	GPS Viewer
Longevity	2009 ~ 2012	2009 ~ 2012	2010 ~ 2012	2009 ~ 2012	2010 ~ 2012	2008 ~ 2012
Reference Page	7-1	7-1	7-2	7-2	7-3	7-3

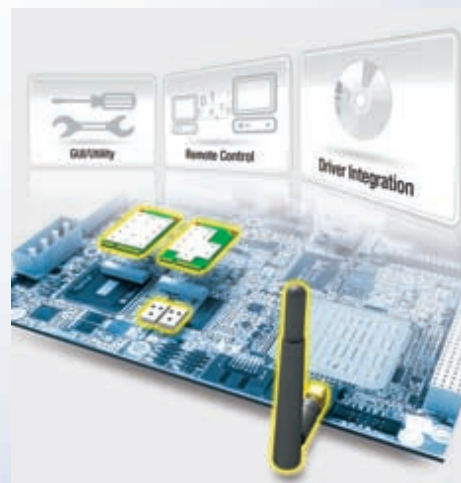


Selection Guide

Model Name	Cellular				Bluetooth	
	HSPA-102E	HSPA-103E	HSPA-310E	HSPA-311E	BT-101E	BT-300E
Function	3.5G modem	3.5G modem	3.5G modem	3.5G modem	Bluetooth	Bluetooth
Interface	Mini-PCIe	Mini-PCIe	USB	USB	USB	USB
Product Type	Module	Module	Dongle	Dongle	Module	Dongle
Operating Temp.	-10 ~ 55° C	-10 ~ 55° C	0 ~ 55° C	0 ~ 55° C	0 ~ 80° C	0 ~ 60° C
Antenna Connector	Hirose U.FL	Hirose U.FL	-	-	PCB antenna	-
OS/Drivers	Windows Vista 32/64, XP SP2, 2000 SP4, WinCE 5.0/6.0; Linux Fedora 8, Ubuntu 7	Windows Vista 32/64, XP SP2, 2000 SP4, WinCE 5.0/6.0; Fedora 8, Ubuntu 7	Windows Vista, XP SP2+, 2000 SP4+, WinCE 5.0/6.0, Linux	Windows Vista, XP SP2+, 2000 SP4+, WinCE 5.0/6.0, Linux	Windows XP/Vista/ Win7	Windows 2000/XP /Vista
Utility	Connection Manager	Connection Manager	Connection Manager	Connection Manager	-	-
Longevity	2010~2012	2010~2012	2010~2012	2010~2012	2009~2012	2009~2011
Reference Page	7-4	7-4	7-5	7-5	7-6	7-6

Software Design-In Features

Type	Design-In Services
WLAN	WLAN Monitoring Tool
	Driver & OS Integration
	Registry Settings
GPS	GPS Parser
	Satellite Number API
	Signal Strength API
Cellular	GPS Raw Data API
	Auto Dialing API
	SMS API
	Carrier Name API
	Signal Strength API
Bluetooth	SIM Status API
	PIN Lock/Unlock API
	Driver & OS Integration
	Bluetooth Profile Integration

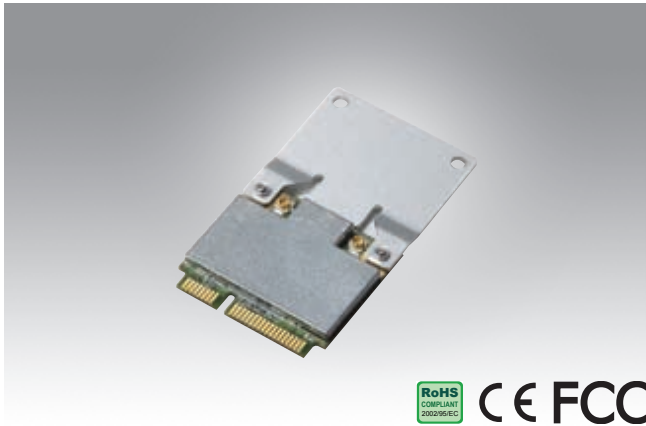


WiFi-105E

802.11 b/g/n PCI Express Mini Card

WiFi-109E

802.11 a/b/g/n PCI Express Mini Card



Features

- IEEE 802.11 b/g/n standards
- PCI Express full-size Mini Card interface
- Up to 300 Mbps data rate
- WEP/WPA/WPA2 security
- 1T x 2R MIMO technology
- Low power consumption for embedded system
- Windows XP/Vista
- Operating temperature 0 ~ 80° C

Introduction

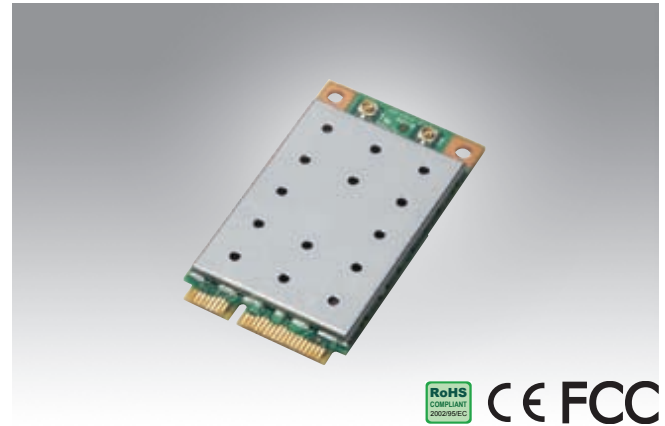
This module adopts MIMO technology with which effectively doubles the data rate and reduces dead spots in coverage area.

Packing List

Description	Quantity
802.11 b/g/n Mini Card	x 1

Ordering Information

Part number	Specifications
WiFi-105E	802.11 b/g/n Mini Card



Features

- IEEE 802.11 a/b/g/n standards
- PCI Express full-size Mini Card interface
- Up to 300 Mbps data rate
- WEP/WPA/WPA2/802.1x/TKIP/AES security
- 2T x 2R MIMO technology
- Windows XP/Vista
- Operating temperature -10 ~ 65° C

Introduction

This module is dual-band (2.4 GHz and 5 GHz) 2 x 2 MIMO PCIe design and targets enterprise and high-end products.

Packing List

Description	Quantity
802.11 a/b/g/n Mini Card	x 1

Ordering Information

Part number	Specifications
WiFi-109E	802.11 a/b/g/n Mini Card

WiFi-110E

802.11 b/g/n Mini-PCI Card

WiFi-302E

802.11 b/g USB Dongle



Features

- IEEE 802.11 b/g/n standards
- Mini PCI Type III B interface
- Up to 300 Mbps data rate
- Qos, WMM, WMM-PS
- 2T x 3R MIMO technology
- Windows XP/Vista/Linux
- Operating temperature 0 ~ 55° C

Features

- IEEE 802.11 b/g standards
- USB Type A male interface dongle
- Up to 54 Mbps data rate
- WEP/WPA/WPA2/TKIP/802.1x
- Windows XP/2000/ME
- Operating temperature 0 ~ 55° C

Introduction

The module features 2T x 3R MIMO technology with better throughput and receiving distance with effective elimination of dead spots.

Introduction

USB dongle provides seamless roaming from cell to cell and between 802.11b to 802.11g.

Packing List

Description	Quantity
802.11 b/g/n Mini-PCI card	x 1

Packing List

Description	Quantity
802.11 b/g USB Dongle	x 1

Ordering Information

Part number	Specifications
WiFi-110E	802.11 b/g/n Mini-PCI card

Ordering Information

Part number	Specifications
WiFi-302E	802.11 b/g USB Dongle

GPS-102E

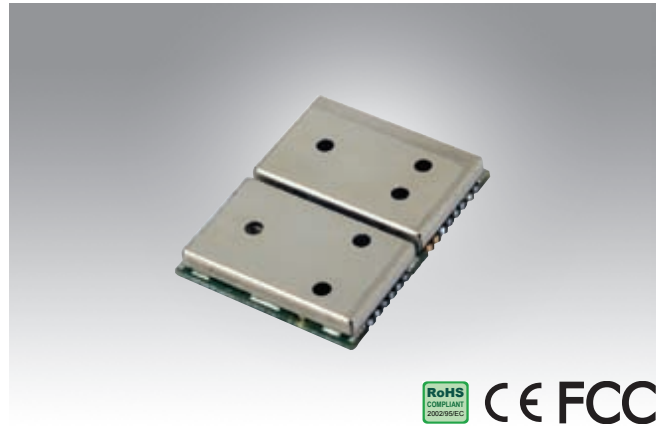
Embedded GPS with DR Board

GPS-106E

Embedded GPS/GALILEO Module



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Features

- SiRF star III 20-channel chipset
- Dead reckoning embedded
- Gyroscope enabled
- Low power consumption
- 71 x 40.8 x 18.6 mm (L x W x H)
- Operating temperature -40 ~ + 85° C

Features

- 50-channel positioning engine
- Best-in-class acquisition and tracking sensitivity
- Receives GPS and GALILEO signals
- A-GPS: Supports u-blox AssistNow online and offline, OMA SUPL compliant
- UART serial port, USB, DDC (I²C compatible)
- Precision timing option
- Operating temperature -40 ~ 85 °C

Introduction

GPS-102E is a GPS receiver module with integrated dead reckoning function. The GPS-102E includes dead reckoning sensors to track its course even when the GPS signal is blocked, for example in urban areas or tunnels. If GPS coverage is lost, the GPS-102E keeps on navigating.

Introduction

GPS-106E is designed by u-blox, and sets a new standard for GPS and GALILEO receiver modules. Featuring the high performance 50-channel u-blox 5 technology, these modules provide excellent performance and flexibility at an economical price.

Specifications

Receiver Type	GPS L1 frequency, C/A code GALILEO Open Service L1 frequency
Time-To-First-Fix	Cold start 35 s Warm start 35 s Hot Start 1 s
Position Accuracy	Within 10m for 90%
Velocity Accuracy	0.1 m/s
Heading Accuracy	0.5 degrees
Voltage Type	DC +5V ± 1%
Operational Limits	514 meter/second maximum
Interface	20 pin header, 2.0 mm pitch (J2), male seat
Weight	≤17 g

Specifications

Receiver Type	GPS L1 frequency, C/A code GALILEO Open Service L1 frequency
Time-To-First-Fix	Cold start 29 s Warm start 29 s Hot Start < 1 s
Sensitivity	Tracking & Navigation -160 dBm Reacquisition -160dBm Cold Start -144 dBm
Horizontal Position Accuracy	Autonomous < 2.5m SBAS < 2.0m
Velocity Accuracy	0.1 m/s
Heading Accuracy	0.5 degrees
Dynamics	< 4 g
Operational Limits	Velocity 515 m/s (1000 knots)
Weight	2.1 g
Software Specifications	Detect GPS signal strength Detect satellites Parse NMEA protocols

Software Specifications

- Detect GPS Signal Strength
- Detect Satellites
- Parse NMEA Protocols

Packing List

Description	Quantity
GPS-102E Embedded GPS module	x 1

Packing List

Description	Quantity
GPS-106E Embedded GPS Module	x 1

Ordering Information

Part Number	Specifications
GPS-102E	GPS module + DR + SMA connector

Ordering Information

Part Number	Specifications
GPS-106E	Embedded GPS Module

HSPA-102E

Full-size PCI Express HSUPA Modem

HSPA-103E

Half-size PCI Express HSUPA Modem



Features

- 2100 MHz for UMTS band
- 850/900/1800/1900 MHz for EDGE/GPRS/GSM network
- Embedded Mini-PCIe module
- HSUPA Downlink: 7.2 Mbps, Uplink: 2 Mbps (Upgradable to 5.7 Mbps)
- Graphical connection manager
- Windows Vista 32/64, XP SP2, 2000 SP4, WinCE 5.0/6.0; Linux Fedora 8, Ubuntu 7
- Operating temperature -10 ~ 55° C

Introduction

HSPA-102E enables the deployment of high-speed cellular networks and is designed to enhance industrial PCs with high-bandwidth long-distance communication.

Software Specifications

- Detect Carrier Information
- Auto-Dialing Network
- Short Message Service
- Logo Customization
- Language Localization

Packing List

Description	Quantity
Full-size Mini Card HSUPA modem	x 1

Ordering Information

Part Number	Specification
HSPA-102E	HSUPA modem



Features

- Multimode HSUPA / HSDPA / UMTS / EDGE / GPRS/ GSM network
- Qualcomm gpsOne GPS solution
- Downlink up to 7.2 Mbps
- Uplink up to 2 Mbps
- Embedded Half-size PCI Express module
- Graphical connection manager
- Windows Vista 32/64, XP SP2, 2000 SP4, WinCE 5.0/6.0, Linux Fedora 8, Ubuntu 7
- Operating temperature -10 ~ 55° C

Introduction

The 3.5G module supports WWAN (HSUPA, HSDPA, WCDMA, and EGPRS) connectivity to any device with PCI Express Half-size Mini Card slot.

Software Specifications

- Detect Carrier Information
- Auto-Dialing to Network
- Short Message Service
- Logo Customization
- Language Localization

Packing List

Description	Quantity
Half-size Mini Card HSUPA modem	x 1

Order Information

Part number	Specifications
HSPA-103E	HSUPA modem

HSPA-310E

HSDPA USB Dongle Modem

HSPA-311E

HSUPA USB Dongle Modem



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Features

- Multimode HSDPA / UMTS / EDGE / GPRS / GSM network
- LED indicator
- Embedded PCB antenna
- USB Type A male interface dongle
- CD free installation
- Graphical connection manager
- Windows Vista, XP SP2, 2000 SP4
- Operating temperature 0 ~ 55° C

Features

- Multimode HSUPA / HSDPA / UMTS / EDGE / GPRS / GSM network
- LED indicator
- Embedded PCB antenna
- USB Type A male interface dongle
- CD free installation
- Graphical connection manager
- Windows Vista, XP SP2, 2000 SP4, WinCE 5.0/6.0
- Operating temperature 0 ~ 55° C

Introduction

This 3.5G USB dongle supports HSDPA 3.6 Mbps downlink for a cost effective mobile Internet solution.

Software Specifications

- Detect Carrier Information
- Auto-Dialing to Network
- Short Message Service
- Logo Customization
- Language Localiation

Packing List

Description	Quantity
USB Dongle HSDPA modem	x 1

Order Information

Part number	Specifications
HSPA-310E	USB Dongle HSDPA modem

Introduction

This 3.5G USB dongle can support data rates up to HSUPA 5.7 Mbps uplink and HSDPA 7.2 Mbps downlink for industrial applications, eg: outdoor monitoring and digital signage, and traffic surveillance. We can extend our platform driver to support Microsoft WinCE 5.0 / 6.0 OS.

Software Specifications

- Detect Carrier Information
- Auto-Dialing to Network
- Short Message Service
- Logo Customization
- Language Localiation

Packing List

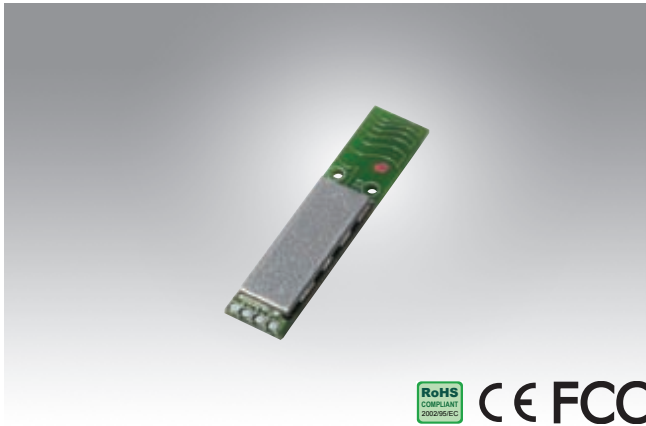
Description	Quantity
USB Dongle HSUPA modem	x 1

Order Information

Part number	Specifications
HSPA-311E	USB Dongle HSUPA modem

BT-101E

Embedded Bluetooth Module



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Features

- Bluetooth v2.1 standard
- Enhanced Data Rate (EDR) of 2 Mbps and 3 Mbps
- Embedded PCB antenna
- Electrical complaint to USB 1.1/2.0 by 6-pin connector
- Ultra-low power consumption
- Slim module with 30 x 6.5 mm
- Windows XP / Vista
- Operating temperature 0 ~ 80° C

Introduction

This module is Bluetooth 2.1 Class II which provides a high performance, cost effective, low power and compact embedded solution.

Packing List

Description	Quantity
6-pin Bluetooth v2.1 module	x 1

Ordering Information

Part number	Specifications
BT-101E	6-pin Bluetooth v2.1 module

BT-300E

Bluetooth USB Dongle



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Features

- Bluetooth v2.0 standard
- Enhanced Data Rate (EDR) of 2 Mbps and 3 Mbps
- Embedded PCB antenna
- USB Type A male interface dongle
- LED indicator
- Windows XP / Vista / 2000
- Operating temperature 0 ~ 60° C

Introduction

This USB Bluetooth dongle is designed for standard USB applications. The major features include AFH, Scattermode, QoS, eSCO, Fast Connect, LMP improvements and Synchronization.

Packing List

Description	Quantity
Bluetooth v2.0 USB Dongle	x 1

Ordering Information

Part number	Specifications
BT-300E	Bluetooth v2.0 USB Dongle