

# Industrial Bluetooth Solution for wireless device networking

Bluetooth-Serial Adapter  
OEM Bluetooth-Serial Module  
Bluetooth Access Point  
Bluetooth USB Adapter



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# Wireless Device Networking Makes Life Easier!

**Sena Technologies** is a leading manufacturer of Device Server product line that includes external, embedded, wireless and industrial device servers; and Industrial Bluetooth product line that includes Bluetooth serial adapters, OEM Bluetooth serial modules, Bluetooth Access Point, and Bluetooth USB adapter for device networking solution in the areas of IT/Telco, retail/POS, industrial automation, building automation, and medical automation. Our complete product lines allow customers to automatically collect, track, measure, monitor and control the device to build their business.

The value of Sena solutions is proven in millions of network-enabled devices around the world that add intelligence to business. Discover for yourself the benefits of Sena products. We provide a lifecycle of services to help you plan, design, implement, and operate your device network in today's rapidly changing environment.

Additional sales and product information are only moments away.

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## **Systematic Quality Assurance**

To ensure the best quality of products, Sena maintains the utmost quality assurance system throughout the entire life cycle of products by conducting various types of tests in each stage of R&D, production, inspection, and technical support before product deployment.

## **Technical Support**

With years of rich field experiences in various industries, Sena is committed to continuously provide the highest quality of pre-sales and post-sales support for VAR/SI's and end-users. Sena provides various channels for communication with customers through e-mail, telephone and online support system. At our website, we provide:

- Product manual and technical material
- Case studies and white papers
- The latest software / firmware
- Knowledge database
- My Q&A section

Sena is dedicated to continuously develop all of its customer-support practices to enhance the latest technologies, and demands of its customers.



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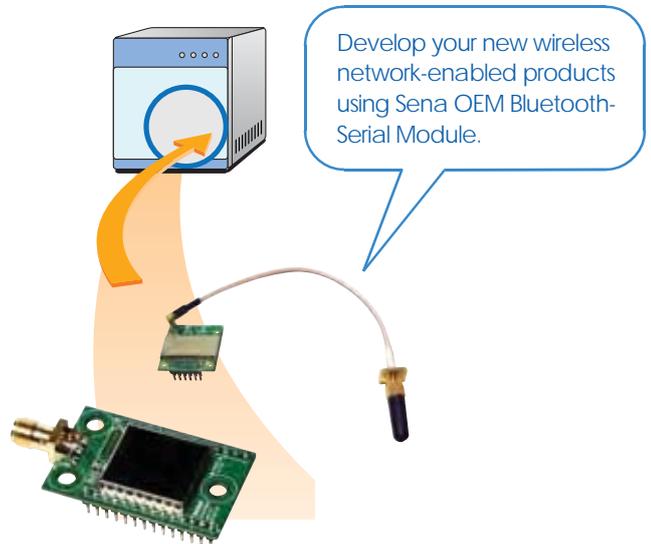
# Product Overview

## 1 OEM Bluetooth-Serial Module

### *Designed to Simplify Wireless Device Networking Into Your Box*

The Parani-ESD Series, OEM Bluetooth-Serial Module is designed for integration into user devices by on-board installation. They are connected to the device via built-in UART interface and communicate with other Bluetooth devices.

- Provides Bluetooth connectivity into your box
- Supports UART interface, up to 921.6kbps
- Bluetooth stack v1.2/2.0
  - Improved AFH(Adaptive Frequency Hopping), Fast Connection
- Compact size - ESD100V2: 27.5 x 30.0 x 14.0 (mm)
  - ESD110V2: 27.5 x 30.0 x 14.0 (mm)
  - ESD200/210: 18 x 20 x 11.7(mm)
  - ESD1000: 49 x 23 x 11(mm)
- Supports firmware upgrade via windows-based software(ParaniUpdater)
- Working distance(In an open field)
  - Parani-ESD100V2: Class 1, Nom. 100 meters
  - Parani-ESD110V2: Class 1, Nom. 100 meters, up to 1000m using patch antenna
  - Parani-ESD200: Class 2, Nom. 30meters
  - Parani-ESD210: Class 2, Nom. 30meters, up to 300m using patch antenna
  - Parani-ESD1000: Class 1, Nom. 100 meters, up to 1000m using patch antenna



## 2 Bluetooth-Serial Adapter

The Parani-SD Series is an external Bluetooth serial adapter product line based on Bluetooth technology. The Parani-SD Series supports DIP switch and pairing button. Using DIP-switch of the Parani-SD Series, users can simply configure baud rate and hardware flow control settings of the Parani-SD Series without software. Pairing button enables two Parani-SD Series units to be connected automatically. The Parani-SD1000 supports 2 types of rechargeable battery pack options - Standard & Extended. The Parani-SD200 supports battery pack that can carry two AA batteries as an optional accessory. By using the Parani-SD Series, users can build up wireless network that replaces messy serial cabling.

- Provides transparent RS232 serial cable replacement.
- Supports Bluetooth 1.2 / 2.0 stack
  - 1.2 stack (Parani-SD200): improved AFH(Adaptive Frequency Hopping), Fast connection.
  - 2.0 stack (Parani-SD1000): EDR(Enhanced Data Rate)
- Supports firmware upgrade via windows-based software(ParaniUpdater)
- Working distance
  - Parani-SD1000: Class 1, Nom. 100 meters, up to 1000m using patch antenna
  - Parani-SD200: Class 2, Nom. 30 meters, up to 300m using patch antenna

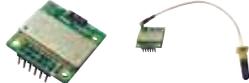


### 3 Bluetooth Access Point

The Parani-MSP1000 is an Industrial Bluetooth Access Point product line designed to connect Bluetooth devices to the 10/100 Base-T Ethernet network with advanced features. These Bluetooth Access Points transmit data from each Bluetooth terminal to management station via TCP/IP.

Available in 7, 14, and 28 Bluetooth connections models, the Parani-MSP1000 Bluetooth Access Point product line incorporates Bluetooth 2.0 Protocol Stack with Enhanced Data Rate(EDR) support; and transmits data from each Bluetooth terminal to management station via TCP/IP.

- Connects Bluetooth devices to 10/100 base-T Ethernet.
- Dual Ethernet Interface support
- Supports up to 3Mbps throughput
- Ideal wireless solution for the replacement of the wired multi-port serial card.
- 7/14/28 Bluetooth Connections support
- Supports Bluetooth profiles for Serial Port, LAN Access, PAN, File Transfer and Dial up Networking.
- Easy-to-use COM-Port redirector support
- Flexible TCP/UDP host mode support: Multiple host connection/data transfer
- System logging & port logging
- Supports Python Script Engine for customization
- Supports firmware upgrade via web, hyper terminal program or etc.
- Supports surge protector
- Supports RFC 2217, Telnet COM Port Control Protocol.

Product						
Bluetooth Interface	Bluetooth v2.0 + EDR Class 1 Level - 18 dBm	Bluetooth v2.0 + EDR Class1 Level - 18 dBm	Bluetooth v1.2 Class 2 Level - Max.4 dBm	Bluetooth v2.0 Class 1 Level - 18dBm	Bluetooth v1.2 Class 2 Level - Max. 4 dBm	Bluetooth v2.0 + EDR Class 1 Level - 18dBm Profiles - Serial Port, LAN Access, PAN, Dial up Networking, File Transfer
	Protocols - RFCOMM, L2CAP, SDP Profiles - General Access Profile, Serial Port Profile					
RF range	Nominal 100m, up to 1000m using patch antenna	- ESD100V2: Nominal 100m - ESD110V2: Nominal 100m, up to 1000m using patch antenna	- ESD200: Nominal 30m - ESD210: Nominal 30m, up to 300m using patch antenna	Nominal 100m, up to 1000m using patch antenna	Nominal 30m, up to 300m using patch antenna	Nominal 150m, up to 1000m using patch antenna
Network Interface	No	No	No	No	No	Dual 10/100 Base-T Ethernet with RJ45 connector
Serial Interface	UART			RS-232 Female DB9		RS-232 Male DB9 (Console)
Firmware upgrade	Yes(ParaniUpdater)					Yes (Web or HyperTerminal)
Applicable antenna	Stub Antenna Dipole Antenna Patch Antenna	- ESD100V2: Built-in chip antenna - ESD110V2: Stub Antenna Dipole Antenna Patch Antenna	- ESD200: Built-in chip antenna - ESD210: Stub Antenna Dipole Antenna Patch Antenna	Stub Antenna Dipole Antenna Patch Antenna	Stub Antenna Dipole Antenna Patch Antenna	Stub Antenna Dipole Antenna Patch Antenna

### 4 Bluetooth USB Adapter

SENA's Bluetooth USB Adapter is a class 1 type Bluetooth product that supports 300 meters of wireless transmission distance by default. It is suitable for industrial or special applications, thanks to its longer communication distance than other regular Bluetooth USB adapters. It is compatible with other SENA Bluetooth devices perfectly.

# Software Support

## COM Port Redirector

Sena provides COM Port Redirector software for those users who want to use the existing application programs based on serial communication. This means that existing COM-based software can be preserved, without investing in additional software.

COM Port Redirector establishes a transparent connection between host and serial device by mapping the IP:Port of the Sena Bluetooth Access Point port to a local COM port on the host computer. For Windows systems, Sena offers Serial/IP COM Port Redirector software from Tactical Software.

### ◆ Serial / IP COM Port Redirector for Windows platform

When your solution includes software running on a Windows PC, and that software uses COM ports to communicate with devices, use COM port redirection solution.

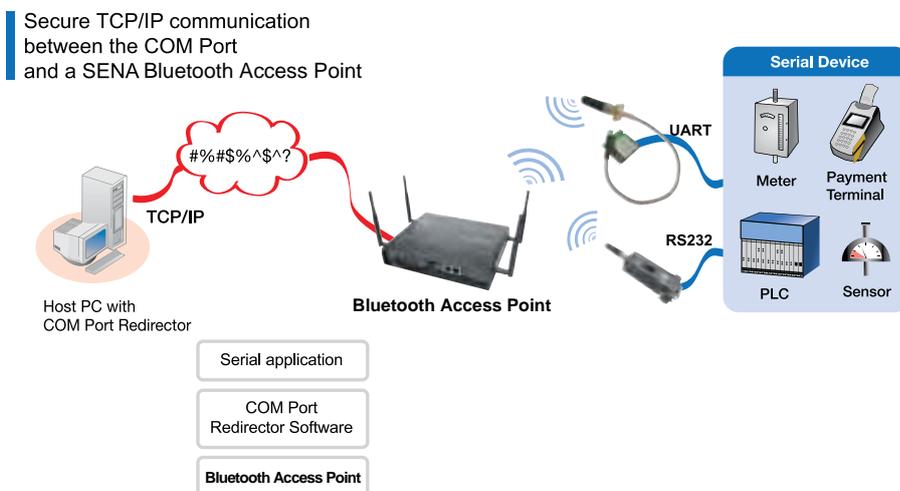
The Serial/IP Redirector software runs at the kernel level to provide superior performance and low latency.

Features include: Up to 4,096 simultaneous connections; Selectable auto-reconnect option for "always-on" connections; Requires no other software for deployment, and Configuration Wizard automates and verifies settings.

### Serial/IP Application Scenario

#### COM Port Redirector with Encryption

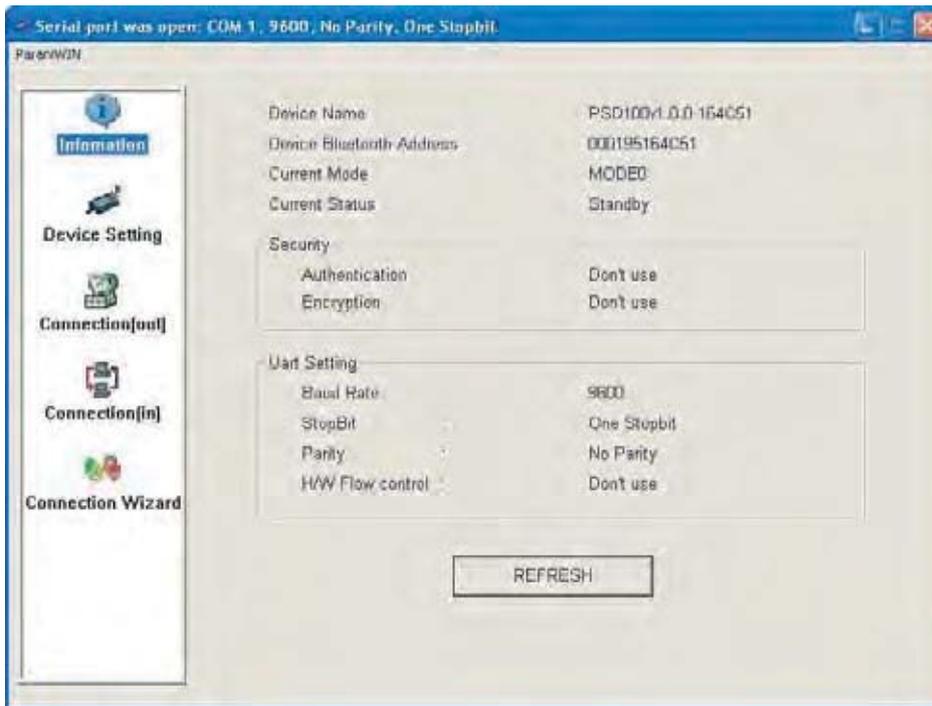
Sena now takes COM Port Redirection a step further with encryption features, offering a secure Ethernet connection between the COM port and a Sena Industrial Bluetooth Access Point. When working with the Serial/IP COM Port Redirector and OpenSSL Toolkit, the new SSL/TLS Security option offers a selection of five ciphers (including 3-DES and AES) and strengths up to 256 bits, sufficient to meet the tough security requirements encountered in the financial services industry.



## Utilities and Tools

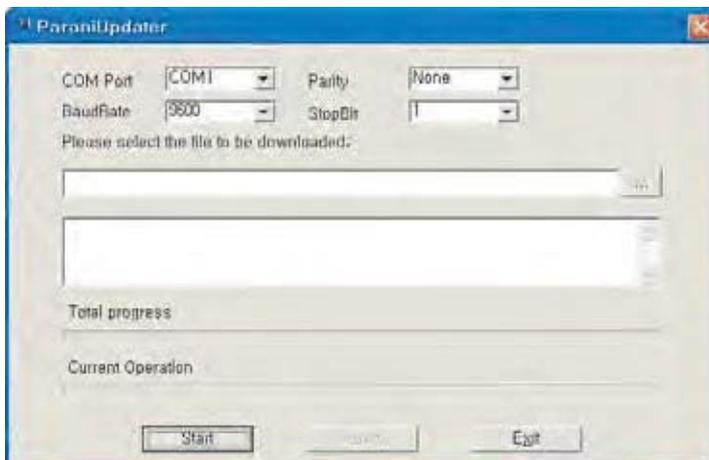
### ► ParaniWin

ParaniWin is a Windows-based software to configure and to make a pair of the Parani-SD and Parani-ESD Series through on-screen menus instead of command line interface.



### ► ParaniUpdater

A Window-based firmware upgrade program that enables user to simply upgrade the firmware of all SENA Bluetooth products. Users can download new firmware images at SENA Web site.



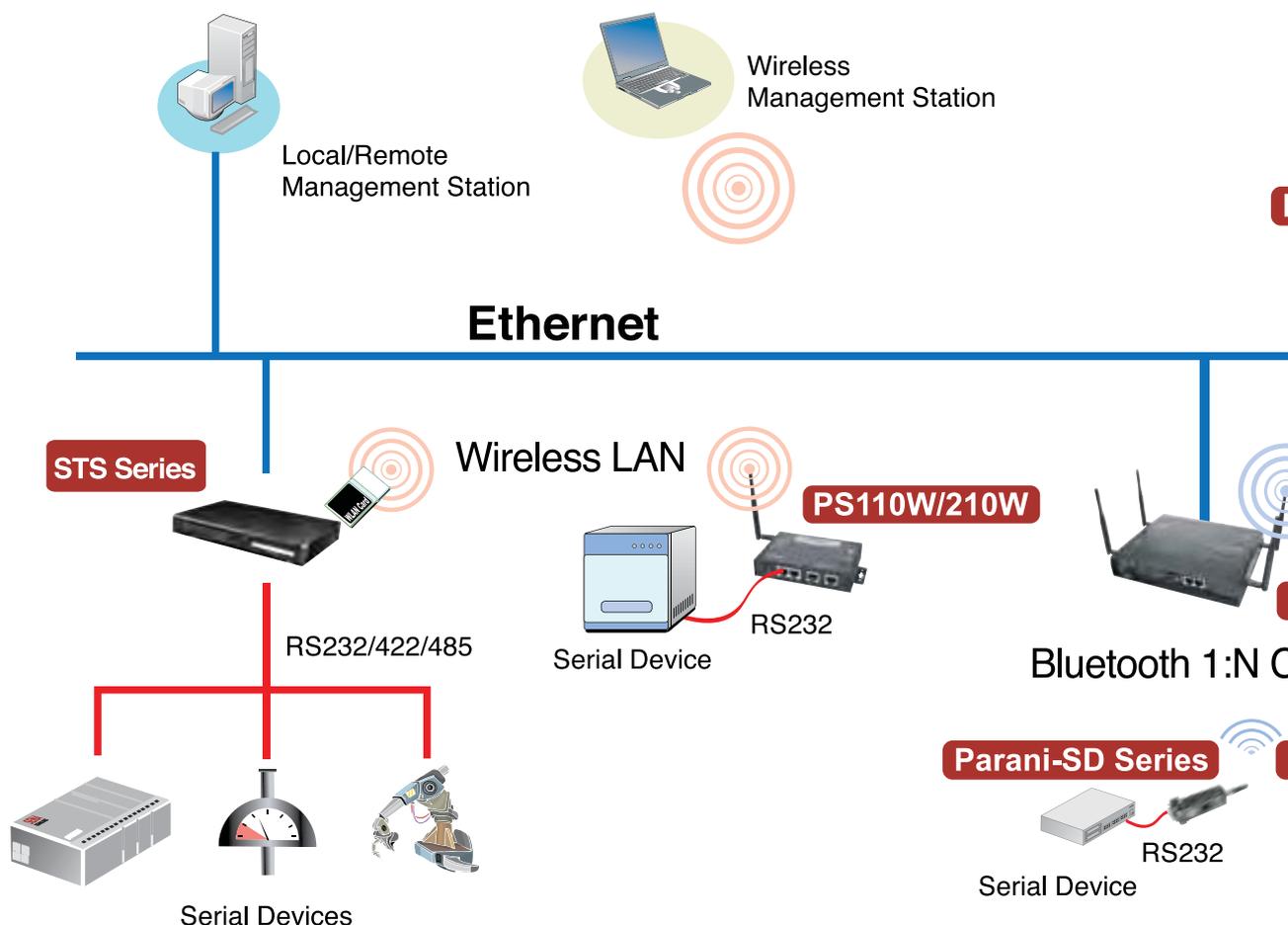
# Typical Application Scenarios using Sena Device Servers

## Wireless Device Networking

Sena offers wireless networking options either 1:1 communication solution for simple cable replacement or for 1:N communication solution for more advanced applications. Users may choose one flexibly from the Wireless LAN or Bluetooth based solutions according to their needs.

Sena Device Server and Terminal Server's family supports wireless network interface either by PC Card interface or by built-in WiFi modules. The Parani family is a stand alone Bluetooth-compatible solution for wireless RS-232 serial cable replacement.

Sena's wireless device networking solution brings wireless networking capabilities to various equipments such as printers, scales, medical equipment, manufacturing machinery, barcode readers, card readers, RFID reader and other data collection devices.





**Parani-UD100**



**Parani-UD100**

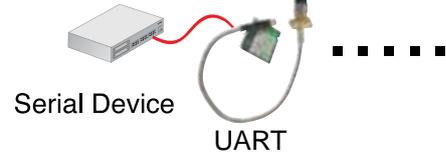
### Bluetooth Communication



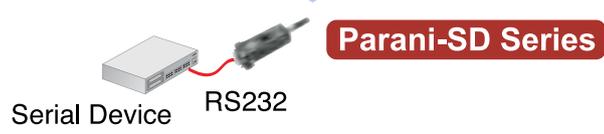
**Parani-MSP1000**

### Communication

**Parani-ESD Series**

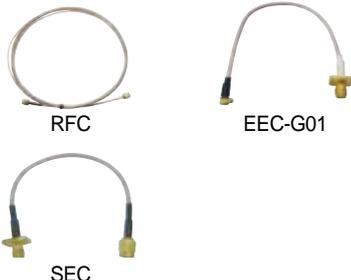


### Bluetooth Communication (Cable replacement)



# Accessories

Sena offers accessories such as antennas, antenna extension cables and power supplies.

Accessories	Description	Applicable Models	
Antennas	<p>Sena offers various antennas that extend wireless communication range.</p>  <p>Stub Antenna      Dipole Antenna</p>	<p><b>SAT-G01R</b>: 1 dBi Stub Antenna - RP-SMA Plug Right-hand Thread  <b>DAT-G01R</b>: 3 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread  <b>DAT5-G01R</b>: 5 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread</p>	<p>Parani-MSP1000            Parani-ESD1000            Parani-SD1000            Parani-UD100            Parani-ESD110V2</p>
	 <p>Patch Antenna+Extension cable</p>	<p><b>SAT-G01</b>: Parani-SAT Stub Antenna-SMA Male-Left-hand thread  <b>DAT-G01</b>: Parani-DAT Dipole Antenna-SMA Male-left-hand thread</p>	<p>Parani-SD200            Parani-ESD110V2            Parani-ESD210</p>
	 <p>Patch Antenna</p>	<p><b>PAT-G01R</b>: 9dBi Patch Antenna with RP-SMA Plug Right hand Thread Default Cable. (SMA Jack Right hand Thread w/o Default Cable)</p>	<p>Parani-MSP1000            Parani-ESD1000            Parani-SD1000            Parani-UD100            Parani-ESD110V2</p>
	 <p>Patch Antenna</p>	<p><b>PAT-G01</b>: 9 dBi Patch Antenna-RP-SMA-R/A left-hand thread</p>	<p>Parani-SD200            Parani-ESD110V2            Parani-ESD210</p>
Antenna Extension Cables	<p>The antenna extension cables can be used to extend the length between a device and antenna.</p>  <p>RFC      EEC-G01            SEC</p>	<p><b>SEC-G01R</b>: 15cm Extension Cable (For SAT-G01R / DAT-G01R / DAT5-G01R)  <b>RFC-G01R</b>: 1m Extension Cable (For PAT-G01R)  <b>EFC-G01R</b>: 15cm RP-SMA Right-Hand Thread Antenna Extension Cable for ESD110V2/210</p>	<p>Parani-MSP1000            Parani-ESD1000            Parani-SD1000            Parani-UD100            Parani-ESD110V2</p>
	 <p>RFC</p>	<p><b>RFC-G01</b>: Parani-RFC 1m Antenna Extension Cable for Patch antenna</p>	<p>Parani-SD200            Parani-ESD110V2            Parani-ESD210</p>
	 <p>EEC-G01</p>	<p><b>EEC-G01</b>: Parani-EEC 15cm Antenna Extension Cable for Parani-ESD210, Parani-ESD110V2 only</p>	
 <p>SEC</p>	<p><b>SEC-G01</b>: Parani-SEC 15cm Antenna Extension Cable for Stub antenna or Dipole antenna of SD200</p>		
Power Supplies	<p>Sena offers various power supply options to meet the needs at different power circumstances.</p>  <p>EPA-G01      OPA-G01            UPA-G01      BPC-G01            BPC-G02      BPC-G03</p>	<p><b>EPA-G01</b>: Parani-EPA External Power Adaptor-220V  <b>OPA-G01</b>: Parani-OPA External Power Adaptor (International, 4 types: EU, America, UK, Australia)  <b>UPA-G01</b>: Parani-UPA USB Power Cable  <b>BPC-G01</b>: Parani-BPC Battery Pack for SD200 only  <b>BPC-G02</b>: Parani-BPC Standard Battery Pack for SD1000  <b>BPC-G03</b>: Parani-BPC Extended Battery Pack for SD1000</p>	<p>Parani-SD200            Parani-SD1000</p>
	 <p>EPA-G01</p>		
	 <p>OPA-G01</p>		
	 <p>UPA-G01</p>		
	 <p>BPC-G01</p>		
	 <p>BPC-G02</p>		
 <p>BPC-G03</p>			
Others	 <p>FM9GD-G01      SLR-G01</p>	<p><b>FM9GD-G01</b>: DB9 Female to Male Gender Changer  <b>SLR-G01</b>: SMA-Male left handed to right handed adapter</p>	<p>Parani-SD200            Parani-ESD210            Parani-SD1000</p>
	 <p>FM9GD-G01</p>		
 <p>SLR-G01</p>			

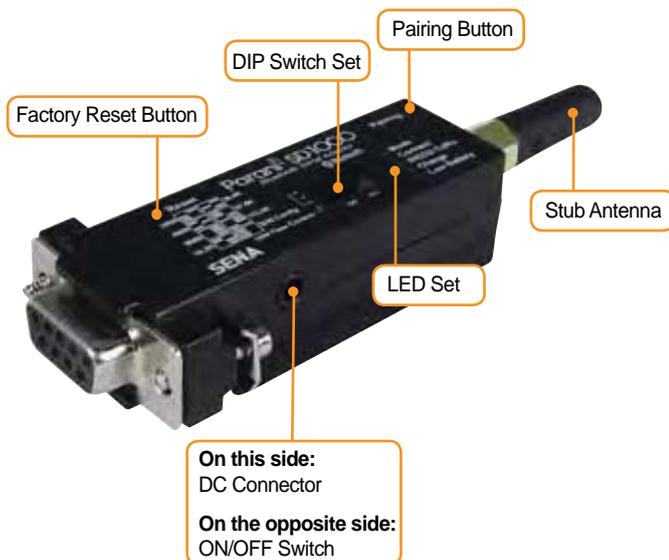
# Bluetooth Serial Adapter, Parani™ SD1000



## Features

- Bluetooth Specification v2.0 + EDR
- Provides transparent RS232 serial cable replacement
- Supports up to 4 multiple simultaneous connections
- Basic Transmit Power: Max. +18dBm, EDR Transmit Power: Max. +6dBm
- Receiving Sensitivity: -88dBm(0.1%BER)
- Supports Bluetooth profiles SPP(Serial Port Profile)
- Interoperability with PDA, laptops etc.
- Supports firmware upgrade via windows-based software (ParaniUpdater)
- Working distance ( In an open field ): Nom. 100 meters, up to 1000m using patch antenna
- Enhanced portability: standard & extended battery pack options
- Easy to use Windows configuration tool available.
- No external drivers required.

## Panel Layout



**The Parani-SD1000** is a Class1 type of Bluetooth Serial Adapter that supports 100 meters of wireless transmit distance by default. The Parani-SD1000 has an extension option so that users can extend the transmit distance up to 1000 meters using optional antennas. It supports Bluetooth v2.0+EDR specification. Parani-SD1000 has two battery-pack options, standard and extended battery pack. By these options, Parani-SD1000's portability is more enhanced. The Parani-SD1000 also supports up to 4 multiple simultaneous connections.

Typical application areas of the Parani-SD1000 include:

- RS232 Cable Replacement
- Truck/Bus Monitoring System
- Car Diagnostics
- Wireless POS System
- Wireless Machine(Healthcare/Industrial) Monitoring
- Wireless Factory Monitoring
- PLC Programming
- Wireless Printing
- Wireless Logistics

# SENA

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## Specifications

### Serial Interface

- Serial speed up to 921.6kbps
- CTS/RTS flow control, DTR/DSR for loop-back & full transfer

### Bluetooth Interface

- Bluetooth v2.0 + EDR
- Class 1
- Profiles - SPP
- Working distance (in open field)
 

SAT-G01R	-	SAT-G01R	100 meters
SAT-G01R	-	DAT-G01R	150 meters
DAT-G01R	-	DAT-G01R	200 meters
DAT-G01R	-	DAT5-G01R	300 meters
DAT-G01R	-	PAT-G01R	500 meters
DAT5-G01R	-	DAT5-G01R	400 meters
DAT5-G01R	-	PAT-G01R	600 meters
PAT-G01R	-	PAT-G01R	1,000 meters

#### [Antennas]

- SAT-G01R: +1dBi Stub Antenna
- DAT-G01R: +3dBi Dipole Antenna
- DAT5-G01R: +5dBi Dipole Antenna
- PAT-G01R: +9dBi Patch Antenna

**Max. Tx power:** +18dBm

**Receive Sensitivity:** -88dBm

### Configuration

- ParaniWin, ParaniUpdater
- Modem AT command set

### Diagnostic LED

- BT Status (mode)
- Connect
- RS232-RX/TX
- Charging/Done (Battery Charging/ Battery Charging completed)
- Low Battery

### Power

- Power input: 5~12VDC
- Power Consumption: Minimum 2mA, Maximum 80mA

### Battery Pack

- Capacity
  - 240 mAh(standard)
  - 900 mAh(extended)
- Charging Power: minimum 5V/200mA
- Charging Time
  - Approximately 2 hours (standard)
  - Approximately 5 hours (extended)
- Battery life (Test based on 9600 bps data loopback. Actual battery life varies by configuration, operating conditions and other factors)
  - Approximately 4.5 hours (standard)
  - Approximately 16.5 hours (extended)

### Environmental

- Operating temperature: -20°C to 70°C
- Storage temperature: -40°C to 85°C
- Humidity: 90% Non-condensing

### Physical properties

- Dimension (L x W x H)
  - 76 x 31 x 16 (mm) (No battery pack)
  - 76 x 31 x 19.5 (mm) (with standard battery pack)
  - 76 x 31 x 31.4 (mm) (with extended battery pack)
- Weight
  - 24g (No battery pack)
  - 30g (with standard battery pack)
  - 42g (with extended battery pack)

### Certification

- FCC(A), CE, MIC, TELEC, SIG, IC

### Warranty

- 3-year limited warranty

## Ordering Information

### Single Pack SD1000-A1 Includes ✳ Stub antenna NOT included

- SD1000: SD1000 Bluetooth-serial adapter

### Single Pack SD1000-00 Includes

- SD1000: SD1000 Bluetooth-serial adapter
- DPA-G01: Parani-DPA DC power cable for SD series
- UPA-G01: Parani-UPA USB Power Cable
- SAT-G01R: 1 dBi Stub Antenna - RP-SMA Plug Right-hand Thread
- FM9GD-G01: DB9 Female to Male Gender Changer
- CD-ROM

### Single Pack SD1000-01 Includes

- Single pack SD1000-00
- OPA-G01: Parani-OPA External Power Adaptor-International - 4 types: EU, America, UK, Australia

### Bulk Pack SD1000-B10 Includes

- SD1000(x10EA): SD1000 Bluetooth-serial adapter
- SAT-G01R(x10EA): 1 dBi Stub Antenna - RP-SMA Plug Right-hand Thread
- DPA-G01(x10EA): Parani-DPA DC power cable for SD series

### Optional Accessories

- SAT-G01R: 1 dBi Stub Antenna - RP-SMA Plug Right-hand Thread
- DPA-G01: Parani-DPA DC power cable for SD series
- UPA-G01: Parani-UPA USB Power Cable
- OPA-G01: Parani-OPA External Power Adaptor-International - 4 types: EU, America, UK, Australia
- BPC-G02: Parani-BPC standard Battery Pack for SD1000
- BPC-G03: Parani-BPC extended Battery Pack for SD1000
- DAT-G01R: 3 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread
- DAT5-G01R: 5 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread
- PAT-G01R: 9dBi Patch Antenna with RP-SMA Plug Right hand Thread Default Cable. (SMA Jack Right hand Thread w/o Default Cable)
- SEC-G01R: 15cm Extension Cable(For SAT-G01R / DAT-G01R / DAT5-G01R)
- RFC-G01R: 1m Extension Cable(For PAT-G01R)
- FM9GD -G01: DB9 Female to Male Gender Changer

**For more information,  
please visit us at <http://www.sena.com>**

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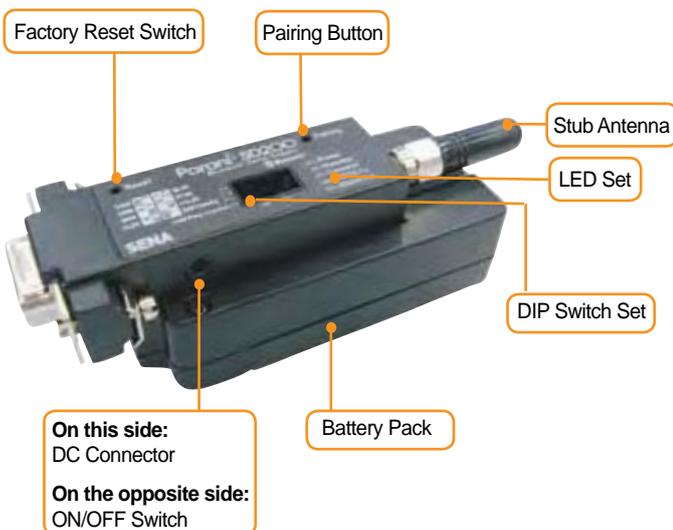
# Bluetooth Serial Adapter, Parani™ SD200



## Features

- Provides transparent RS232 serial cable replacement.
- Supports Bluetooth stack 1.2 - improved AFH(Adaptive Frequency Hopping), Fast connection.
- Transmit Power: Max. +4dBm
- Receiving Sensitivity: -80dBm(0.1%BER)
- Antenna gain - Stub: +2dBi, Dipole: +3dBi, Patch: +9dBi
- Supports Bluetooth Serial Port Profile.
- Interoperability with PDA, laptops etc.
- Supports firmware upgrade via windows-based software (ParaniUpdater)
- Working distance(In an open field): Class 2, Nom. 30 meters, up to 300m using patch antenna
- Software-free configuration support using DIP-Switch and pairing button
- Supports battery pack(Two AA batteries)
- No external drivers required.

## Panel Layout



**Parani-SD Series** is a Bluetooth serial adapter product line based on Bluetooth technology. Parani-SD Series enables RS232-based serial devices to communicate wirelessly throughout the range of 30m~300m(Parani-SD200-Class 2).

Users may configure the Parani-SD Series by using combination of DIP-switch and Pairing button, easy-to-use Windows-based utility software or by using standard AT command set.

Using DIP-switch of the Parani-SD Series, user can simply configure baud rate and hardware flow control settings of the Parani-SD Series. Pairing-button enables two Parani-SD Series units to be connected automatically.

Flexible power supply options allow users to choose which options suits them best, i.e. Power by DC power cable, Power by external DC adapter, Power by USB power cable, Power by pin 9 of DB9 connector. The Parani-SD supports battery pack that can carry two AA batteries. Users can use both general type batteries or rechargeable ones. Battery pack allows users to recharge the batteries.

Typical application areas of the Parani-SD Series include:

- RS232 cable replacement
- Truck/Bus monitoring system
- Car Diagnostics
- Wireless POS system
- Wireless machine(healthcare/industrial) monitoring
- Wireless Factory monitoring
- PLC programming
- Wireless Printing
- Wireless logistics

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## Specifications

### Serial Interface

- RS232, Female DB9, 1200bps ~ 230Kbps
- CTS/RTS flow control: Default
- DTR/DSR for loop-back & full transfer

### Bluetooth Interface

- Bluetooth v1.2
- Class 2
- Level - Max. 4 dBm
- Protocols - RFCOMM, L2CAP, SDP
- Profiles - General Access Profile, Serial Port Profile
- Working distance
  - Default Antenna - Default Antenna 30 meters
  - Default Antenna - Dipole Antenna 50 meters
  - Dipole Antenna - Dipole Antenna 80 meters
  - Patch Antenna - Dipole Antenna 150 meters
  - Patch Antenna - Patch Antenna 300 meters

### Configuration

- ParaniWin, Modem AT command set

### firmware pdate

- ParaniUpdater

### Diagnostic LED

- Power
- Standby
- Connect
- RS232-Tx
- RS232-Rx

### Power

- 5~12VDC
- Nominal current consumption: 0mA 5.0VDC approximately
- Common Power supply options
  - Power via a standard AC-plug DC-adaptor
  - Power via USB power cable
  - Power via DC power cable
  - Power via pin 9 of DB9 connector
  - Battery Pack for SD200 only

### Battery sage Time

- When using battery pack for SD200:
  - Typical 1.5V-AA alkaline batteries(2500mAh)
- Avg. 11hr 9600bps
- Note: Depending on the batteries and its usage environment greatly determines how long the Parani product will last for their application, i.e.battery storage, battery capacity, battery brand and so on.

### Environmental

- Operating temperature: -10°C to 55°C
- Storage temperature: -20°C to 70°C
- Humidity: 90% Non-condensing

### Physical properties

- Dimension(L x W x H): 5.3 x 30.8 x 16.2(mm)
- Weight: 20g

### MTB

- 394.4 ears

### Certification

- FCC, CE, TELEC

### Warranty

- 3-year limited warranty

## Ordering Information

### Single Pack SD 00-A1 Includes \* Stub antenna NOT included

- Bluetooth-serial adapter: SD200 (for SD200-A1)

### Single Pack SD 00-00 Includes

- Bluetooth-serial adapter: SD200 (for SD200-00)
- DPA: Parani-DPA DC power cable for SD series
- UPA: Parani-UPA USB Power Cable
- SAT: Parani-SAT Stub Antenna-SMA Male-Left Handed
- FM9GD: DB9 Female to Male Gender Changer
- CD-ROM

### Single Pack SD 00-01 Includes

- Single pack SD200-00 (for SD200-01)
- OPA: Parani-OPA External Power Adaptor-International - 4 types: EU, America, UK, Australia

### 10- nit Bulk Pack SD 00-B10 Includes

- Bluetooth-serial adapter (x10EA): SD200 (for SD200-B10)
- SAT (x10EA): Parani-SAT Stub Antenna-SMA Male-Left Handed
- DPA (x10EA): Parani-DPA DC power cable for SD series

### Optional Accessories

- UPA: Parani-UPA USB Power Cable
- OPA: Parani-OPA External Power Adaptor-International - 4 types: EU, America, UK, Australia
- BPC: Parani-BPC Battery Pack for SD200 only.
- DAT: Parani-DAT Dipole Antenna-SMA Male-Left Handed
- PAT: Parani-PAT Patch Antenna-SMA R/A Female-Right Handed
- RFC: Parani-RFC 1m Antenna Extension Cable for Patch antenna
- SEC: Parani-SEC 15cm Antenna Extension Cable for Stub antenna or Dipole antenna of SD100/200
- FM9GD: DB9 Female to Male Gender Changer
- SLR: SMA-Male left handed to right handed adapter
- CD-ROM

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# OEM Bluetooth-Serial Module, Parani™ ESD1000



## Features

- Bluetooth Specification v2.0 + EDR
- Useful for Bluetooth-enabling users' devices
- Supports up to 4 multiple simultaneous connections
- Basic Transmit Power: Max. +18dBm, EDR Transmit Power: Max. +6dBm
- Receiving Sensitivity: -88dBm(0.1%BER)
- Supports Bluetooth profiles SPP(Serial Port Profile)
- External interface for UART
- Interoperability with PDA, laptops etc.
- Supports firmware upgrade via windows-based software (ParaniUpdater)
- Working distance(In an open field): Nom. 100 meters, up to 1000m using patch antenna
- Easy to use Windows configuration tool available.
- No external drivers required.

**Parani-ESD1000** is Class1 type Embedded Bluetooth Module for users to make their devices Bluetooth-enable. By default, it supports 100 meters of wireless transmit distance. The Parani-ESD1000 has an extension option so that users can extend the transmit distance up to 1000 meters using optional antennas. It supports Bluetooth v2.0+EDR specification, and external interface UART. The Parani-ESD1000 also supports up to 4 multiple simultaneous connections.

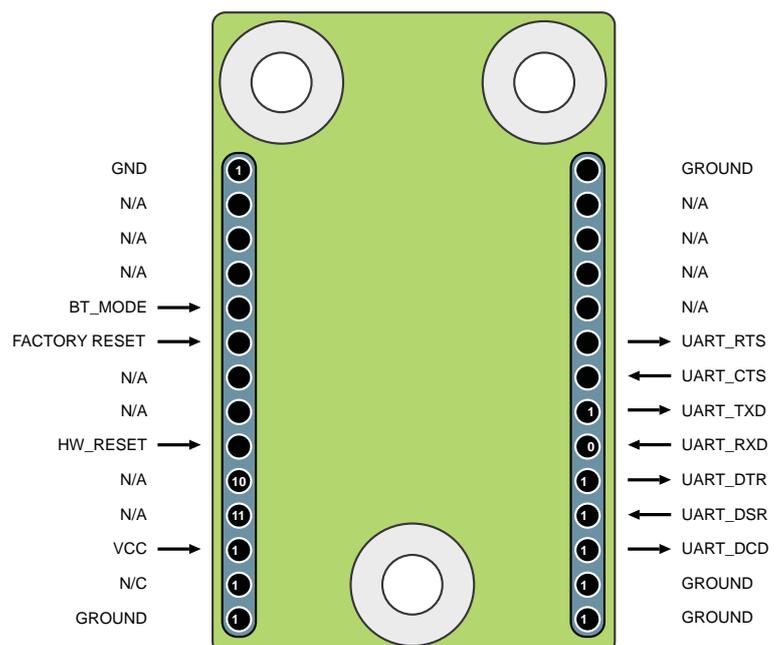
Users may configure the Parani-ESD1000 by using easy-to-use Windows-based utility software or by using standard AT command set.

Typical application areas of the Parani-ESD1000 include:

- RS232 cable replacement
- Truck/Bus monitoring system
- Car Diagnostics
- Wireless POS system
- Wireless Machine(Healthcare/Industrial) monitoring
- Wireless Factory monitoring
- PLC programming
- Wireless Printing
- Wireless Logistics

## Pin Assignment Information

Pin NO.	Pin Name	Direction	Description	Signal Level
1	GND	-	GROUND	GROUND
2	N/A			
3	N/A			
4	N/A			
5	BT_MODE	IN	Pairing signal	TTL
6	FACTORY RESET	IN	Factory reset signal(Active 'L')	TTL
7	N/A			
8	N/A			
9	HW_RESET	IN	Hardware reset signal(Active 'L')	TTL
10	N/A			
11	N/A			
12	VCC	IN	Power(3.3V)	POWER
13	N/C			
14	GROUND	-	GROUND	GROUND
15	GROUND	-	GROUND	GROUND
16	GROUND	-	GROUND	GROUND
17	UART_DCD	OUT	UART DCD(data carrier detect)	TTL
18	UART_DSR	IN	UART DSR(data set ready)	TTL
19	UART_DTR	OUT	UART DTR(data terminal ready)	TTL
20	UART_RXD	IN	UART RXD(receive data)	TTL
21	UART_TXD	OUT	UART TXD(transmit data)	TTL
22	UART_CTS	IN	UART CTS(clear to send)	TTL
23	UART_RTS	OUT	UART RTS(ready to send)	TTL
24	N/A			
25	N/A			
26	N/A			
27	N/A			
28	GROUND	-	GROUND	GROUND



## Specifications

### Serial Interface

- UART
- 2mm Header 14 x 2
- Serial UART speed up to 921.6kbps
- CTS/RTS flow control, DTR/DSR for loop-back & full transfer

### Bluetooth Interface

- Bluetooth v2.0 + EDR
- Class 1
- Profiles: SPP
- Working distance(in open field)
 

SAT-G01R	-	SAT-G01R	100 meters
SAT-G01R	-	DAT-G01R	150 meters
DAT-G01R	-	DAT-G01R	200 meters
DAT-G01R	-	DAT5-G01R	300 meters
DAT-G01R	-	PAT-G01R	500 meters
DAT5-G01R	-	DAT5-G01R	400 meters
DAT5-G01R	-	PAT-G01R	600 meters
PAT-G01R	-	PAT-G01R	1,000 meters

#### [Antennas]

- SAT-G01R: +1dBi Stub Antenna
- DAT-G01R: +3dBi Dipole Antenna
- DAT5-G01R: +5dBi Dipole Antenna
- PAT-G01R: +9dBi Patch Antenna

**Max. Tx power:** +18dBm

**Receive Sensitivity:** -88dBm

### Antenna gain

- Stub: +1dBi, Dipole: +3dBi, Dipole: +5dBi, Patch: +9dBi

### Configuration

- ParaniWin, ParaniWizard, ParaniUpdater
- Modem AT command set

### Diagnostic LED

- TXD, RXD, RTS, CTS, DTR, DSR, DCD on Jig board

### Power

- 3.3VDC
- Minimum: 10mA, Maximum: 60mA

### Environmental

- Operating temperature: -30°C to 80°C
- Storage temperature: -40°C to 85°C
- Humidity: 90% Non-condensing

### Physical properties

- Dimension(L x W x H):  
49 x 23 x 11(mm)  
1.93 x 0.9 x 0.43( in.)
- Weight: 6g

**MTBF:** 400.89 Years

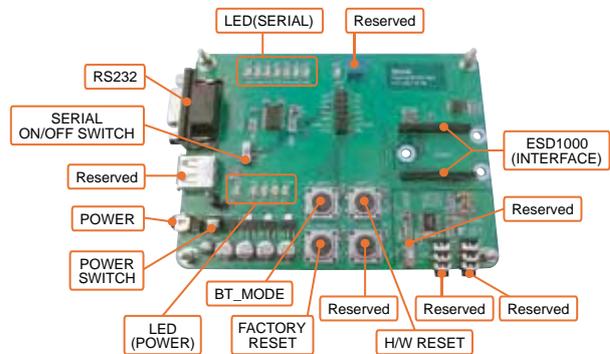
### Regulatory Approvals

- FCC(A), CE, MIC, TELEC, SIG, IC

**Warranty:** 1-year limited warranty

## Parani-ESD1000 Starter Kit

The Parani-ESD1000 Starter Kit includes the evaluation board with the sample circuitry for Parani-ESD1000 interface, power, RS232 interface, H/W Reset, LEDs for users' device development.



## Ordering Information

**ESD1000** Parani-ESD1000 OEM Bluetooth-Serial Module-Class1 with antenna extension option

### ESD1000-00

#### Optional Accessories

- SAT-G01R: 1 dBi Stub Antenna - RP-SMA Plug Right-hand Thread
- DAT-G01R: 3 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread
- DAT5-G01R: 5 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread
- PAT-G01R: 9dBi Patch Antenna with RP-SMA Plug Right hand Thread Default Cable. (SMA Jack Right hand Thread w/o Default Cable)
- SEC-G01R: 15cm Extension Cable(For SAT-G01R / DAT-G01R / DAT5-G01R)
- RFC-G01R: 1m Extension Cable(For PAT-G01R)

### ESD1000SK Parani-ESD1000 Starter Kit

#### Includes

- Parani-ESD1000 Module
- Jig board
- DC Power Adapter
- Serial data cable
- Quick Start Guide
- SAT-G01R: 1 dBi Stub Antenna - RP-SMA Plug Right-hand Thread
- CD-ROM

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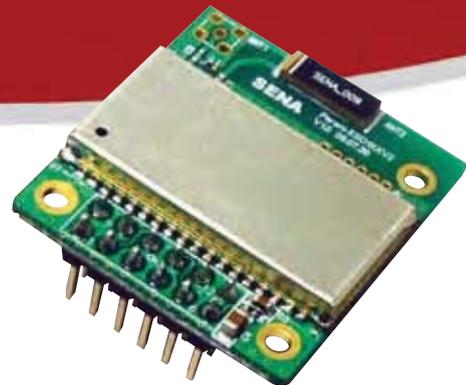
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# OEM Bluetooth-Serial Module, Parani™ ESD100V2



## Features

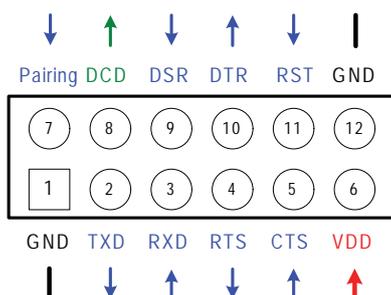
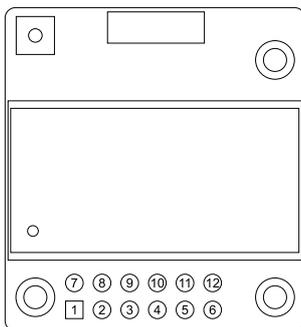
- Output Interface UART, Bluetooth Specification v2.0+EDR
- Transmit Power - Max. 18dBm
- Receiving Sensitivity: 90dBm(0.1%BER)
- Compact size - 25.5 x 30.0 x 14.0 (mm)  
1.08 x 1.18 x 0.55 (in)
- Provides transparent RS232 serial cable replacement.
- Supports up to 4 multiple simultaneous connections.
- Profile: Bluetooth Serial Port Profile.
- Interoperability with PDA, laptops etc.
- on-board chip antenna
- Firmware upgrade via windows-based software (ParaniUpdater)
- Working distance ( In an open field ): Nom. 100 meters
- Easy to use Windows configuration tool available.
- No external drivers required.

The Parani-ESD100V2 is a Bluetooth v2.0+EDR Class1 type Embedded Bluetooth serial module for RS232 cable replacement. The Parani-ESD100V2 is a compact size Bluetooth serial module with built-in chip antenna. It supports 100 meter of wireless transmit distance. The Parani-ESD100V2 also supports up to 4 multiple simultaneous connections.

Typical application areas of the Parani-ESD100V2 include:

- RS232 cable replacement
- Wireless Factory monitoring
- Truck/Bus monitoring system
- PLC programming
- Car Diagnostics
- Wireless Printing
- Wireless POS system
- Wireless logistics
- Wireless machine(healthcare/industrial) monitoring

## Pin Assignment



Pin #	Signal	Direction	Description	Signal Level
1	GND	-	Power Ground	Ground
2	TxD	Output	UART Data Output	TTL
3	RxD	Input	UART Data Input	TTL
4	RTS	Output	UART Ready to Send	TTL
5	CTS	Input	UART Clear to Send	TTL
6	VDD	Input	DC Input (3.0~3.3V)	Power
7	Pairing	Input	Pairing Input (Active Low)	TTL
8	DCD	Output	Bluetooth Connect Detect (Active Low)	TTL
9	DSR	Input	Data Set Ready	TTL
10	DTR	Output	Data Terminal Ready	TTL
11	RST	Input	Reset (Active Low)	TTL
12	GND	-	Power Ground	Ground

## Specifications

### Serial Interface

- UART interface, 2.54mm Pin Header 2X6 (12pin)
- Serial UART speed up to 921.6kbps
- CTS/RTS flow control, DTR/DSR for loop-back & full transfer

### Bluetooth

- Bluetooth v2.0 + EDR Class1
- Level - 18 dBm
- Profile: Serial Port Profile
- Working distance : Nominal 100m

### Max. Tx power

- 18 dBm

### Receive Sensitivity

- 90 dBm

### Configuration

- ParaniWIN, ParaniWi ard, Modem AT command set

### irmware upgrade

- by ParaniUpdater

### Power

- Supply voltage: 3.3V DC
- Supply current:10mA 60mA

### Environmental

- Operating temperature: -30°C to 80°C
- Storage temperature: -40°C to 85°C
- Humidity: 90% Non-condensing

### Physical properties

- Dimension:
  - 2 .5 mm L (1.08 in )
  - 30.0 mm W (1.18 in )
  - 14.0 mm H (0.55 in )
- Weight: 6g

### RegulatoryApprovals

- FCC, CE, TELEC, KCC, SIG

### SI DID

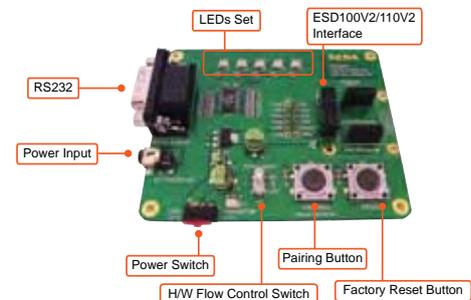
- B015896

### Warranty

- 1-year Limited Warranty

## Parani-ESD100V2 Starter Kit

Parani-ESD100V2 Starter Kit includes the development board with the sample circuitry for Parani-ESD100V2 interface, power, RS232 Interface, Reset, LEDs, Pairing, H/W flow control for user device development.



## Ordering Information

Part number	Description/Pack a ge Contents
ESD100 -01	Parani-ESD100V2 OEM Bluetooth-Serial Module-Class 1 Bluetooth v2.0+EDR with built-in chip antenna  <b>Package contents:</b> - Parani-ESD100V2 Module (on-board chip antenna)
ESD100 S -01	Starter Kit for Parani-ESD100V2, ESD100V2 included.  <b>Package contents:</b> - Parani-ESD100V2 Module (on-board chip antenna) - Development board - Serial data cable - DC Power Adapter - A hardcopy of uick Start Guide - CD-ROM including the Configuration S/W and User Guide

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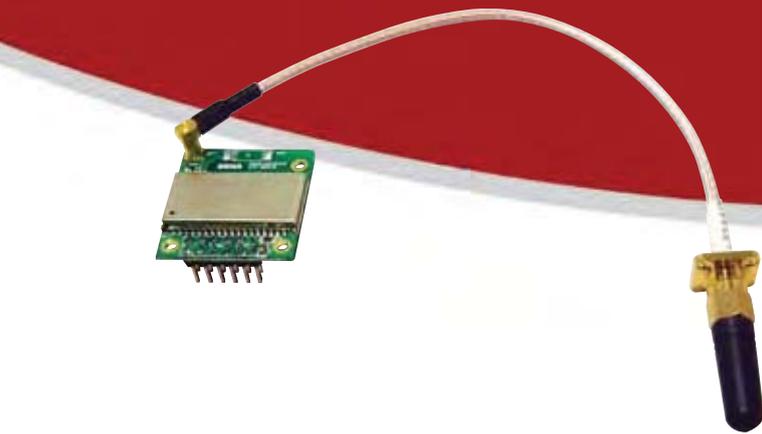
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 Technical Support: [support@sena.com](mailto:support@sena.com)

# OEM Bluetooth-Serial Module, Parani™ ESD110V2



## Features

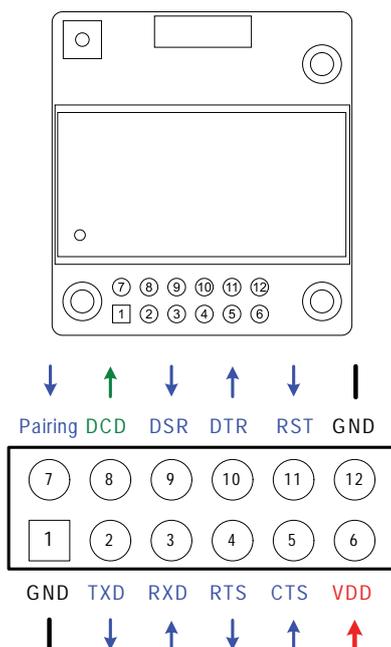
- Output Interface UART, Bluetooth Specification v2.0+EDR
- Transmit Power - Max. 18dBm
- Receiving Sensitivity : 90dBm(0.1%BER)
- Compact size - 20.5 x 30.0 x 14.0 (mm)  
1.08 x 1.18 x 0.55 (in)
- Provides transparent RS232 serial cable replacement.
- Supports up to 4 multiple simultaneous connections.
- Profile : Bluetooth Serial Port Profile.
- Interoperability with PDA, laptops etc.
- Firmware upgrade via windows-based software (ParaniUpdater)
- Working distance ( In an open field ):  
Nom. 100 meters, up to 1000m using patch antenna
- Easy to use Windows configuration tool available.
- No external drivers required.

The **Parani-ESD110V2** is a Bluetooth v2.0+EDR Class1 type Embedded Bluetooth serial module for RS232 cable replacement. The Parani-ESD110V2 is a compact size Bluetooth serial module. By default, it supports 100 meters of wireless transmit distance. The Parani-ESD110V2 has an extension option so that users can extend the transmit distance up to 1,000 meters using optional antennas. The Parani-ESD110V2 also supports up to 4 multiple simultaneous connections.

Typical application areas of the Parani-ESD110V2 include:

- RS232 cable replacement
- Wireless Factory monitoring
- Truck/Bus monitoring system
- PLC programming
- Car Diagnostics
- Wireless Printing
- Wireless POS system
- Wireless logistics
- Wireless machine(healthcare/industrial) monitoring

## Pin Assignment



Pin #	Signal	Direction	Description	Signal Level
1	GND	-	Power Ground	Ground
2	TxD	Output	UART Data Output	TTL
3	RxD	Input	UART Data Input	TTL
4	RTS	Output	UART Ready to Send	TTL
5	CTS	Input	UART Clear to Send	TTL
6	VDD	Input	DC Input (3.0~3.3V)	Power
7	Pairing	Input	Pairing Input (Active Low)	TTL
8	DCD	Output	Bluetooth Connect Detect (Active Low)	TTL
9	DSR	Input	Data Set Ready	TTL
10	DTR	Output	Data Terminal Ready	TTL
11	RST	Input	Reset (Active Low)	TTL
12	GND	-	Power Ground	Ground

## Specifications

### Serial Interface

- UART interface, 2.54mm Pin Header 2X6 (12pin)
- Serial UART speed up to 921.6kbps
- CTS/RTS flow control, DTR/DSR for loop-back & full transfer

### Bluetooth

- Bluetooth v2.0 + EDR Class1
- Level - 18 dBm
- Profile: Serial Port Profile
- Working distance :
 

Stub Antenna (+1dBi)	- Stub Antenna (+1dBi)	- 100 meters
Stub Antenna (+1dBi)	- Dipole Antenna (+3dBi)	- 150 meters
Dipole Antenna (+3dBi)	- Dipole Antenna (+3dBi)	- 200 meters
Dipole Antenna (+3dBi)	- Dipole Antenna (+5dBi)	- 300 meters
Dipole Antenna (+3dBi)	- Patch Antenna (+9dBi)	- 500 meters
Dipole Antenna (+5dBi)	- Dipole Antenna (+5dBi)	- 400 meters
Dipole Antenna (+5dBi)	- Patch Antenna (+9dBi)	- 600 meters
Patch Antenna (+9dBi)	- Patch Antenna (+9dBi)	- 1000 meters

**Max. Tx power:** 18 dBm

**Receive Sensitivity:** 90 dBm

**Configuration:** ParaniWIN, ParaniWi ard, Modem AT command set

**irmware upgrade:** by ParaniUpdater

### Power

- Supply voltage: 3.3V DC
- Supply current: 10mA - 60mA

### Environmental

- Operating temperature: -30°C to 80°C
- Storage temperature: -40°C to 85°C
- Humidity: 90% Non-condensing

### Physical properties

- Dimension:
 

2 .5 mm L (1.08 in )
30.0 mm W (1.18 in )
14.0 mm H (0.55 in )
- Weight: 6g

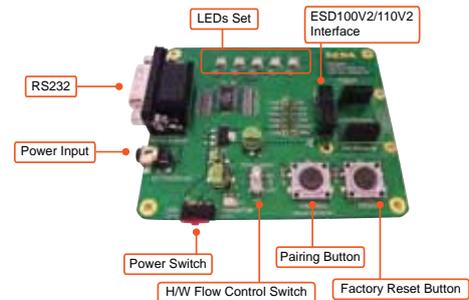
**Regulatory Approvals:** FCC, CE, TELEC, KCC, SIG

**SI DID:** B015896

**Warranty:** 1-year Limited Warranty

## Parani-ESD110V2 Starter Kit

Parani-ESD110V2 Starter Kit includes the development board with the sample circuitry for Parani-ESD110V2 interface, power, RS232 Interface, Reset, LEDs, Pairing, H/W flow control for user device development.



## Ordering Information

Part number	Description/Pack a e Contents
<b>ESD110 -00</b>	Parani-ESD110V2 OEM Bluetooth-Serial Module-Class 1 Bluetooth v2.0+EDR with antenna extension option (module only - antenna and cable NOT included)  <b>Package contents:</b> - Parani-ESD110V2 Module Only (antenna and cable NOT included)
<b>ESD110 -01</b>	Parani-ESD110V2 OEM Bluetooth-Serial Module-Class 1 Bluetooth v2.0+EDR with antenna extension option (antenna and cable included)  <b>Package contents:</b> - Parani-ESD110V2 Module - Stub Antenna (SAT-G01R) - Antenna extension cable (EEC-G01R)
<b>ESD110 S -01</b>	Starter Kit for Parani-ESD110V2, ESD110V2 included.  <b>Package contents:</b> - Parani-ESD110V2 Module - Development board - Serial data cable - DC Power Adapter - A hardcopy of uick Start Guide - CD-ROM including the Configuration S/W and User Guide

### Optional Accessories

Part number	Description
<b>SAT- 01</b>	1 dBi Stub Antenna - SMA Male-Left-Hand Thread
<b>SAT- 01</b>	1 dBi Stub Antenna - RP-SMA Plug Right-hand Thread
<b>DAT- 01</b>	3 dBi Dipole Antenna - SMA Male-Left-Hand Thread
<b>DAT- 01</b>	3 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread
<b>DAT - 01</b>	5 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread
<b>PAT- 01</b>	9 dBi Patch Antenna with SMA Male-Left-Hand Thread Default Cable
<b>PAT- 01</b>	9 dBi Patch Antenna with RP-SMA Plug Right hand Thread Default Cable
<b>FC- 01</b>	1m Antenna Extension Cable for Patch Antenna PAT-G01
<b>FC- 01</b>	1m Antenna Extension Cable for Patch Antenna PAT-G01R
<b>EEC- 01</b>	15cm SMA Left-Hand Thread Antenna Extension Cable for ESD110V2/210
<b>EEC- 01</b>	15cm RP-SMA Right-Hand Thread Antenna Extension Cable for ESD110V2/210

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# OEM Bluetooth-Serial Module, Parani™ ESD200/210



## Features

- Output Interface UART, Compliant Bluetooth stack v1.2-improved AFH(Adaptive Frequency Hopping), Fast connection
- Transmit Power: Max. +4dBm
- Receiving Sensitivity: -80dBm(0.1%BER)
- Antenna gain - Chip: 0dBi, Stub: +2dBi, Dipole: +3dBi, Patch: +9dBi
- Compact size: 18 x 20 x 11.7(mm)
- Provides transparent RS232 serial cable replacement.
- Supports Bluetooth Serial Port Profile.
- Interoperability with PDA, laptops etc.
- Built-in chip antenna included
- Supports firmware upgrade via windows-based software (ParaniUpdater)
- Working distance(In an open field)
  - Parani-ESD200: Class 2, Nom. 30meters
  - Parani-ESD210: Class 2, Nom. 30meters, up to 300m using patch antenna
- Easy to use Windows configuration tool available.
- No external drivers required.

**Parani-ESD Series** is OEM Bluetooth-Serial Module type product line based on Bluetooth technology. Parani-ESD Series is designed for integration into user devices by on-board installation. They are connected to the device via built-in UART interface and communicate with other Bluetooth device.

Parani-ESD Series enables RS232-based serial devices to communicate wirelessly throughout the range of 30m~300m(Parani-ESD210-Class 2).

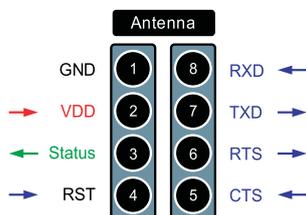
Parani-ESD200 has a built-in on-board antenna and Parani-ESD210 has an antenna connector for connecting external antenna. Users can extend Bluetooth communication range by connecting the external antenna to antenna connector.

Users may configure the Parani-ESD Series by using easy-to-use Windows-based utility software or by using standard AT command set.

Typical application areas of the Parani-ESD Series include:

- RS232 cable replacement
- Truck/Bus monitoring system
- Car Diagnostics
- Wireless POS system
- Wireless machine(healthcare/industrial) monitoring
- Wireless Factory monitoring
- PLC programming
- Wireless Printing
- Wireless logistics

## Pin Assignment Information



Pin no.	Pin name	Direction	Description	Signal Level
1	GND		Power Ground	Ground
2	VDD	Input	DC input (3.0 ~ 3.3V)	Power
3	Status	Output	Bluetooth Connect Detect (Active Low)	TTL
4	RST	Input	Reset (Active Low)	TTL
5	CTS	Input	UART Clear to Send	TTL
6	RTS	Output	UART Ready to Send	TTL
7	TXD	Output	UART data out	TTL
8	RXD	Input	UART data input	TTL

# OEM Bluetooth-Serial Module, Parani™ ESD200/210

## Specifications

### Serial Interface

- UART Interface, 2.54mm Header 1x4x2, 1200bps to 230 Kbps
- CTS/RTS flow control: Default

### Bluetooth Interface

- Bluetooth v1.2
- Class 2
- Level - Max. 4 dBm
- Protocols - RFCOMM, L2CAP, SDP
- Profiles - General Access Profile, Serial Port Profile
- Working distance
  - ESD200:  
Nominal 30 meters
  - ESD210:  
Default Antenna - Default Antenna 30 meters  
Default Antenna - Dipole Antenna 50 meters  
Dipole Antenna - Dipole Antenna 80 meters  
Patch Antenna - Dipole Antenna 150 meters  
Patch Antenna - Patch Antenna 300 meters

### Configuration

- ParaniWin, ParaniWi ard, Modem AT command set

### firmware pdate

- ParaniUpdater

### Power

- 3.3VDC
- Nominal current consumption: 40mA 3.3VDC approximately

### Environmental

- Operating temperature: -10°C to 55°C
- Storage temperature: -20°C to 70°C
- Humidity: 90% Non-condensing

### Physical properties

- 18 x 20 x 11.7(mm) / 0.7 x 0.78 x 0.47(in.)
- Weight: ESD200 - 4g / ESD210 - 14g

### MTB

- Parani-ESD200: 556.53 Years / Parani-ESD210: 562.74 Years

### Approvals

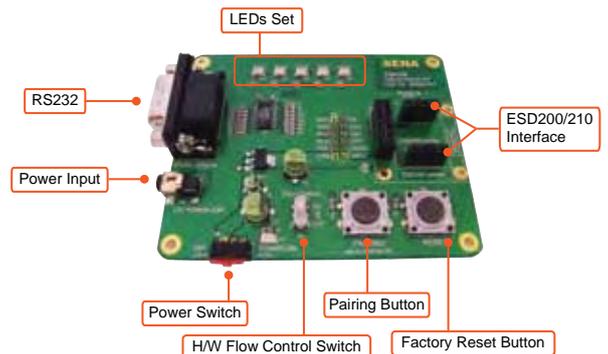
- FCC, CE

### Warranty

- 1-year limited warranty

## Parani-ESD Starter Kit

Parani-ESD Starter Kit includes the evaluation board with the sample circuitry for Parani-ESD200/210 interface, power, RS232 Interface, Reset, LEDs, Pairing, H/W flow control for user device development.



## Ordering Information

**ESD 00** Parani-ESD200 OEM Bluetooth-Serial Module-Class2 with Built-in chip antenna

**ESD 00-01 Includes:** Embedded On-board Antenna

**ESD 10** Parani-ESD210 OEM Bluetooth-Serial Module-Class2 with antenna extension option

**ESD 10-00 Includes:** Module only - antenna and cable NOT included

**ESD 10-01 Includes**

- SAT: Parani-SAT Stub Antenna-SMA Male-Left Handed
- EEC: Parani-EEC 15cm Antenna Extension Cable

### Optional Accessories

- DAT: Parani-DAT Dipole Antenna-SMA Male-Left Handed
- PAT: Parani-PAT Patch Antenna-SMA R/A Female-Right Handed
- SLR: SMA-Male left handed to right handed adapter
- RFC: Parani-RFC 1m Antenna Extension Cable for Patch antenna

**Parani-ESD 00S** Starter Kit for Parani-ESD200

**Parani-ESD 10S** Starter Kit for Parani-ESD210

### Includes

- Any one of the following modules: ESD200, ESD210
- Jig board
- DC Power Adapter
- Serial data cable
- CD-ROM

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# Bluetooth Access Point, Parani™ MSP1000



## Features

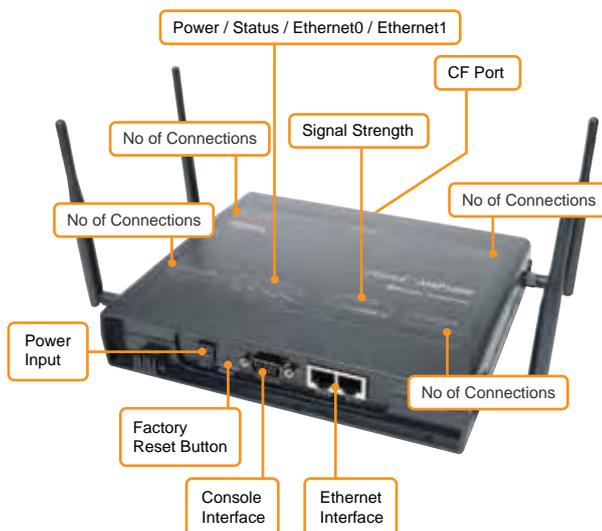
- Connects Bluetooth devices to 10/100 base-T Ethernet
- Supports Bluetooth 2.0+EDR, up to 3Mbps throughput
- 7/14/28 Bluetooth Connections support
- Supports Bluetooth profiles for Serial Port, LAN Access, PAN, File Transfer and Dial up Networking.
- Dual Ethernet support for fail-over operation
- Ideal wireless solution for the replacement of the wired multi-port serial card.
- Easy-to-use COM-Port redirector support, RFC 2217, Telnet COM Port Control Protocol
- Flexible TCP/UDP host mode support: Multiple host connection/data transfer
- Supports system logging & port logging
- Supports Python Script Engine for user customization
- Supports firmware upgrade via web, hyper terminal program or etc.

**The Parani- SP1000** is a Bluetooth Access Point to enable Bluetooth devices to be connected to 10/100Mbps Ethernet network. Parani-MSP1000 supports 7, 14, and 28 Bluetooth connections according to the model, and it supports up to 3Mbps throughput through Bluetooth 2.0+EDR specification. Parani-MSP1000 is a class 1 Bluetooth device that supports 150m using basic dipole antenna and up to 1 km using patch antenna. Parani-MSP1000 supports such profiles as Serial Port, LAN access, PAN and FTP for various applications. For ideal serial cable replacement applications, we provide free COM/TTY port redirector software for Windows/Linux. Parani-MSP1000 is based on embedded Linux system and it supports strong security mechanisms such as SSL, TLS, SSH and IP filtering functions. Users also can customize the features of the box easily by using Python script.

Typical application areas of the Parani-MSP1000 include:

- Truck/Bus monitoring system
- Car Diagnostics
- Wireless POS system
- Wireless Factory monitoring PLC programming
- Wireless machine(healthcare/industrial) monitoring
- Wireless Printing
- Wireless logistics

## Panel Layout



## Specifications

### **Ethernet Interface**

- Dual 10/100 Base-T Ethernet with RJ45 connector
- Supports Static IP and Dynamic IP address

### **Bluetooth Interface**

- Bluetooth v2.0 + EDR
- Class 1
- Profiles: Serial Port, LAN Access, PAN, Dial up Networking, File Transfer
- Data rate: up to 3Mbps
- Working distance

	Parani-SD100	Parani-ESD110
DAT-G01R Antenna	SAT-G01R Antenna	up to 150m
DAT-G01R Antenna	DAT-G01R Antenna	up to 200m
DAT-G01R Antenna	DAT5-G01R Antenna	up to 300m
DAT-G01R Antenna	PAT-G01R Antenna	up to 500m
DAT5-G01R Antenna	DAT5-G01R Antenna	up to 400m
DAT5-G01R Antenna	PAT-G01R Antenna	up to 600m
PAT-G01R Antenna	PAT-G01R Antenna	up to 1000m

**Max. Tx power:** +1 dBi(Using DAT-G01R Antenna)

**Receive Sensitivity:** -88dBm

### **Point to multi point connectivity**

- Up to 28 connections

### **etwork Protocols**

- IPv4, ICMP, ARP, TCP, HTTP, telnet, TFTP
- SSH, HTTPS, SSL/TLS, DNS
- SCP/SFTP/FTP, syslog, NTP
- SMTP, Dynamic DNS

**Security:** IP Filtering, SSH v2, SSL/TLS, HTTPS, SCP, SFTP

**C Port:** Flash memory

**Logging:** Syslog server, CF memory

**Real Time Clock:** Built-in support

### **Customi ation**

- Python Script engine, ELDK v4.0, 2MB internal user space

### **Management**

- Windows Utility
- Web, Telnet, Serial Console

### **irmware pgrade**

- Telnet/SSH, Web, Bootp, CF memory, modem, TFTP

### **Diagnostic LED**

- POWER, STATUS, Ethernet0, Ethernet1
- Signal Strength, No of Connections

### **Power**

- 5VDC
- Nominal Current Consumption: 1.2A 5VDC approximately

### **Environmental**

- Operating temperature: 0°C to 50°C
- Storage temperature: -30°C to 85°C
- Humidity: 90% Non-condensing

### **Physical properties**

- Dimension(L x W x H):  
203 x 10 x 44(mm)  
.99 x 6.69 x 1.73(in.)
- Weight:  
MSP1000A: 1414g  
MSP1000B: 1432g  
MSP1000C: 1468g

**MTB :** 30.52 years

**Certification:** FCC, CE, TELEC

**Warranty:** 3-year limited warranty

## Ordering Information

- SP1000A** Parani-MSP1000A Industrial Bluetooth Access Point with 7 connections support
- SP1000** Parani-MSP1000B Industrial Bluetooth Access Point with 14 connections support
- SP1000C** Parani-MSP1000C Industrial Bluetooth Access Point with 28 connections support

### **Includes**

- DC Power Adapter
- DAT-G01R: 3 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread
- Serial data cable
- Ethernet straight cable
- Wall mount bracket
- Quick Start Guide
- CD-ROM

### **Optional Accessories**

- DAT5-G01R: 5 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread
- PAT-G01R: 9dBi Patch Antenna with RP-SMA Plug Right hand Thread Default Cable. (SMA Jack Right hand Thread w/o Default Cable)
- SEC-G01R: 15cm Extension Cable(For SAT-G01R / DAT-G01R / DAT5-G01R)
- RFC-G01R: 1m Extension Cable(For PAT-G01R)

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# Bluetooth USB adapter, Parani™ UD100



**The Parani-UD100** is a class 1 type Bluetooth USB adapter that supports 300 meters of wireless transmission distance by default. The working distance can be further extended up to 1000 meters using optional replacement antenna. Thanks to its longer communication distance than other regular Bluetooth USB adapters, it is suitable for industrial or special applications. Parani-UD100 is compatible with other SENA Bluetooth devices perfectly.

## Features

- Bluetooth 2.0+EDR Class 1
- Working distance 300m, up to 1000m using optional antenna
- USB 2.0 interface
- Bluetooth driver CD (Toshiba driver)

## Specifications

### Standards

- Bluetooth 2.0+EDR Class 1
- USB 2.0

**Max Transfer Rate** : 3 Mbps (EDR)

**Frequency Range** : 2.402 ~ 2.480GHz

**Transmit Output Power** : +19dBm (+6dBm EDR) E.I.R.P

### Receive Sensitivity

- Basic 1Mbps : -88 dBm
- EDR 2Mbps : -8 dBm
- EDR 3Mbps : -82dBm

**Antenna Connector** : RP-SMA

### Antenna gain

- Default Stub Antenna : 1 dBi
- Optional Dipole Antennas : 3 dBi & 5 dBi
- Optional Patch Antenna : 9 dBi

### Working Distance In Open field

- Stub antenna Stub antenna: 300 m
- Dipole (3 dBi) Dipole (3 dBi) : 400 m
- Dipole (5 dBi) Dipole (5 dBi): 600 m
- Patch antenna Patch antenna: 1 km

\* Working distance can be extended in open field

**Bluetooth stack software** : Toshiba

**Bluetooth Profiles** : DUN, FAX, LAP, SPP, HID, HCRP, FTP, OPP, A2DP, AVRCP, GAVDP, HSP, HFP, PAN, BIP

### Computer OS Support

- Windows 2000/XP/Vista (32/64bit)
- Linux (3rd party driver required)
- MAC OS X (MAC OS X driver required)

**Size** : 2(L) x 22(W) x 10(H) mm

**Operating Temperature** : -20 ~ + 0°C

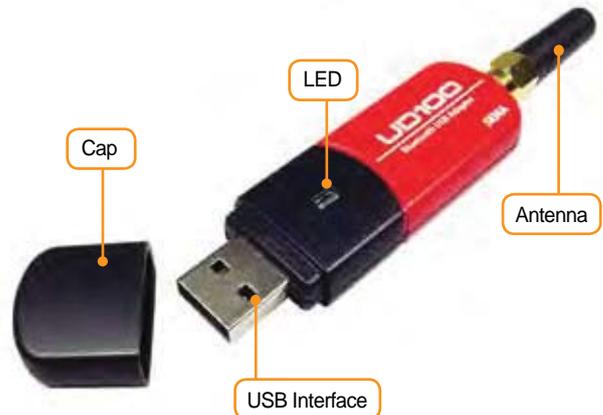
**Storage Temperature** : -40 ~ +85°C

**Humidity** : 90% Non-condensing

**Regulatory Approvals** : FCC, CE, TELEC, KCC, Bluetooth SIG

**Warranty** : 1 year limited warranty

## Exterior



## Ordering Information

### D100- 01 Includes

- Parani-UD100
- Stub antenna
- Quick Start Guide
- CD-ROM including Windows Bluetooth driver, User Guide and Data sheet

### Optional Accessories

- SAT-G01R : 1 dBi Stub Antenna - RP-SMA Plug Right-hand Thread
- DAT-G01R : 3 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread
- DAT5-G01R : 5 dBi Dipole Antenna - RP-SMA Plug Right-hand Thread
- PAT-G01R : 9dBi Patch Antenna with RP-SMA Plug Right hand Thread Default Cable.  
(SMA Jack Right hand Thread w/o Default Cable)
- SEC-G01R : 15cm Extension Cable  
( For SAT-G01R / DAT-G01R / DAT5-G01R )
- RFC-G01R : 1m Extension Cable ( For PAT-G01R )

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