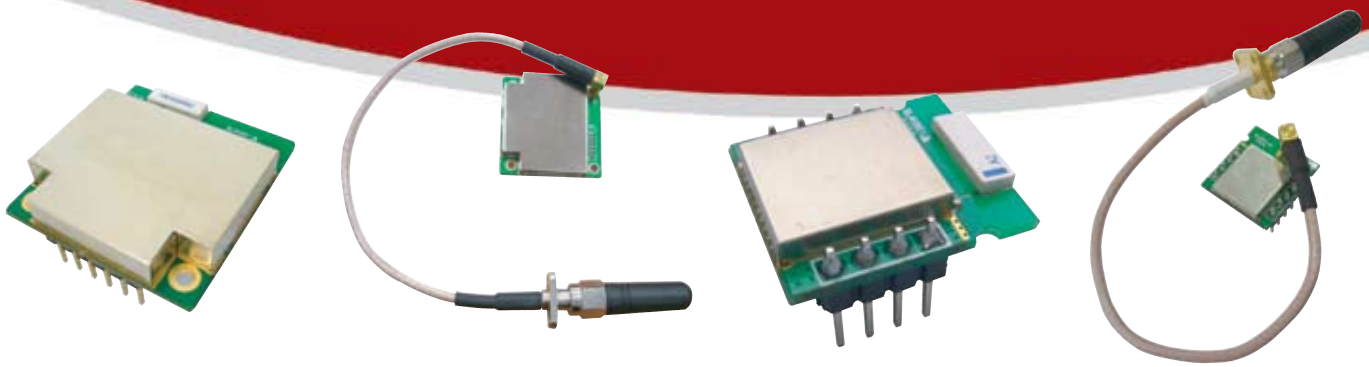
OEM Bluetooth-Serial Module,

# Parani-ESD100/110/200/210



## Features

- Output Interface UART, Compliant Bluetooth stack v1.2-improved AFH(Adaptive Frequency Hoping), Fast connection
- Transmit Power - ESD100/110 : Max. +18dBm
  ESD200/210 : Max. +4dBm
- Receiving Sensitivity - ESD100/110 : -88dBm(0.1%BER)
  ESD200/210 : -80dBm(0.1%BER)
- Antenna gain - Chip : 0dBi, Stub : +2dBi, Dipole : +3dBi, Patch : +9dBi
- Compact size - ESD100:27.5 x 30 x 14(mm)
  ESD110: 27.5 x 27.7 x 14(mm)
  ESD200/210:18 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-ESD100: Class 1, Nom. 100 meters
  Parani-ESD110: 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
- 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) or 100m ~ 1000m (Parani-ESD110-Class 1). Parani-ESD100/200 has a built-in on-board antenna and Parani-ESD110/210 has an antenna connector for connecting external antenna. Users can extend Bluetooth communication range by connecting the external antenna to antenna connector.

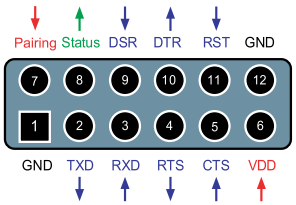
Users may configure the Parani-ESD Series by using easy-to-use Windows-based utility software or by using standard AT command set.

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

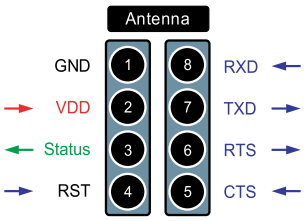
## Pin Assignment Information

### Parani-ESD100/110




| Pin no. | Pin name | Direction | Description | Signal Level |
|---|---|---|---|---|
| 1 | GND | | Power Ground | Ground |
| 2 | TXD | Output | UART data out | 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 | Status | 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 |

### Parani-ESD200/210




| 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-ESD100/110/200/210

## Specifications

### *Serial Interface:*

- Parani-ESD100/110:
  - UART Interface, 2.54mm Header 2x6, 1200 to 230 Kbps
  - CTS/RTS flow control: Default
  - DTR/DSR for loop-back & full transfer
- Parani-ESD200/210:
  - UART Interface, 2.54mm Header 1x4x2, 1200 to 230 Kbps
  - CTS/RTS flow control: Default

### *Bluetooth Interface:*

- Parani-ESD100/110 :
  - Bluetooth v1.2
  - Class 1
  - Level - 18 dBm
  - Protocols - RFCOMM, L2CAP, SDP
  - Profiles - General Access Profile, Serial Port Profile
  - Working distance

    ESD100 :
    Nominal 100 meters

    ESD110 :
    Default Antenna - Default Antenna 100 meters
    Default Antenna - Dipole Antenna 150 meters
    Dipole Antenna - Dipole Antenna 200 meters
    Patch Antenna - Dipole Antenna 400 meters
    Patch Antenna - Patch Antenna 1,000 meters
- Parani-ESD200/210 :
  - 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

### *Bluetooth Interface:*

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, ParaniWizard, Modem AT command set

### *Firmware Update:*

* ParaniUpdater

### *Power:*

* 3.3VDC
* Nominal current consumption
  - ESD100/110 : 70mA @ 3.3Vdc approximately
  - ESD200/210 : 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:*

| - Parani-ESD100 : | - Parani-ESD110 : | - Parani-ESD200/210 |
|---|---|---|
| 27.5 x 30 x 14(mm), | 27.5 x 27.7 x 14(mm), | 18 x 20 x 11.7(mm) |
| 1.08 x 1.18 x 0.55 (in.) | 1.08 x 1.09 x 0.55 (in.) | 0.7 x 0.78 x 0.47 (in.) |

- Weight: ESD100 - 7g / ESD110 - 17g / ESD200 - 4g / ESD210 - 14g

### *MTBF:*

- Parani-ESD100 : 136.73 Years / Parani-ESD110 : 137.1 Years
- Parani-ESD200 : 556.53 Years / Parani-ESD210 : 562.74 Years

### *Approvals:*

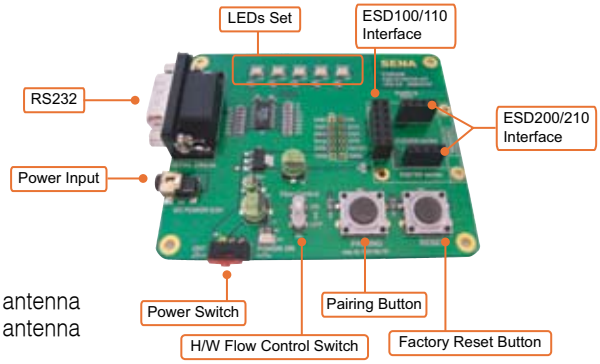
* FCC, CE, MIC

### *Warranty:*

* 1-year limited warranty

## Parani-ESD Starter Kit

Parani-ESD Starter Kit includes the evaluation board with the sample circuitry for Parani-ESD100/110/200/210 interface, power, RS232 Interface, Reset, LEDs, Pairing, H/W flow control for user device development.




## Ordering Information

**ESD100** Parani-ESD100 OEM Bluetooth-Serial Module-Class1 with Built-in chip antenna
**ESD200** Parani-ESD200 OEM Bluetooth-Serial Module-Class2 with Built-in chip antenna
**Single Pack and 50-Unit Bulk Pack**
**Includes :**
- Built-in chip antenna

**ESD110** Parani-ESD110 OEM Bluetooth-Serial Module-Class1 With antenna extension option
**ESD210** Parani-ESD210 OEM Bluetooth-Serial Module-Class2 With antenna extension option
**Single Pack and 50-Unit Bulk Pack**
**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 all antennas

**Parani-ESD100SK** Starter Kit for Parani-ESD100
**Parani-ESD110SK** Starter Kit for Parani-ESD110
**Parani-ESD200SK** Starter Kit for Parani-ESD200
**Parani-ESD210SK** Starter Kit for Parani-ESD210
**Includes :**
* *Any one of the following modules: ESD100, ESD110, ESD200, ESD210*
* *Jig board*
* *DC Power Adapter*
* *Serial data cable*
* *CD-ROM*


**U.S. / Canada / South America**
Tel : +1 (408) 573-7425 Fax: +1 (408) 907-3738

**EU / Africa**
Tel : +33 (0) 1 53 53 16 29 Fax: +33 (0) 1 70 24 70 90

**Asia / Pacific**
Tel : +82-2-571-8283 Fax: +82-2-573-7710

**Contact us via E-mail**
General Information : info@sena.com
Sales & Distribution : sales@sena.com
Technical Support : support@sena.com


SENA
www.sena.com

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