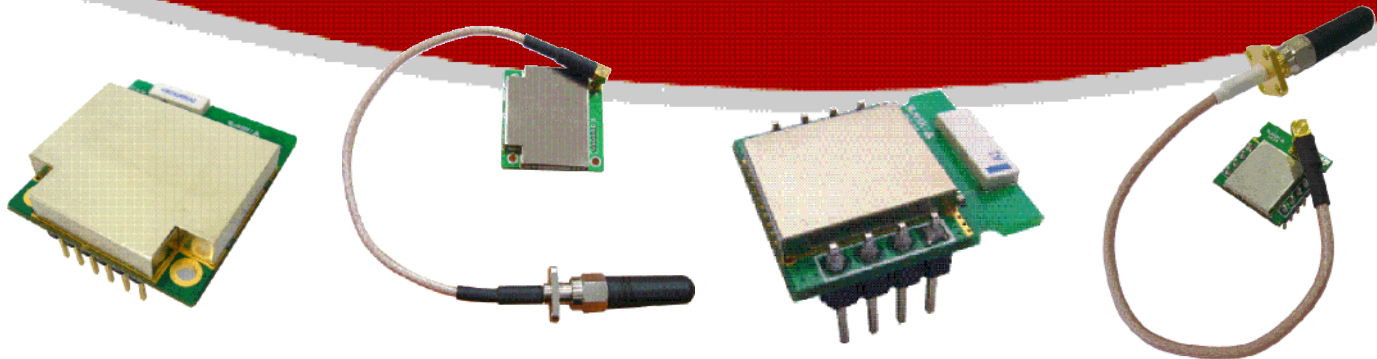


OEM Bluetooth-Serial Module, Parani-ESD100/110/200/210



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 : +4dBi, Patch : +8.5dBi
- 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 On-board 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.

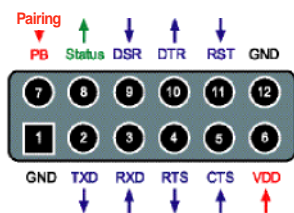
Users may configure the Parani-ESD Series by using easy-to-use Windows-based utility software or by using standard AT command set.

Typical application areas of the Parani-ESD Series include:

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

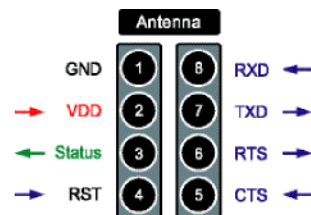
Pin Assignment Information

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

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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 I
 - 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

Bluetooth Interface:

- 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, ParaniWizard, Modem AT command set

Firmware Update:

- * ParaniUpdater

Power:

- * 3.3V DC, ESD100/110 : minimum 300mA, ESD200/210 : minimum 150mA
- * Nominal power consumption
 - ESD100 : 43mA@9600bps, 61mA@115Kbps
 - ESD110 : 44mA@9600bps, 57mA@115Kbps
 - ESD200 : 33mA@9600bps, 40mA@115Kbps
 - ESD210 : 31mA@9600bps, 39mA@115Kbps

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.) |

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 :

- Embedded On-board 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

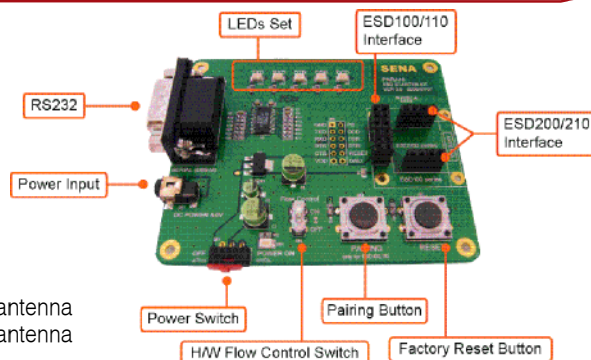
- * Jig board

- * DC Power Adapter

- * Serial data cable

- * CD-ROM

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



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