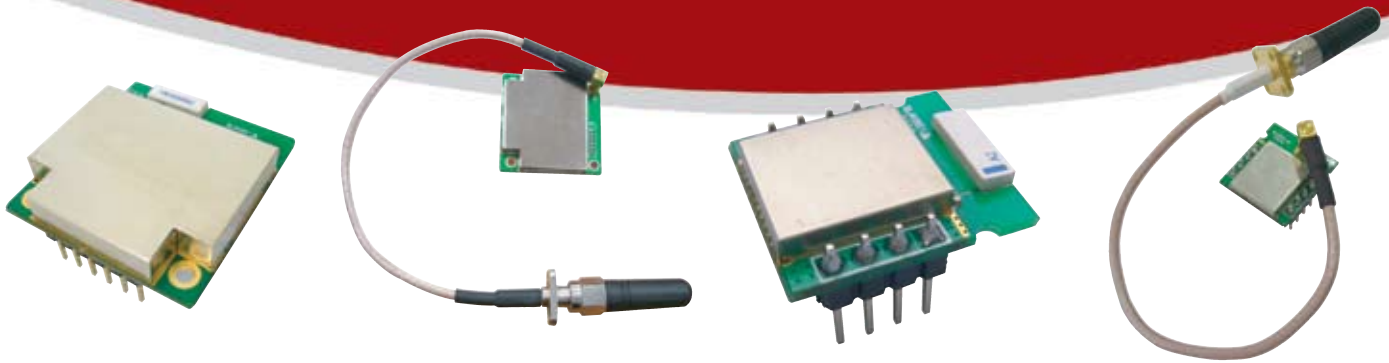


OEM Bluetooth-Serial Module, Parani™ ESD100/110/200/210

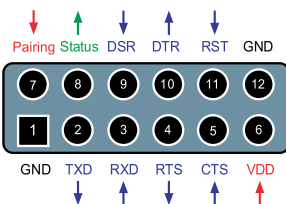


Features

- Output Interface UART, Compliant Bluetooth stack v1.2-improved AFH(Adaptive Frequency Hopping), 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.

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-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.

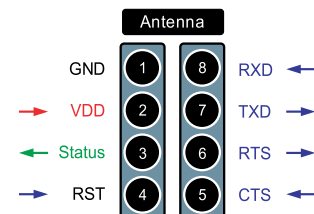
Parani-ESD Series enables RS232-based serial devices to communicate wirelessly throughout the range of 30m~300m(Parani-ESD210-Class 2) or 100m~1000m(Parani-ESD110-Class 1). Parani-ESD100/200 has a built-in on-board antenna and Parani-ESD110/210 has an antenna connector for connecting external antenna. 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

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

Specifications

Serial Interface

- Parani-ESD100/110
 - UART Interface, 2.54mm Header 2x6, 1200bps to 230 Kbps
 - CTS/RTS flow control : Default
 - DTR/DSR for loop-back & full transfer
- Parani-ESD200/210
 - UART Interface, 2.54mm Header 1x4x2, 1200bps 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 : 27.5 x 30 x 14(mm), 1.08 x 1.18 x 0.55(in.)
- Parani-ESD110 : 27.5 x 27.7 x 14(mm), 1.08 x 1.09 x 0.55(in.)
- Parani-ESD200/210 : 18 x 20 x 11.7(mm), 0.7 x 0.78 x 0.47(in.)
- Weight : ESD100 - 7g / ESD110 - 17g / ESD200 - 4g / ESD210 - 14g

MTBF

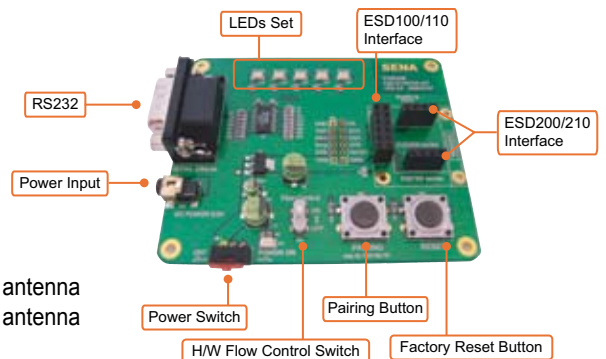
- Parani-ESD100 : 136.73 Years / Parani-ESD110 : 137.1 Years
- Parani-ESD200 : 556.53 Years / Parani-ESD210 : 562.74 Years

Approvals: FCC, CE

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

ESD100-01, ESD200-01

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

ESD110-00, ESD110-01, ESD210-00, ESD210-01

ESD110-00 and ESD210-00 : Module only - antenna and cable NOT included

ESD110-01 and ESD210-01 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-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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