HCS-100

HandyCore-Serial

Wireless Solutions in your Hand

User's Manual

Version 2.0

HandyWave

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1. Introduction

Thank you for purchasing a HandyCore-Serial. The HandyCore-Serial can be used as a component in many types of systems allowing them to communicate wirelessly with other Bluetooth products such as PC-cards, laptops, handheld computers, mobile phones and other HandyPort-Serial. The HandyCore-Serial is a suitable component in new products as well as in existing products.

1.1. Key Features

- Bluetooth Serial Port Profile and Generic Access Profile
- No need of external Bluetooth host stack
- No need additional software on external host
- No Software installation is needed
- 100m service coverage (Line of Sight)
- Up to 115.2kbps throughput
- Configurable for use of different speeds and RS232 signals

1.2. Package

- HCS-100 2EA
- A soft copy of this manual[1]

[1] This manual is required the software version 2.0 or above. If you have any questions, please contact us.

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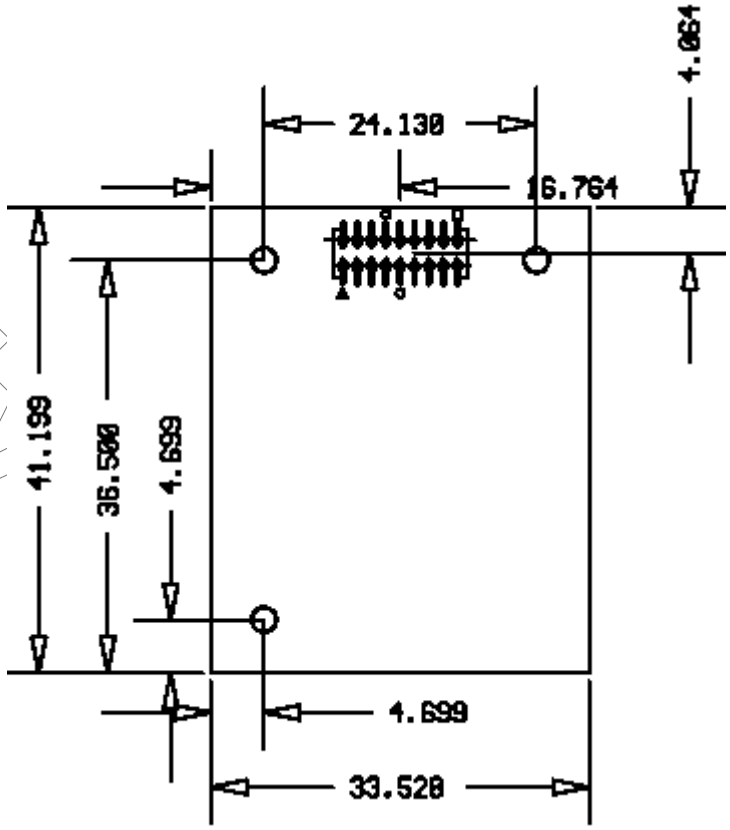
2. Specifications

2.1. General

Baud Rate	Max. 115.2kbps Support: 1.2/2.4/4.8/9.6/19.2/38.4/57.6/115.2kbps
Coverage	100 M (LOS)
Communication	Point-to-Point
RS-232 Signal	TxD, RxD, RTS, CTS, DTR, DSR, GND
Control Signal	Reset, Link Status
RS-232 Interface	CLP-109-02-G-D-BE from SAMTEC[1]
Standard	Bluetooth Specification Version 1.1
Frequency	2.400 ~ 2.4835GHz (USA, Europe)
Hopping	1,600/Sec, 1MHz Channel Space
Modulation	GFSK, 1Mbps, 0.5BT Gaussian
Tx Power	Class 1 (Typical: 15dBm, Max: 20dBm)
Rx Signal Range	-84 ~ -20dBm
Size	33.528mm (W) x 41.199mm (D)
Antenna	
Type	Internal Chip Antenna
Gain	Max. 1.5 dBi
Environment	
Supply Voltage	+3.3 ~ 12VDC
Current Consume	Max. 100mA
Operating Temperature	-20 ~ 75 °C
Storage Temperature	-40 ~ 85 °C

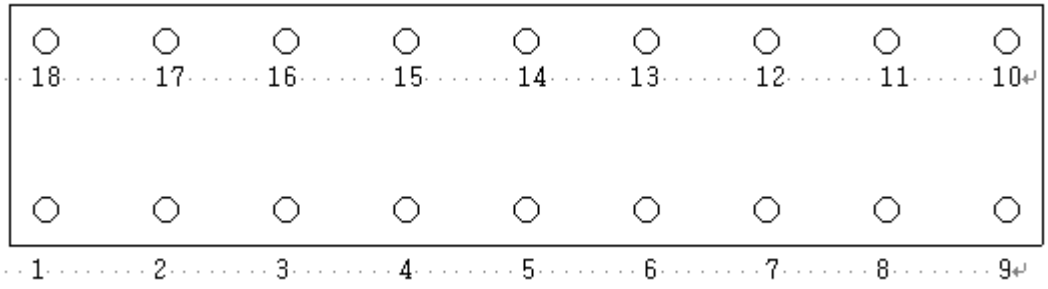
[1] Other side: FTS-109-02-F-DV (from SAMTEC) or an equivalent connector

2.2. Physical Dimension



Unit: mm

Connector Top View



2.3. Pin Description

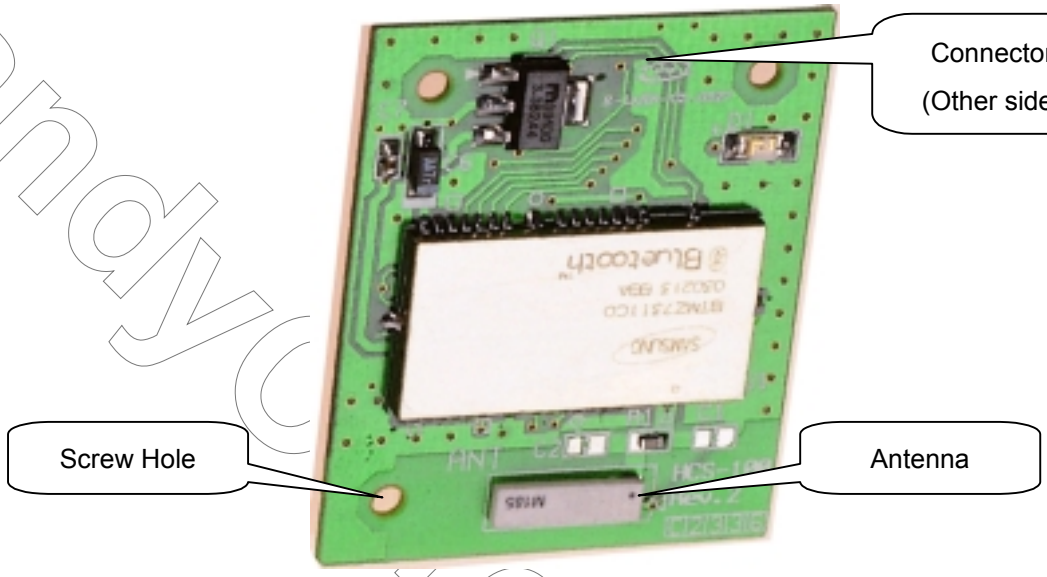
PIN No	Name	Direction	Description
1,18	Vcc	Input	Power Supply
2	SPI_MOSI	Input	SPI Data Input
3	SPI_CSB	Input	SPI Select
4	RXD	Input	+3.3V TTL level, RS-232 Received Signal
5	TXD	Output	+3.3V TTL level, RS-232 Transmitted Signal
6	/RTS	Output	+3.3V TTL level, RS-232 Ready To Send Signal
7	/CTS	Input	+3.3V TTL level, RS-232 Clear To Send Signal
8	SPI_CLK	Input	SPI Clock
9	SPI_MISO	Output	SPI Data Output
10,11	GND		Signal Ground
12	Link_status	Output	Status of Bluetooth Link Link On: High, Link Off: Low
13	RESET	Input	+3.3V TTL level, Active high
14	N/A		
15	N/A		
16	DTR	Input	Data Terminal Ready
17	DSR	Output	Data Set Ready

2.4. Power Status

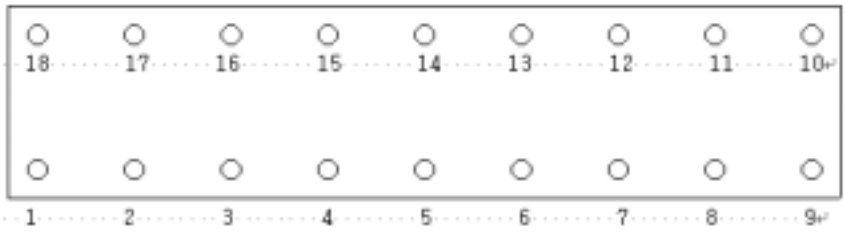
When HCS-100 is powered on, it is turned on.

3. Hardware Installation

3.1. Hardware & Connector



Connector Top View



3.2. Power Supply

Supply 3.3 ~ 12Vdc to either pin number 1 or 18.

3.3. Install Procedure

Step 1: Mount a HCS-100 on your target board.

Step 2: Power on your target board.

4. Usage

When we ship out HCS-100, we configure the HCS-100 according to your requirements. After that you can change configuration of the HCS-100, either by a target CPU or using a hyper terminal[1].

4.1. Default Settings

To change configuration of HCS-100, you have to know COM port settings. The following are an example of default settings.

- Baud rate: 9600 bps
- Data Bit: 8 bit
- Parity Bit: No parity
- Stop Bit: 1 stop bit
- Flow control: Hardware or None[2]

[1] This manual is required the software version 2.0 or above.
[2] Manufacturer will set flow control according to your requirements. After that, you cannot change it. Therefore, you have to let us know whether you will use flow control or not when you place an order.

4.2. Command Set

Item	Syntax	Description	Remarks
1. Connecting address	AT+ZAAddr<CR>	Set a remote device address for a wireless connection.	A local and remote BD_ADDR always need to be difference.
2. Baud rate	AT+ZBBR<CR>	Change the baud rate[1]	Baud Rate - 0: 1200, 1: 2400, 2: 4800, 3: 9600, 4: 19200, 5: 38400, 6: 57600, 7: 115200
3. COM port	AT+ZCCOMPort<CR>	Change a request serial port. COMPort: '1' ~ '7'	Only valid in connection mode 2.
4. PIN code	AT+ZEPIN<CR>	Authentication Off: Type <Enter> Authentication On: Type up to 11 characters	Paired adapters should have a same PIN code.
5. Search timer	AT+ZGTO<CR>	Set a search timeout. TO (timeout): ASCII '0' ~ "999"	Connection mode 3 only. Default: 10 sec.
6. Max number of search	AT+ZHNO<CR>	Set the max number of search. NO: ASCII '0' ~ "999"	Connection mode 3 only. Default: 10
7. Search device	AT+ZITO,NO[L]<CR>	Execute searching devices. TO: ASCII '0' ~ "999" NO: ASCII '0' ~ "999" L (option): Display a long form.	Connection mode 3 only. ',': ASCII 0x2C
8. Discovery mode	AT+ZJE/D<CR>	Set the discovery mode. 'E': Enable 'D': Disable	Connection mode 1 only. Default: Enable
9. Low Power Mode	AT+ZKE/D<CR>	Set the low power mode. 'E': Enable 'D': Disable	Default: Disable
10. Connection mode	AT+ZMMode<CR>	Set a connection mode. Mode: '0' – '3' Mode 0 & 2: Required a remote address. Mode 2: Required a serial port.	0: 1:1 Mode 1: WAIT Mode 2: REGISTER and CONNECT Mode 3: WAIT Command Mode

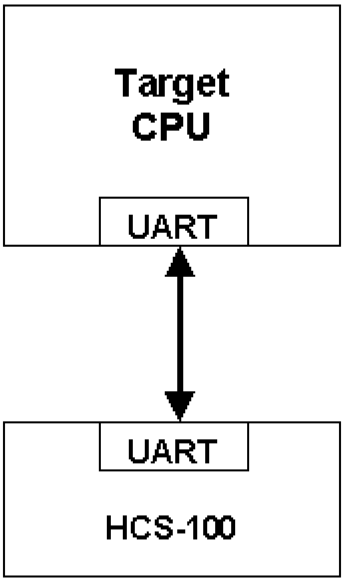
[1] If you change the baud rate, you have to remember it.

11. Friendly name	AT+ZNName<CR>	Set a friendly name up to 11 characters.	
12. Parity Bit	AT+ZPPA<CR[1]>	Set the parity bit[2].	0: None, 1: Odd 2: Even
13. Connection Timeout	AT+ZQTO<CR>	Set the connection timeout. TO: ASCII '0' ~ "999"	Connection mode 3 only. Default: 10 sec.
14. Stop Bit	AT+ZSST<CR>	Set the stop bit[3].	0: 1 Stop, 1: 2 Stop
15. Connect	AT+ZTAddr[,TO][4]<CR>	Try to make a connection. Addr: a remote address TO (option): ASCII '0' ~ "999"	Connection mode 3 only. ',': ASCII 0x2C Default Timeout: 10 sec.
16. Cancel	AT+ZU	Cancel a command.	Connection mode 3 only.
17. View	AT+ZV	Display configuration information	You can find out a software version.
18. CoD	AT+ZWCoD<CR>	Set the class of device. CoD: 6-Hex in ASCII	Default: "001F00"
19. Exit	AT+ZX	Apply changes[5].	Rebooting
20. Status	AT+ZZ	Display the status of state machine.	'S': Idle / 'P': Pairing / 'C': Connecting / 'A': RF on / 'I': Inquiring
21. Usage	AT+Z?[C]<CR>	Display the command list or usage. C: Command	AT+Z?<CR>: Command list AT+Z?A<CR>: Usage of 'A'

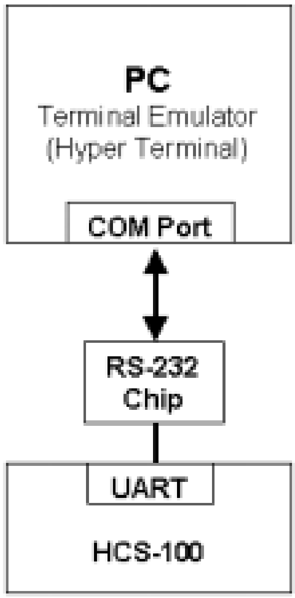
[1] <CR>: Carriage Return (0x0D)
[2] If you change the parity bit, you have to remember it.
[3] If you change the stop bit, you have to remember it.
[4] []: An optional parameter.
[5] To apply changes, HCS-100 has to restart.

4.3. Connection Diagram for Changing Configuration

A connection diagram for changing configuration of HCS-100 is as follows:



A) Sending commands by Target CPU



B) Sending commands by User