

Bluetooth™ Serial Port Dongle GWT-SPP1

Users' Guide

The easy way to add Bluetooth functionality to your equipment with a serial port.



DISCLAIMER:

This manual is published by GigaWaveTech Pte Ltd, without any warranty. Improvements and changes to this manual necessitated by typographical errors, inaccuracies of current information or improvements to equipment may be made by GigaWaveTech Pte Ltd at any time and without notice. Such changes will however be incorporated into new editions of this manual. Hardware, software and firmware mentioned in this document are subject to continuous development and improvement. Consequently, there may be discrepancies between the information in this document and the performance and design of the product.

Table of Contents

Introduction	4
Accessories	4
Parts of the GWT-SPP1	4
Installation Procedure	5
Connecting to a Host PC	5
Connecting to Power Source	5
Transferring Data from Other Bluetooth Devices to Host PC	6
Using the Light Emitting Diodes (LEDs)	7
Using the Pairing Switch	7
Troubleshooting	8
Specifications	9
Useage & Safety Considerations	11
Appendix A: Limited Product Warranty	13
Copyright Notice	15
Regulatory Compliance Notice	16
Life Support Policy	17

INTRODUCTION

Congratulations on the purchase of your GigaWaveTech Bluetooth Serial Port Dongle GWT-SPP1. The GWT-SPP1 is a plug and play adapter that allows you to easily add Bluetooth wireless connectivity to the serial port of your equipment. In itself, the GWT-SPP1 does not require installation of software or drivers on the host machine. The dongle does not initiate communications, but simply acts as a substitute for a wired serial connection.

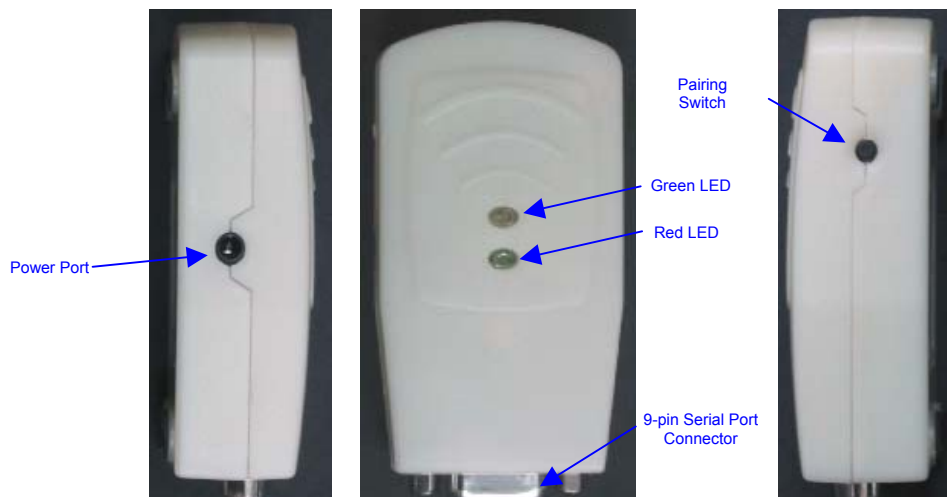
The adapter employs Bluetooth technology compliant to the BT 1.1 specifications and consists of a transceiver operating in the 2.4 GHz range. The operating range of the GWT-SPP1 has been tested to reach up to 50m in line-of-sight communication and up to 10m in typical indoor environment. It provides link control functionality and supports operation within a Bluetooth net in the slave mode. In the current release, it supports fixed interface baud rate of 115.2kbps using 8-bit data with 1 start, 1 stop-bit and no parity.

This **Users' Guide** shows you how to quickly install the dongle for communication with other Bluetooth devices support serial port profile.

ACCESSORIES

Each GWT-SPP1 requires a 4.5V dc AC-DC adaptor as power source. In addition, a 9-pin straight cable with a male connector at one end and a female connector at the other end is supplied. This cable may be used when there is not enough space to directly connect the GWT-SPP1 dongle to the serial port connector of a host PC or when poor wireless reception is encountered and locating the dongle away from the PC is desirable.

PARTS OF THE GWT-SPP1



INSTALLATION PROCEDURE

Connecting to a Host PC

To use the dongle to provide serial communication between other Bluetooth device and a host PC:

1. The dongle serial port connector can be connected directly to the serial port of a host PC. However, in situation where connection is difficult or better wireless reception is desired by keeping the dongle away from the host PC, the serial cable can be used.
2. Connect the male end of a serial cable to the dongle serial port.
3. Connect the other end of the serial cable to the host PC.

(Note: The dongle requires a dedicated serial port on the host PC. It cannot share a port with an internal modem or other device)

4. Power up the dongle following the procedure outlined in *Connecting to Power Source*.
5. The Host PC is ready to receive data from other Bluetooth devices through the serial port with the serial port settings matching that of the GWT-SPP1. The GWT-SPP1 has an interface configuration of baud rate 115.2kbps, using 8-bit data with 1 start and 1 stop bit.

Connecting to Power Source

The AC-DC adaptor provides power to the GWT-SPP1 dongle. Use only a GWT-approved power adaptor with output rated 4.5V DC and minimum current of 0.2 Ampere.



To connect the power source to the dongle:

1. Connect the DC out put of the AC-DC adaptor to the power port of the dongle located at the side of it.
2. Connect the other end of the AC-DC adaptor to a wall outlet.
3. Switch on the wall outlet and checks that the green LED is lighted (see *Using the LEDs* for more information).

TRANSFERRING DATA FROM OTHER BLUETOOTH DEVICES TO HOST PC

The GWT-SPP1 dongle is shipped with a set of pre-configured parameters. The pre-configured parameters are:

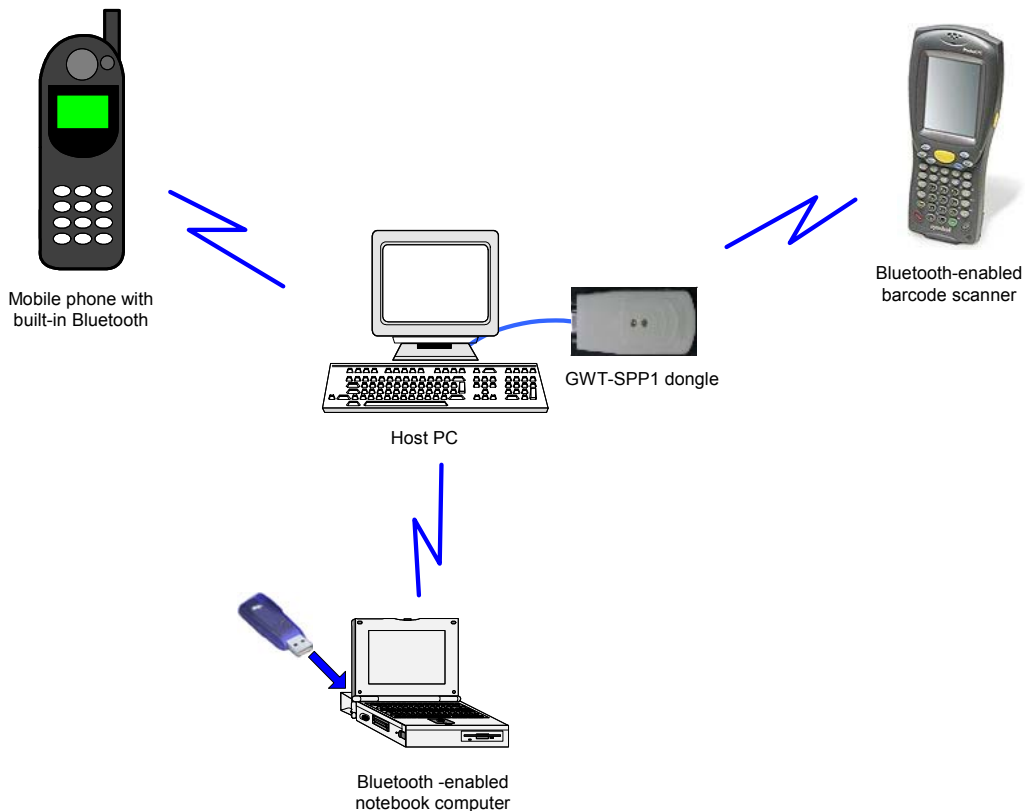
- **Device Name**

The default name is “**GWT SPP Dongle**”. This name will be presented to other devices, which are trying to connect to it.

- **RS-232 Interface Configuration**

The fixed baud rate is 115.2kbps, using 8-bit data with 1 start and 1 stop bit. The host PC must same matching serial port settings.

The GWT-SPP1 attached to the host PC can be used with other Bluetooth devices supporting Bluetooth serial port profile (SPP) to transfer data between the two machines. Some possible configurations are illustrated as shown below.



The other Bluetooth devices can be a Bluetooth dongle supporting dev A role of the Bluetooth serial port profile or any Bluetooth-certified RS-232, USB, or PCMCIA products or mobile phone with built-in Bluetooth features.

NOTE: The following description is a typical usage scenario from the other Bluetooth device. Refer to the manual that came with the other Bluetooth device for instructions on its installation and operation.

Once the other device is installed, let it discover the GWT-SPP1 dongle.

NOTE: *If there is more than one GWT-SPP1 dongle in the vicinity for it to discover, you may want to note the Bluetooth device address of your dongle the product label.*

Select the GWT-SPP1 dongle from the list of discovered devices by its name “*GWT SPP Dongle*” (and when necessary checks the Bluetooth device address) and double-click it to initiate the process of connecting to the dongle. The dongle provides the service “*SPP Slave*”.

Double-click on the “*SPP Slave*” service icon and the local device will connect to the GWT-SPP1 and set up the serial port service. At this instance, the green LED of the GWT-SPP1 will become fast flashing.

At the other Bluetooth device, make a note of the COM port number assigned to this serial port service selected.

Data transfer can now begin between the other Bluetooth device using the virtual COM port (at any baud setting up to 115.2kbps) and the PC hosting the GWT-SPP1 dongle.

USING THE LIGHT EMITTING DIODES (LEDS)

There are two LEDs on the GWT-SPP1. The status indications provided by these LEDs are as follow:

Colour	Indication	Status
Red	Flash	No RS232 signal detected at the connector. Check for proper connection.
Green	Fast flash	Dongle has on-going Bluetooth connection (busy).
	Slow flash	Dongle is operational and in Discoverable and Connectable mode

USING THE PAIRING SWITCH

The Pairing Switch is located at the side of the GWT-SPP1. This switch is catered for future firmware release that supports secured mode operation. For this current release, the Pairing Switch functionality is not implemented.

TROUBLESHOOTING

Symptom	Possible Cause	Action
LED does not light up	Dongle is not receiving power	Make sure the AC-DC adaptor output is securely connected to the dongle and the wall outlet is switch ON
	Dongle internal error	Unplug and re-insert the AC-DC adaptor
Green LED does not flash	Dongle internal error	Unplug and re-insert the AC-DC adaptor
Red LED flashing	Poor connection to the host serial port	Make sure the connection to the host serial port is secured and if necessary use the serial cable
During data communications, no data was transmitted or transmitted data was incomplete or corrupted	Incorrect serial port settings	Make sure the serial port settings are 115.2kbps using 8-bit data with 1 start and 1 stop bit.
	Poor wireless reception	The operating range may be exceeded or noisy environment limits the range. Try to communicate at a closer distance.
	Communication software is not installed or configured properly	Refer to the appropriate software manual.
Other device unable to establish Bluetooth connection to dongle	Poor wireless reception	The operating range may be exceeded or noisy environment limits the range. Try to communicate at a closer distance.
	Inoperability problem with the other device	Refer to the software manual of the other device for supported profiles
	Dongle is busy	Re-establish connection after the green LED fast flashing is over indicating that an on-going connection has been released by other Bluetooth device.

SPECIFICATIONS

Bluetooth:

- Bluetooth Protocol - Bluetooth 2.45 GHz ISM band frequency hopping
- Bluetooth Antenna – Integrated
- Bluetooth Radio range - Up to 30 ft (10 m)
- Bluetooth Connection - Point-to-point
- Bluetooth Security – Supports security mode 1 (no encryption)

RF/Radio:

- RF Output Power – 2.5mW (max)
- Receiver Sensitivity - -82dBm at 0.1% BER (typical)
- Modulation and Transmission Rate - Frequency Hopping, Spread Spectrum (FHSS), Gaussian Frequency Shift, Keying (GFSK), 1 Mbps

Electrical:

- Power Supply: AC-DC adaptor 4.5V
- Active: 120 mA (maximum)
- LED state:
 - Operational: **Green**- Slow flash
 - Bluetooth connection/data transmission: **Green**- Blinking
 - Error: **Red**- Fast flash

Interface compatibility:

- RS232 Serial Port Interface: DB-9 connector
- Interface Baud: 115.2kbps, 8-bit data with 1 start and 1 stop bit

Hardware compatibility:

- Equipment with RS-232 Serial Port

Mechanical:

- Size: 82mmx41mmx 26mm
- Weight: 50g

Environmental:

- Operating Temperature: 0°C to +35°C
- Storage Temperature: 20°C to +70°C
- Humidity: 5-95% non-condensing

Certification & regulatory compliance:

- Bluetooth: Bluetooth v1.1
- USA: FCC part 15
- Europe: ETS 300 328, ETS 300 826, EN 60950

Hardware warranty:

- One (1) year
- For warranty information, you can contact us at:
 - Email: info@gigawavetech.com
 - WWW: <http://www.gigawavetech.com>
 - Telephone: +65 6377 4801
 - Fax: +65 6375 0966

USEAGE & SAFETY CONSIDERATIONS

Please read this section before using your dongle!

Care for your serial port dongle

- Keep product within operating and storage temperature ranges
- Keep product away from liquids, moisture or extremes in humidity.
- Keep product away from lit candles, cigarettes, open flames and volatile solvents.
- This card contains an antenna. Do not place a metallic shield over it, as this will reduce the radio's transmission efficiency.
- There are no user-serviceable parts within the product. Do not attempt to disassemble the product.
- Use of this card is subject to national and local regulations. Please check for any exceptions, due to national requirements or limitations, with respect to Bluetooth equipment, before using this product.
- Modifications without the written permission of GigaWaveTech (Pte) Ltd may void your authority to operate this card.
- Use with the supplied AC-DC adapter only. Use of unauthorized DC adapter may damage your dongle and void the warranty.

Use in a car

- Always give full attention to driving and pull off the road and park before using any equipment, if driving conditions require.
- This card emits Radio Frequency energy, which may affect operation of some car electronic systems. Check with your vehicle's manufacturer's representative to be sure that the systems are compatible with Bluetooth equipment.

Use in aircraft

- Turn off all your Bluetooth equipment before boarding any aircraft. For this dongle, ensure that the LEDs are off.
- To prevent interference with the aircraft communications and navigation systems, do not operate your Bluetooth equipment while you are onboard the aircraft, even when the aircraft is on the ground and stationary.
- If in doubt, please seek permission from the crew.

Other electronic equipment

- Most modern electronic equipment is shielded from RF energy, however, certain electronic equipment may not be, therefore do not use your Bluetooth equipment near medical equipment without requesting prior permission

Use in areas where transmitting devices are prohibited e.g. blasting areas or potentially explosive atmospheres

- Certain places may restrict the use of transmitting devices, for safety purposes. Please observe such restrictions by turning off your Bluetooth equipment. For this dongle, ensure that the LEDs are off.

Radio Frequency (RF) exposure

- Your Bluetooth dongle is a radio transmitter and receiver. When in use, it communicates with a Bluetooth-equipped device by transmitting and receiving radio

frequency electromagnetic fields (microwaves) in the frequency range of 2.4 to 2.5 GHz. The output power is low at 0.0025 watt maximum.

- Your Bluetooth device is designed to operate in compliance with the RF exposure guidelines and limits set by national authorities and international health agencies when used with a properly certified Bluetooth device.

APPENDIX A: LIMITED PRODUCT WARRANTY

GigaWaveTech (Pte) Ltd ("GigaWaveTech") warrants this product to be free from defects in material and workmanship at the time of original purchase by a consumer, under normal use and service, for a subsequent period of one (1) year.

Incompatibility is not a defect covered under GigaWaveTech's warranty.

If during the warranty period, the product fails to operate under normal use and service, due to improper materials and workmanship, GigaWaveTech (including their subsidiaries, authorised distributors, or Service Partners) will at their option, either repair or replace the product in accordance with the following terms and conditions.

Conditions:

1. The warranty applies only to the original retail purchaser, and is not transferable.
2. The warranty is valid only if the original receipt issued to the original retail purchaser by the dealer, specifying the date of purchase and the serial number, is presented with the product to be repaired. GigaWaveTech reserves the right to refuse warranty service if this information has been removed or changed after the original purchase of the product from the dealer.
3. The product may be returned directly to GigaWaveTech, GigaWaveTech's dealers, or to GigaWaveTech's authorised Service Centre. If you ship the product, you must use the original container or a container with equivalent protection, and pay for shipping and insurance (if desired) back to GigaWaveTech. GigaWaveTech will pay shipping charges back to any location in Asia-Pacific.
4. If GigaWaveTech repairs/replaces the product, the repair/replaced product shall be warranted for the remaining time of the original warranty period, or ninety (90) days from the date of the repair/replacement, whichever is longer. Repair/replacement may involve the use of functionally equivalent reconditioned parts/units. Replaced faulty parts or components will become the property of GigaWaveTech.
5. This warranty does not cover any failure of the product due to normal wear and tear, or due to misuse, including but not limited to use in other than the normal and customary manner, in accordance with GigaWaveTech's instruction for use and maintenance of the product. Nor does this warranty cover any failure of the product due to accident, modification or adjustment, acts of God, improper ventilation or damages resulting from liquid or exposure to environmental conditions outside the specifications.
6. This warranty does not cover product failures due to improper repair installations, modifications or service performed by a non-GigaWaveTech Service Partner, or opening of the product by non-GigaWaveTech certified persons.
7. Tampering with any of the seals, or attempting to open/disassemble the product will void the warranty.
8. THERE ARE NO EXPRESS WARRANTIES, WHETHER WRITTEN OR ORAL, OTHER THAN THIS PRINTED LIMITED WARRANTY. ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE

LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. IN NO EVENT SHALL GIGAWAVETECH BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS OR COMMERCIAL LOSS, DAMAGE TO PROPERTY, OR DAMAGES FOR PERSONAL INJURY, TO THE FULLEST EXTENT THOSE DAMAGES CAN BE DISCLAIMED BY LAW.

9. Some countries/states do not allow the exclusion or limitation of incidental and consequential damage, or limitation of the duration of implied warranties, so the preceding limitations or exclusions may not apply to you.
10. The warranty provided does not affect the consumer's statutory rights under national legislation in force, nor does it affect the consumer's rights against the dealer arising from their sales/purchase contract.
11. This product may contain fully tested, recycled parts, warranted as if new.

COPYRIGHT NOTICE

Copyright © 2001, 2002, 2003 GigaWaveTech (Pte) Ltd. All rights reserved.

GigaWaveTech, GWT, and the GigaWaveTech logo are trademarks of GigaWaveTech (Pte) Ltd. Bluetooth and the Bluetooth logos are trademarks owned by the Bluetooth SIG, Inc., USA, and licensed to GigaWaveTech (Pte) Ltd. All other brand and product names are trademarks of their respective holders.

No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose without the express written permission of GigaWaveTech (Pte) Ltd.

Accompanying software and/or drivers may be copied only for backup purposes. All other forms of reproduction and/or transmittal in any form or by any means, electronic or mechanical, for any other purpose, is expressly prohibited without the express written permission of GigaWaveTech (Pte) Ltd.

REGULATORY COMPLIANCE NOTICE

The GWT Bluetooth Serial Port Dongle is designed to be compliant with the rules and regulations in locations where they are sold, and will be labeled as required. The card is type approved, which means that users are not required to obtain license or authorization before use.

Radio Frequency Interference Requirements

This device complies with Part 15 of the FCC rules. Operation is subject to the following requirements: (1) This device may not cause harmful interference, and (2) this device may accept any interference received, including interference that may cause undesired operation.

This equipment is also compliant to ETS 300 328, ETS 300 826. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. This device and its antenna must not be co-located nor operated with any other antenna or transmitter.

To comply with FCC RF exposure compliance requirements, the following antenna installation and device operating configurations must be satisfied: (1) Users are not permitted to make changes or modify the system in any way, and (2) connecting external antennae to the card is prohibited. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user may try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna of the radio or television
- Increase distance separating the equipment and the receiver
- Connect the equipment to an outlet on a different branch circuit than that of the receiver
- Consult the dealer or an experience radio/TV technician for help

The user may find the following booklet helpful: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402.

Caution : Changes or modifications to this Bluetooth device not expressly approved by the manufacturer could void the user's authority to operate the equipment.

LIFE SUPPORT POLICY

GIGAWAVETECH'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE MANAGEMENT OF GIGAWAVETECH PTE LTD

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.