

HPS-110
HandyPort-Serial
Data Sheet

2007. 01. 16
SYD-2005-1E
Version 1.0
Production Information



Copyright

Status Information

The status of this data sheet is Production Information.

HandyWave products data sheets progress according to the following format:

Advance Information

Information for designers concerning HandyWave product in development. All values specified are the target values of the design. Minimum and maximum values specified are only given as guidance to the final specification limits and must not be considered as the final values.

All detailed specifications including pin-outs and electrical specifications may be changed by HandyWave without notice.

Pre-Production Information

Pin-out and mechanical dimension specifications finalized. All values specified are the target values of the design. Minimum and maximum values specified are only given as guidance to the final specification limits and must not be considered as the final values.

All electrical specifications may be changed by HandyWave without notice.

Production Information

Final Data Sheet including the guaranteed minimum and maximum limits for the electrical specifications.

Production Data Sheets supersede all previous document versions.

Life Support Policy and Use in Safety-Critical Applications

HandyWave's products are not authorized for use in life-support or safety-critical applications.

Use in such applications is done at the sole discretion of the customer. HandyWave will not warrant the use of its devices in such applications.

RoHS Compliance

HandyPort devices meet the requirements of Directive 2002/95/EC of the European Parliament and of the Council on the Restriction of Hazardous Substance (RoHS).

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HPS-110, Data Sheet, SYD-2005-1E, Version 1.0, Production Information, 2007. 01. 16.

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1. Introduction

1.1. General Descriptions

The HPS-110 from HandyWave is a ready-to-use short-range wireless connectivity solution for industrial. It provides the most economic and powerful way of cable replacement for the serial communication systems.

1.2. Key Features

- Supports Bluetooth Serial Port Profile and Generic Access Profile
- No need of external host and software
- Easy of installation and use
- Supports configuration of the local device
- Supports configuration of the remote device via Over-the-Air
- Easy of maintenance
- Supports up to 100 meter (Line of Sight)
- Supports RS-232
- Supports Point-to-Point and Point-to-Multipoint Topology

1.3. Key Specifications

- Standard: Bluetooth Specification Version 1.2 and/or above
- Operation Frequency: 2.4GHz ISM Band
- Transmitted Power: Max 20 / Typical 16dBm (Class 1)
- Received Sensitivity: More than -80dBm
- Power Supply: DC +3.3 ~ +16V
- Current Consumption: Up to 200mA at DC 5V
- Operation Temperature: -20 ~ 70 °C
- Dimension (PBA): 52.3mm (W) x 33.03mm (D) x 13.8mm (H)
- Dimension (Enclosure, option): 69mm (W) x 36.5mm (D) x 15.5mm (H)
- Baud Rate: 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, and 115.2Kbps
- Antenna Interface: SMA Female
- Serial Interface: 2.5mm Wire to Board Connector Angle Type 4 Pin Male

1.4. Record of changes

Table 1-1 Record of changes

Revision	Date	Reason for change
1.0	2007. 01. 16	Original publication of Production Information Data Sheet (HandyWave reference SYD-2005-1E)

1.5. Acronyms and Definitions

Table 1-2 Acronyms and Definitions

Acronym	Definition
dBm	Decibels relative to 1mW
DC	Direct Current
HPS	HandyPort-Serial
ISM	Industrial, Scientific and Medical

2. Specifications

2.1. Package Information

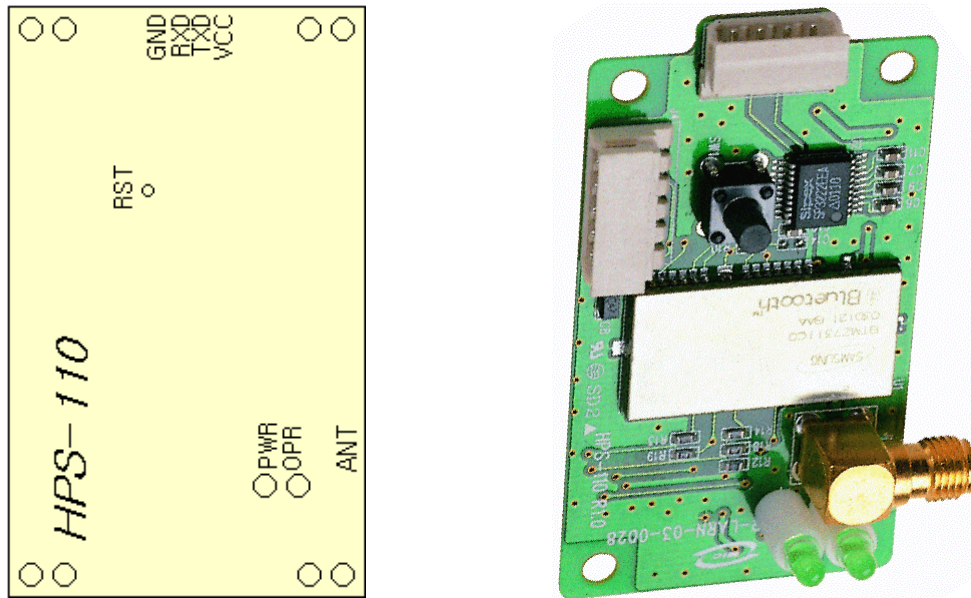


Figure 2-1 Package Information

Table 2-1 Package Information

Serial Interface			
Pin Number	Notation	Direction	Description
1	VCC	Input	Power Supply (DC +3.3V ~ +16V)
2	TxD	Output	RS-232 Transmitted Data
3	RxD	Input	RS-232 Received Data
4	GND	N/A	Signal Ground
Others			
	Notation		Description
	ANT		Antenna Interface (SMA Female)
	OPR		Link Indication LED
	PWR		Power Indication LED
	RST		Reset Button

2.2. Electrical Characteristics

Table 2-2 Electrical Characteristics

Absolute Maximum Ratings		
Rating	Min	Max
Storage Temperature	-40°C	+150°C
Operating Temperature Range	-40°C	+85°C
Supply Voltage: Power	+3.3V	+16V
Recommended Operating Conditions		
Operating Condition	Min	Max
Operating Temperature Range	-20°C	+70°C
Supply Voltage: VCC	+3.3V	+16V

2.3. Serial Interface

Table 2-3 Serial Interface

General	
Manufacturer	Molex
Part Number	22-05-7045 (Old Part Number: 5268-04A) ¹
Orientation	Right Angle
Pitch	2.50mm (2.5mm Wire to Board Connector Angle Type 4 Pin Male)
Electrical	
Max Current	3.0A
Max Voltage	250V
Temperature Range	-40°C ~ +105°C
Physical	
Housing Material	PA Polyamide (Nylon) 6/6, Glass-filled
Flammability	UL 94V-0
Contact	Brass (CuZn)
Plating Contact	Tin (Sn)
Plating Tail	Tin (Sn)
Under Plating	Copper (Cu)

¹ Mates with a part number 50-37-5043 (old part number 5264-04) from molex.

2.4. Radio Characteristics

Table 2-4 Transmitter Performance

Transmitter Performance					
Parameter	Condition	Min	Typ	Max	Unit
Output Power	Normal/Extreme Test	-	18	-	dBm
Power Density	Normal/Extreme Test	-	-	20	dBm
Power Control	Normal/Extreme Test	2dB ≤ Step Size ≥ 8dB			
Frequency Range	Normal/Extreme Test	2400	-	2483.5	MHz
20dB Bandwidth	Normal/Extreme Test	-	850	1000	KHz
Adjacent Characteristics	±2Mz	-	-	-20	dBm
	±3Mz	-	-	-40	dBm
	±4Mz	-	-	-40	dBm
Modulation Characteristics	$\Delta F_{1_{avg}}$	140		175	KHz
	$\Delta F_{2_{max}}$	115			KHz
	$\Delta F_{2_{avg}} / \Delta F_{1_{max}}$			80	%
Initial Carrier Frequency Tolerance		-75		75	KHz
Carrier Frequency Drift	One slot packet (DH1)	-25		25	KHz
	Three slot packet (DH3)	-40		40	KHz
	Five slot packet (DH5)	-40		40	KHz

Table 2-5 Transceiver Performance

Transceiver Performance					
Parameter	Condition	Min	Typ	Max	Unit
Out-of-Band Spurious Emissions	30MHz ~ 1MHz	-	-	-36	dBm
	1GHz ~ 12.75GHz	-	-	-30	dBm
	1.8GHz ~ 5.3GHz	-	-	-47	dBm
	5.1GHz ~ 5.3GHz	-	-	-47	dBm

Table 2-6 Receiver Performance

Receiver Performance					
Parameter	Condition	Min	Typ	Max	Unit
Sensitivity Level	Single slot packets	-	-90	-	dBm
	Multi slot packets	-	-88	-	dBm
C/I Performance	C/I _{co-channel}	-	-	11	dB
	C/I _{1MHz} (Adjacent channel selectivity)	-	-	0	dB
	C/I _{2MHz} (Adjacent channel selectivity)	-	-	-30	dB
	C/I _{≥3MHz} (Adjacent channel selectivity)	-	-	-40	dB
Blocking Performance	30MHz ~ 2000MHz	-10			dBm
	2000MHz ~ 2400MHz	-27			dBm
	2500MHz ~ 3000MHz	-27			dBm
	3000MHz ~ 12.75MHz	-10			dBm
Intermodulation Performance	N=5	-39	-		dBm
Maximum Input Level		-20	-10		dBm

2.5. Package Dimensions

2.5.1. PBA

Unit: mm

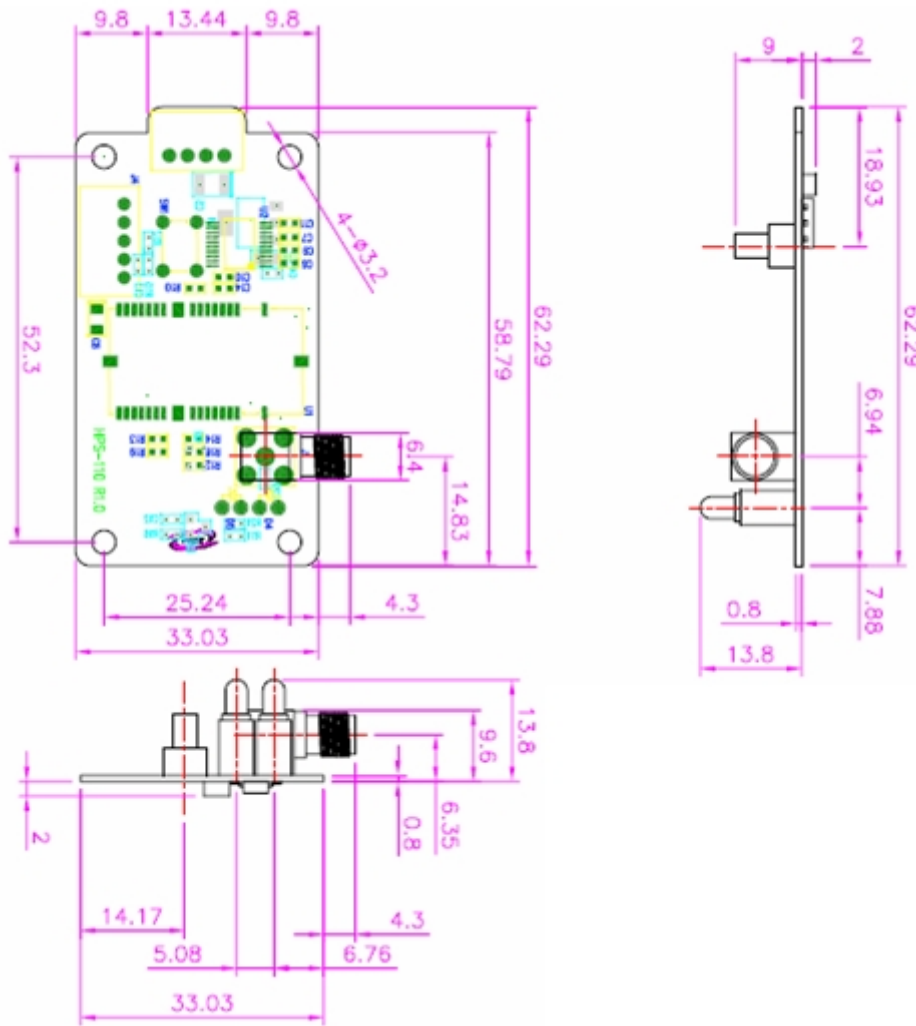


Figure 2-2 Package Dimensions

2.5.2. Enclosure (Optional)

Unit: mm

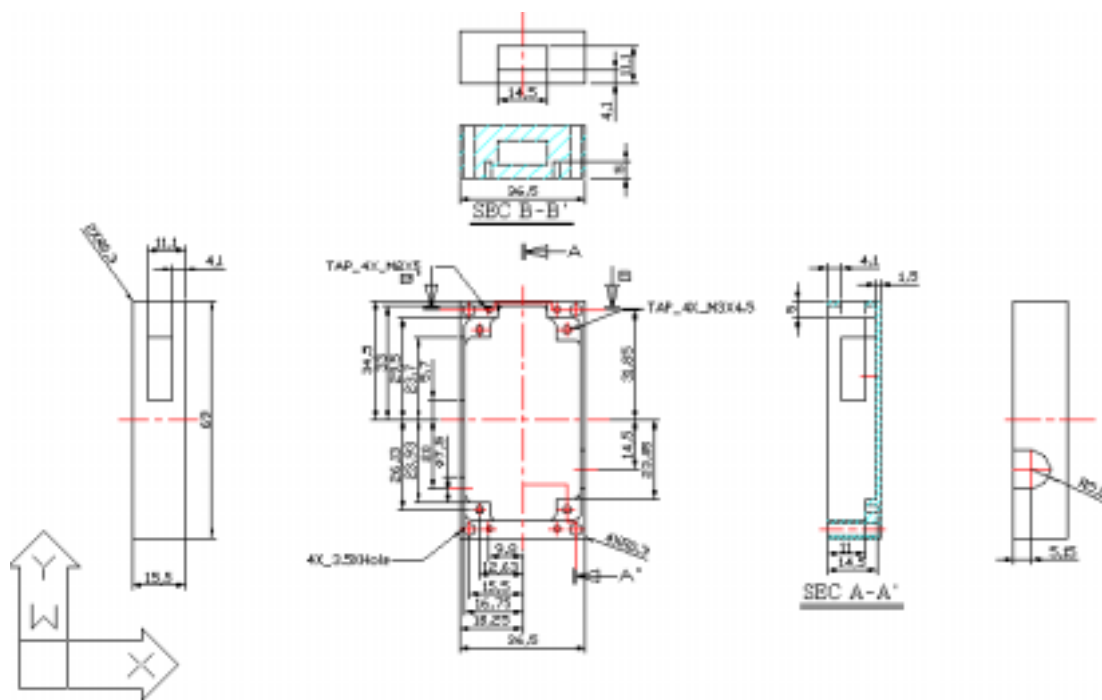


Figure 2-3 Enclosure Dimensions

2.6. Ordering Information

Table 2-7 Ordering Information

Package			Order Number
Items	Size	Shipment Method	
HPS-110	210 x 127 x 24 (mm)	Box	HPS-110
HPS-110 Bulk	N/A	Box	HPS-110B
HPS-110 w/ Enclosure	210 x 127 x 24 (mm)	Box	HPS-110C
HPS-110 Bulk w/ Enclosure	N/A	Box	HPS-110CB

2.7. Contact Information

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